

# EXHIBIT 52

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UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA

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

THURSDAY, SEPTEMBER 21, 2017

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- - -

VIDEOTAPED DEPOSITION of JENNIFER R.  
RIDER, ScD, held at the offices of Cetrulo LLP,  
2 Seaport Lane, Boston, Massachusetts,  
commencing at 9:01, on the above date, before  
Maureen O'Connor Pollard, Registered Merit  
Reporter, Realtime Systems Administrator,  
Certified Shorthand Reporter.

- - -

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deps@golkow.com

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| <p>1 APPEARANCES:</p> <p>2</p> <p>3 THE MILLER FIRM LLC</p> <p>4 BY: MICHAEL J. MILLER, ESQ.</p> <p>5 NANCY GUY MILLER, ESQ.</p> <p>6 JEFFREY TRAVERS, ESQ. (VIA PHONE)</p> <p>7 mmiller@millerlawllc.com</p> <p>8 nmiller@millerlawllc.com</p> <p>9 jtravers@millerlawllc.com</p> <p>10 108 Railroad Avenue</p> <p>11 Orange, Virginia 22960</p> <p>12 540- 672-4224</p> <p>13 Counsel for Plaintiffs</p> <p>14</p> <p>15 HOLLINGSWORTH LLP</p> <p>16 BY: WILLIAM J. COPLE III, ESQ.</p> <p>17 GRANT W. HOLLINGSWORTH, ESQ.</p> <p>18 wcople@hollingsworthllp.com</p> <p>19 ghollingsworth@hollingsworthllp.com</p> <p>20 1350 I Street, N.W.</p> <p>21 Washington, DC 20005</p> <p>22 202-898-5800</p> <p>23 Counsel for Defendant Monsanto</p> <p>24</p> <p>25 ALSO PRESENT:</p> <p>26</p> <p>27 V I D E O G R A P H E R :</p> <p>28 CHRISTOPHER COUGHLIN,</p> <p>29 Golkow Technologies, Inc.</p> <p>30</p> <p>31 ---</p> <p>32</p> <p>33</p> <p>34</p> <p>35</p>   | <p>1</p> <p>2 23-2 Non-Hodgkin Lymphoma and</p> <p>3 Occupational Exposure to</p> <p>4 Agricultural Pesticide Chemical</p> <p>5 Groups and Active Ingredients: A</p> <p>6 Systematic Review and</p> <p>7 Meta-Analysis..... 43</p> <p>8 23-20 IARC Monograph Volume 114 List of</p> <p>9 Participants..... 173</p> <p>10</p> <p>11 23-21 Harvard School of Public Health</p> <p>12 website page of Richard Clapp,</p> <p>13 D.Sc, MPH..... 175</p> <p>14</p> <p>15 23-22 Portier, et al article titled</p> <p>16 Differences in the carcinogenic</p> <p>17 evaluation of glyphosate between</p> <p>18 the IARC and the EFSA..... 176</p> <p>19 23-23 IARC Monograph: 40 Years of</p> <p>20 Evaluating Carcinogenic Hazards to</p> <p>21 Humans..... 184</p> <p>22 23-24 Bolognesi and Holland article</p> <p>23 titled The use of lymphocyte</p> <p>24 cytogenesis-block micronucleus</p> <p>25 assay for monitoring</p> <p>pesticide-exposed populations..... 198</p> <p>23-25 De Roos, et al article, Cancer</p> <p>Incidence among Glyphosate-Exposed</p> <p>Pesticide Applicators in the</p> <p>Agricultural Health Study..... 201</p> <p>23-26 6/23/15, WHO Press Release, IARC</p> <p>Monographs evaluate DDT, lindane,</p> <p>and 2,4-D..... 213</p> <p>23-27 Alavanja, et al article, Increased</p> <p>Cancer Burden Among Pesticide</p> <p>Applicators and Others Due to</p> <p>Pesticide Exposure..... 222</p> <p>23-28 Alavanja, et al paper, Non-Hodgkin</p> <p>Lymphoma Risk and Insecticide,</p> <p>Fungicide and Fumigant Use in the</p> <p>Agricultural Health Study..... 225</p>            |
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1 MR. COPLE: Anyone else?

2 THE VIDEOGRAPHER: The court reporter  
3 is Maureen O'Connor, and she will now swear in  
4 the witness.

5

6 JENNIFER R. RIDER, ScD,  
7 having been first duly identified and sworn, was  
8 examined and testified as follows:  
9 EXAMINATION

10 BY MR. MILLER:  
11 Q. Good morning.  
12 A. Good morning.

13 MR. COPLE: Excuse me for a moment,  
14 Mike. I just have a brief comment for the  
15 record.

16 On behalf of Monsanto, we are  
17 producing Dr. Rider as a general causation  
18 expert pursuant to Pretrial Order No. 7 of the  
19 deposition protocol. Monsanto provisionally  
20 designates as confidential in its entirety the  
21 transcript, videography, and exhibits used in  
22 this deposition.

23 BY MR. MILLER:  
24 Q. How are you doing today?  
25 A. Good. Thank you.

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1 PROCEEDINGS

2

3 THE VIDEOGRAPHER: We are now on the  
4 record. My name is Chris Coughlin. I'm a  
5 videographer for Golkow Technologies. Today's  
6 date is September 21, 2017, and the time is  
7 9:01 a.m.

8 This video deposition is being held in  
9 Boston, Massachusetts, In Re: Roundup Products  
10 Liability Litigation, MDL No. 2741, Case Number  
11 16-md-02741-VC, for the United States District  
12 Court, Northern District of California.

13 The deponent is Dr. Jennifer Rider.  
14 Will counsel please identify  
15 yourselves and state whom you represent.

16 MR. MILLER: Good morning, this is  
17 Michael Miller and Nancy Miller on behalf of  
18 plaintiffs.

19 MR. COPLE: Good morning. This is  
20 William Cople and Grant Hollingsworth, both of  
21 Hollingsworth LLP, for Monsanto.

22 THE VIDEOGRAPHER: The court reporter  
23 is Maureen --

24 MR. TRAVERSE: Jeff Traverse from the  
25 Miller Firm on the phone.

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1 Q. Excellent.  
2 What's your name?

3 A. Jennifer Rider.

4 Q. And Dr. Rider would be appropriate?

5 A. Sure.

6 Q. Okay. And, Dr. Rider, have you been  
7 deposed before?

8 A. Never.

9 Q. Okay. I'm going to ask some  
10 questions. I'm sure these lawyers have had an  
11 opportunity to explain that concept to you.

12 A. Yes.

13 Q. So if at any time you do not  
14 understand my questions, will you let me know?

15 A. Absolutely.

16 Q. Okay. So if you answer, I'll assume  
17 you answered truthfully, fully, and as fair as  
18 you would in front of a jury. Okay?

19 A. Okay.

20 Q. Great.

21 I see your CV, and we'll talk about it  
22 a little bit, but it kind of speaks for itself.  
23 I just want you to know up front, no matter what  
24 anybody said, I'm going to bend over backwards  
25 to be courteous and to be intellectually honest

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|  |   |
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| <p>1 in my questions, and I know you'll do the same</p> <p>2 and try to be intellectually honest in your</p> <p>3 answers, and we'll extend each other that</p> <p>4 courtesy. Okay?</p> <p>5 A. Sounds good.</p> <p>6 Q. Great.</p> <p>7 And you have the same sort of knack I</p> <p>8 do, I like to nod at people, but she can't type</p> <p>9 that down. You have to verbalize an answer.</p> <p>10 A. Okay.</p> <p>11 Q. Okay. Good. All right. As I</p> <p>12 understand, and I got your report that was sent</p> <p>13 on this case, and I assume that you prepared</p> <p>14 this?</p> <p>15 A. I did.</p> <p>16 Q. Okay. And I just want to ask you --</p> <p>17 I'm not going to go through it page-by-page,</p> <p>18 line-by-line or anything, but I did want to ask</p> <p>19 you about this. The scope of the report, and</p> <p>20 I'm going to quote this and see if we can kind</p> <p>21 of do this shorthand, but "Hollingsworth LLP" --</p> <p>22 of course, that's the law firm that represents</p> <p>23 Monsanto. You understand that?</p> <p>24 A. I do.</p> <p>25 Q. Okay.</p>  | <p>1 BY MR. MILLER:</p> <p>2 Q. You can answer.</p> <p>3 A. Okay. So I believe you're referring</p> <p>4 to one of my recent publications.</p> <p>5 Q. I am, ma'am.</p> <p>6 A. "Ejaculation Frequency and Prostate</p> <p>7 Cancer."</p> <p>8 Q. Yes, ma'am.</p> <p>9 A. And could you just restate the actual</p> <p>10 question?</p> <p>11 Q. Sure. I just want to know, it's the</p> <p>12 same question, that is there a body of evidence</p> <p>13 using population-based research and</p> <p>14 epidemiologic methods that demonstrate a</p> <p>15 negative causation between high ejaculators and</p> <p>16 prostate cancer?</p> <p>17 A. So that paper reflects one study on</p> <p>18 that topic, and, you know, while I think it's a</p> <p>19 strong study, I would not determine from that</p> <p>20 single study that ejaculation frequency is a</p> <p>21 causal factor in prostate cancer.</p> <p>22 Q. But you would agree from that one</p> <p>23 study you saw strong evidence of a negative</p> <p>24 causation between high ejaculators and prostate</p> <p>25 cancer; true?</p> |
| Page 11  | Page 13   |
| <p>1 -- "has requested that I evaluate from</p> <p>2 my perspective as an expert in the field of</p> <p>3 cancer epidemiology whether there is a body of</p> <p>4 evidence using population-based research and</p> <p>5 epidemiologic methods that could demonstrate</p> <p>6 that glyphosate is a causal factor in the</p> <p>7 development of non-Hodgkin's lymphoma." That's</p> <p>8 what they asked you to do?</p> <p>9 A. That is correct.</p> <p>10 Q. Yes, ma'am.</p> <p>11 And we're going to go into more detail</p> <p>12 over the next seven hours what your opinions</p> <p>13 are, but generally speaking, your opinion is</p> <p>14 that there is not such a body of evidence; is</p> <p>15 that fair?</p> <p>16 A. I reached the conclusion, as I stated</p> <p>17 in my report, that there is not sufficient</p> <p>18 evidence to determine that glyphosate is a</p> <p>19 causal factor in any child development.</p> <p>20 Q. Yes, ma'am. So let me ask you this.</p> <p>21 Is there a body of evidence that shows</p> <p>22 that men who have high ejaculation rates have a</p> <p>23 lower risk of prostate cancer?</p> <p>24 MR. COPLE: Objection. Foundation,</p> <p>25 vague.</p> | <p>1 MR. COPLE: Objection to form.</p> <p>2 A. We found a strong inverse association</p> <p>3 between frequency of ejaculation and subsequent</p> <p>4 development of prostate cancer.</p> <p>5 BY MR. MILLER:</p> <p>6 Q. And you characterized that as strong</p> <p>7 evidence in your report?</p> <p>8 A. Sir, I don't know what you're</p> <p>9 referring to. Where do I characterize it as</p> <p>10 strong?</p> <p>11 Q. That's fair. I'll show it to you.</p> <p>12 MR. MILLER: Let's mark this as</p> <p>13 Exhibit 1.</p> <p>14 (Whereupon, Rider Exhibit 23-1, Rider,</p> <p>15 et al article, Ejaculation Frequency</p> <p>16 and Risk of Prostate Cancer, was</p> <p>17 marked for identification.)</p> <p>18 BY MR. MILLER:</p> <p>19 Q. And this is 23-1. And here's a copy</p> <p>20 (handing).</p> <p>21 Would you identify what that is,</p> <p>22 ma'am?</p> <p>23 A. This is an article for which I was the</p> <p>24 first author on Ejaculation Frequency and Risk</p> <p>25 of Prostate Cancer in the health professionals</p>   |

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| <p style="text-align: right;">Page 14</p> <p>1 follow-up study cohort.<br/>                 2 Q. Also authored by Lorelei Mucci?<br/>                 3 A. That's correct.<br/>                 4 Q. I didn't mean to interrupt you. I'm<br/>                 5 sorry.<br/>                 6 A. Yes. Dr. Mucci was also a co-author.<br/>                 7 Correct.<br/>                 8 Q. I wanted to make sure I was<br/>                 9 pronouncing that right.<br/>                 10 Let's go, if we can, to the<br/>                 11 Conclusion. And you say in that first sentence<br/>                 12 that the study "provides the strongest evidence<br/>                 13 to date of a beneficial role of ejaculation in<br/>                 14 the prevention of PCa." Right?<br/>                 15 A. That is what it says, yes.<br/>                 16 Q. So in -- so you and I agree that one<br/>                 17 study can provide strong evidence of an<br/>                 18 association between an event and exposure and a<br/>                 19 cause; right?<br/>                 20 MR. COPLE: Objection to form. Vague.<br/>                 21 A. It really depends on the quality of<br/>                 22 the study.<br/>                 23 BY MR. MILLER:<br/>                 24 Q. I understand that. But one study, if<br/>                 25 it's of good quality, can; right?</p>   | <p style="text-align: right;">Page 16</p> <p>1 question.<br/>                 2 BY MR. MILLER:<br/>                 3 Q. Well, I think you said that the<br/>                 4 Bradford-Hill criteria was not the be-all<br/>                 5 end-all of causation, and I guess my question<br/>                 6 is, what is the be-all end-all -- I mean, in<br/>                 7 science is anything the be-all end-all?<br/>                 8 MR. COPLE: Objection. Vague.<br/>                 9 A. So I can speak for epidemiologic<br/>                 10 research, and there, before one would even go<br/>                 11 down the road of evaluating the Bradford-Hill<br/>                 12 criteria, you would first want to be certain<br/>                 13 that all of the studies that had been conducted<br/>                 14 and that you were attempting to synthesize had a<br/>                 15 reasonable degree of internal validity. So in<br/>                 16 many cases we wouldn't even get to the point<br/>                 17 where the Bradford-Hill criteria were useful.<br/>                 18 BY MR. MILLER:<br/>                 19 Q. And in this case you decided to not<br/>                 20 implement the Bradford-Hill criteria because you<br/>                 21 felt there were internal problems with these<br/>                 22 studies; fair?<br/>                 23 MR. COPLE: Objection to form.<br/>                 24 A. Particularly in the case control<br/>                 25 studies, I thought that the limitations of those</p>         |
| <p style="text-align: right;">Page 15</p> <p>1 A. As I said before, even though I think<br/>                 2 that the study we conducted here was a very<br/>                 3 strong study, I would not make the leap that our<br/>                 4 findings are indicative of causation. I do<br/>                 5 believe it provides strong evidence of the<br/>                 6 association.<br/>                 7 Q. Sure. It would be irresponsible for<br/>                 8 any epidemiologist to make the leap for<br/>                 9 causation without using the Bradford-Hill<br/>                 10 criteria; right?<br/>                 11 MR. COPLE: Objection, vague.<br/>                 12 Objection to form.<br/>                 13 A. I think the Bradford-Hill criteria<br/>                 14 provide one means by which to synthesize<br/>                 15 evidence, but it certainly isn't the be-all and<br/>                 16 end-all of determining causation, no.<br/>                 17 BY MR. MILLER:<br/>                 18 Q. Well, I guess in science is anything<br/>                 19 the be-all and end-all of anything really, I<br/>                 20 mean, honestly?<br/>                 21 MR. COPLE: Objection. Argumentative.<br/>                 22 BY MR. MILLER:<br/>                 23 Q. I'm just asking.<br/>                 24 MR. COPLE: Same objection.<br/>                 25 A. Sorry, I don't understand your</p> | <p style="text-align: right;">Page 17</p> <p>1 studies were sufficient enough where, you know,<br/>                 2 trying to synthesize them with the Bradford-Hill<br/>                 3 criteria was not a useful exercise.<br/>                 4 BY MR. MILLER:<br/>                 5 Q. Yes, ma'am.<br/>                 6 So let's go back to your study of<br/>                 7 ejaculation frequency that showed strong<br/>                 8 evidence of association. It -- your findings<br/>                 9 did not have statistical significance; right?<br/>                 10 A. That's incorrect.<br/>                 11 Q. Explain to me, you're the<br/>                 12 epidemiologist, why is that incorrect?<br/>                 13 A. If you look at -- there are a number<br/>                 14 of statistically significant results in this<br/>                 15 paper. Perhaps the main finding we could look<br/>                 16 at, let's say, in Table 2.<br/>                 17 Q. Give me one second. I'm at Figure 1.<br/>                 18 Okay. I'm at Table 2. Yes, ma'am.<br/>                 19 A. Okay. So we can look really at any of<br/>                 20 the results in this table. We can look, say, at<br/>                 21 the p for -- trend for men, frequency of<br/>                 22 ejaculation during ages 20 to 29 years or 40 to<br/>                 23 49 years or in the year before the<br/>                 24 questionnaire, and both the age-adjusted hazard<br/>                 25 ratios and the multivariate adjusted hazard</p> |

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| <p>1 ratios are statistically significant.</p> <p>2 Q. You're one of the few people that</p> <p>3 actually talk faster than me. So you're going</p> <p>4 to have to slow down a little bit or she's going</p> <p>5 to get exhausted.</p> <p>6 A. Sorry.</p> <p>7 Q. So you pointed out, and probably very</p> <p>8 correctly, that in Table 2 there are some</p> <p>9 statistically significant findings.</p> <p>10 A. That is correct.</p> <p>11 Q. Yes, ma'am.</p> <p>12 And what do we mean by "statistically</p> <p>13 significant findings"? How would you explain</p> <p>14 that to a jury?</p> <p>15 MR. COPLE: Objection. Vague.</p> <p>16 A. So I can tell you what we meant by</p> <p>17 them in this particular paper. So let's take</p> <p>18 the example of the multivariate adjusted hazard</p> <p>19 ratio for frequency at ages 40 to 49. Here the</p> <p>20 test that we're performing is looking at a trend</p> <p>21 across those categories of ejaculation, and we</p> <p>22 find that compared to men with a frequency of 4</p> <p>23 to 7 ejaculations per month, men in the -- as</p> <p>24 the categories of ejaculation increase, the</p> <p>25 hazard ratio for prostate cancer decreases in a</p> | <p>1 results, information that isn't necessarily</p> <p>2 captured all the time in the p-value.</p> <p>3 Q. Are there other causes for reduced</p> <p>4 risk of prostate cancer --</p> <p>5 MR. COPLE: Objection.</p> <p>6 BY MR. MILLER:</p> <p>7 Q. -- other than high ejaculation?</p> <p>8 MR. COPLE: Objection to form. Vague.</p> <p>9 A. So, I mean, part of the reason why</p> <p>10 these results are interesting is we actually</p> <p>11 know very little about risk factors. For</p> <p>12 prostate cancer, I think most experts would</p> <p>13 agree that the established risk factors for</p> <p>14 prostate cancer are race, age, family history,</p> <p>15 and there have been a number of genetic</p> <p>16 determinants of prostate cancer. But yes, we --</p> <p>17 it's a disease for which we know relatively</p> <p>18 little about the risk factors.</p> <p>19 BY MR. MILLER:</p> <p>20 Q. How would you account for those risk</p> <p>21 factors -- how did you account for those risk</p> <p>22 factors when you did your ejaculation frequency</p> <p>23 study?</p> <p>24 A. So because this is a very large study,</p> <p>25 so, you know, close to 32,000 men answered the</p>   |
| Page 19  | Page 21   |
| <p>1 monotonic way, so that we get a p-value of less</p> <p>2 than .0001, and that is consistent with saying</p> <p>3 that, you know, the probability of observing</p> <p>4 that result under the null hypothesis would</p> <p>5 be -- that result or a result more extreme would</p> <p>6 be less than .0001.</p> <p>7 Q. Which makes it a statistically</p> <p>8 significant finding?</p> <p>9 A. That is correct.</p> <p>10 Q. Which means it's unlikely to be by</p> <p>11 chance?</p> <p>12 A. The purpose of hypothesis testing and</p> <p>13 of estimating p-values is to be able to evaluate</p> <p>14 the role of chance.</p> <p>15 Q. And by having the statistically</p> <p>16 significant result, we reduce the possibility of</p> <p>17 chance low enough to where we call it</p> <p>18 statistically significant?</p> <p>19 A. So, again, you know, I think, as I</p> <p>20 said, the p-value is one way in which we</p> <p>21 evaluate the role of chance in our findings.</p> <p>22 But, you know, I think it's important to point</p> <p>23 out that, you know, the confidence intervals</p> <p>24 here are also giving us really important</p> <p>25 information about the precision of those</p>          | <p>1 questions on ejaculation frequency, and we had</p> <p>2 nearly 4,000 prostate cancer cases that were</p> <p>3 included, we were able to control for a number</p> <p>4 of different variables in our multivariable</p> <p>5 analysis.</p> <p>6 So you can see in the footnote of</p> <p>7 Table 2 all of the variables that were</p> <p>8 controlled for in that analysis. Those were</p> <p>9 selected because they have either been</p> <p>10 associated with prostate cancer in other</p> <p>11 studies, or were specifically associated with</p> <p>12 prostate cancer in this particular cohort.</p> <p>13 Q. And this article that we are</p> <p>14 discussing, it was published in a peer-reviewed</p> <p>15 journal?</p> <p>16 A. That is correct, European Urology.</p> <p>17 Q. And what do we mean when we say</p> <p>18 "peer-reviewed journal"?</p> <p>19 A. Well, I think what you mean is a</p> <p>20 journal that subscribes to a peer review process</p> <p>21 by which the -- a publication that's being -- a</p> <p>22 manuscript that's being considered for</p> <p>23 publication would be sent out to one or more</p> <p>24 scientists, peer reviewers, to evaluate that</p> <p>25 publication so that the journal can decide</p> |

6 (Pages 18 to 21)



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| Page 22 | <p>1 whether to accept, reject, or invite the authors</p> <p>2 to respond to comments.</p> <p>3 Q. Would it be fair to say that</p> <p>4 scientists look more seriously on peer-reviewed</p> <p>5 journals than non-peer-reviewed journals?</p> <p>6 MR. COPLE: Objection. Vague.</p> <p>7 A. I couldn't -- I couldn't speak for</p> <p>8 scientists, generally, and certainly not people</p> <p>9 outside of my own field.</p> <p>10 BY MR. MILLER:</p> <p>11 Q. All right. Well, let's narrow it.</p> <p>12 Do you, Dr. Rider, do you put more</p> <p>13 weight or importance in peer-reviewed journals</p> <p>14 over a non-peer-reviewed journal?</p> <p>15 A. I think, you know, most of my -- all</p> <p>16 of my original scientific articles have been</p> <p>17 published in journals that have some form</p> <p>18 of peer review. I think those journals are more</p> <p>19 commonplace in my field.</p> <p>20 Q. Are you a peer reviewer?</p> <p>21 A. I am.</p> <p>22 Q. And when you peer review, you look at</p> <p>23 it and scrutinize it to make sure the article is</p> <p>24 worthy of being published; fair?</p> <p>25 A. I don't really see that as my role. I</p>  | Page 24 | <p>1 Q. And how many people would review a</p> <p>2 typical article before it would be put in the</p> <p>3 European Association of Urology?</p> <p>4 A. In the European Urology journal, it</p> <p>5 varies. So from my experience in being a peer</p> <p>6 reviewer, sometimes I am one of two peer</p> <p>7 reviewers reviewing an article. Other times I</p> <p>8 have had papers that have been reviewed by six</p> <p>9 reviewers. It varies from situation to</p> <p>10 situation.</p> <p>11 Q. Yes, ma'am.</p> <p>12 The more important the article,</p> <p>13 perhaps the more reviewers?</p> <p>14 MR. COPLE: Objection, vague.</p> <p>15 Objection to form.</p> <p>16 A. Yeah, I'm -- I am unaware that that's</p> <p>17 how it happens. I think it has a lot to do with</p> <p>18 how many reviewers agree to review the article.</p> <p>19 BY MR. MILLER:</p> <p>20 Q. Fair enough.</p> <p>21 And the reviewers are contacted and</p> <p>22 selected by the editors of the article?</p> <p>23 A. So, again, I can speak to the process</p> <p>24 for this particular journal. There is an</p> <p>25 associate editor who is assigned an article to</p>                  |
| Page 23 | <p>1 think that I review the paper to, you know,</p> <p>2 certainly determine whether I agree with the</p> <p>3 methods that were used in the paper. But most</p> <p>4 of the time the comments that I provide are a</p> <p>5 peer -- as a peer reviewer deal with sort of the</p> <p>6 clarity of the data presentation or the author's</p> <p>7 interpretations of the findings based on sort of</p> <p>8 the quality of the study.</p> <p>9 Q. And as a peer reviewer, oftentimes</p> <p>10 you'll -- so to be clear, the authors that want</p> <p>11 to get the article published, they don't know</p> <p>12 who the peer reviewers are? That's a blind</p> <p>13 process; is that fair?</p> <p>14 MR. COPLE: Objection to form. Vague.</p> <p>15 A. It really depends on journal to</p> <p>16 journal. So more and more journals are actually</p> <p>17 having an open peer review process where you do</p> <p>18 sign your name as a reviewer.</p> <p>19 BY MR. MILLER:</p> <p>20 Q. Was this article on ejaculation</p> <p>21 frequency, was that under an open review process</p> <p>22 or a blind review process?</p> <p>23 A. I can -- I review articles frequently</p> <p>24 for this journal. So I know that for this one</p> <p>25 it is a blind review process.</p> | Page 25 | <p>1 be sent out for peer review. The associate</p> <p>2 editor would then contact potential peer</p> <p>3 reviewers and invite them to review the</p> <p>4 manuscript.</p> <p>5 Q. And it's your understanding, certainly</p> <p>6 with this journal, that the reviewers then can</p> <p>7 make comments, and they can either recommend the</p> <p>8 journal publish the article or not; is that</p> <p>9 fair?</p> <p>10 MR. COPLE: Objection to form.</p> <p>11 A. So, again, for this particular</p> <p>12 journal, and it does vary from journal to</p> <p>13 journal, but this particular journal does allow</p> <p>14 the reviewers to weigh in on whether or not the</p> <p>15 article should be accepted, rejected, whether</p> <p>16 there should be a major revision or a minor</p> <p>17 revision. But it is up to the associate editor</p> <p>18 to ultimately make that decision. The AE</p> <p>19 doesn't need to take into account the reviewer's</p> <p>20 recommendation.</p> <p>21 BY MR. MILLER:</p> <p>22 Q. Yes, ma'am.</p> <p>23 And so articles can be revised on the</p> <p>24 recommendation of reviewers and editors. That</p> <p>25 happens; right?</p> |



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|---|--|
| <p>1 MR. COPLE: Objection. Vague.</p> <p>2 A. It is common for an article that's</p> <p>3 been reviewed to go back to the authors for</p> <p>4 revisions, yeah, that is common.</p> <p>5 BY MR. MILLER:</p> <p>6 Q. And with most journals, the lead</p> <p>7 author is the first author that is mentioned on</p> <p>8 the article; is that true?</p> <p>9 MR. COPLE: Objection. Vague, lacks</p> <p>10 foundation.</p> <p>11 A. So in this case I was the first</p> <p>12 article because I drafted the manuscript, but I</p> <p>13 think the order of authors and how that's</p> <p>14 decided probably varies a lot from group to</p> <p>15 group, and certainly across disciplines.</p> <p>16 BY MR. MILLER:</p> <p>17 Q. Would it be fair to say on this</p> <p>18 article you would be the lead author?</p> <p>19 A. I am the first author on this</p> <p>20 publication. I don't really know what you mean</p> <p>21 by "the lead author."</p> <p>22 Q. You don't use the phrase "lead</p> <p>23 author"?</p> <p>24 A. Well, I don't -- to me, someone is a</p> <p>25 first author or a co-author or a last author.</p>          | <p>1 objection to that, no.</p> <p>2 Q. What's a forest plot?</p> <p>3 A. So when I think of a forest plot, I</p> <p>4 think of a plot that is used to visually depict</p> <p>5 the results of different studies, the point</p> <p>6 estimates, along with their confidence</p> <p>7 intervals.</p> <p>8 Q. Do you use forest plots in the</p> <p>9 practice of epidemiology?</p> <p>10 A. I have never used a forest plot in my</p> <p>11 own work, no.</p> <p>12 Q. And speaking of your own work, it's</p> <p>13 fair to say it's primarily cancer, and it's</p> <p>14 primarily the cancer in the context of urology;</p> <p>15 is that fair?</p> <p>16 A. I would describe myself as a cancer</p> <p>17 epidemiologist. Most of my own research has</p> <p>18 been in the area of prostate cancer.</p> <p>19 Q. Would it be fair to say you've done</p> <p>20 any or one article on non-Hodgkin's lymphoma</p> <p>21 cancer?</p> <p>22 A. I have one published study on</p> <p>23 Hodgkin's lymphoma that's listed on my CV. I</p> <p>24 have no publications related to non-Hodgkin's</p> <p>25 lymphoma. But, again, that reflects my own sort</p>        |
| Page 27   | Page 29  |
| <p>1 Those are the sort of positions of authorship</p> <p>2 that I would use.</p> <p>3 Q. Okay. Was this article rejected or</p> <p>4 requested to be revised?</p> <p>5 A. It went through a couple of rounds of</p> <p>6 revisions, yes.</p> <p>7 Q. And when you put the phrase in your</p> <p>8 conclusion that this study was strong evidence,</p> <p>9 we looked at earlier, it's the first sentence of</p> <p>10 your conclusion, did anyone object to you</p> <p>11 calling this strong evidence?</p> <p>12 MR. COPLE: Objection. Vague.</p> <p>13 BY MR. MILLER:</p> <p>14 Q. Any of the reviewers?</p> <p>15 A. So --</p> <p>16 MR. COPLE: Objection. Vague.</p> <p>17 A. -- to be clear, what it says in the</p> <p>18 conclusions is "provides the strongest evidence</p> <p>19 to date." And I really don't recall whether</p> <p>20 anyone commented on that, but I don't think so.</p> <p>21 BY MR. MILLER:</p> <p>22 Q. Did any of your co-authors object to</p> <p>23 you using that sentence, "strong evidence to</p> <p>24 date," when you did the draft manuscript?</p> <p>25 A. I don't recall anyone having an</p> | <p>1 of research interest and not, you know, what I</p> <p>2 feel qualified to evaluate as a cancer</p> <p>3 epidemiologist.</p> <p>4 Q. Are you currently working on any</p> <p>5 non-Hodgkin's lymphoma research?</p> <p>6 MR. COPLE: Objection. Vague.</p> <p>7 A. No, I'm not.</p> <p>8 BY MR. MILLER:</p> <p>9 Q. Okay. Now, you and I were discussing</p> <p>10 Bradford-Hill earlier, and I think you said</p> <p>11 something generally to the effect -- I'm not</p> <p>12 trying to quote you -- it's not the end-all</p> <p>13 be-all.</p> <p>14 But here's my question now. It is an</p> <p>15 accepted methodology in epidemiology to</p> <p>16 determine causality; true?</p> <p>17 MR. COPLE: Objection to form. Lacks</p> <p>18 foundation.</p> <p>19 A. So it's interesting, actually, what I</p> <p>20 teach my students is that there's actually only</p> <p>21 one Bradford-Hill criterion that's actually</p> <p>22 required for causality. That would be</p> <p>23 temporality. So certainly temporality is a very</p> <p>24 important criterion and one that I would require</p> <p>25 be satisfied before I, you know, made the claim</p> |

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1 that an exposure was a causal factor in the  
 2 disease. But in terms of all of the other  
 3 factors, they are -- they're not required  
 4 for causality.  
 5 BY MR. MILLER:  
 6 Q. Yes, ma'am.  
 7 And so you do teach epidemiology to  
 8 medical students?  
 9 A. Primarily to students who -- graduate  
 10 students in public health in epidemiology.  
 11 Q. Which is the track to become an  
 12 epidemiologist?  
 13 A. Many students are getting their  
 14 master's in public health. They can go on to do  
 15 a variety of things in the public health field,  
 16 not just epidemiology.  
 17 Q. And you teach them in that class about  
 18 the Bradford-Hill criteria?  
 19 A. I have mentioned the Bradford-Hill  
 20 criteria both in methods courses of  
 21 epidemiology, and also in my work in teaching  
 22 cancer epidemiology.  
 23 Q. Yes.  
 24 Do you have the students use a  
 25 textbook in that class?

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1 A. For which class?  
 2 Q. For either -- or any of these classes  
 3 that you're referring to.  
 4 A. The last time I taught an epi methods  
 5 class there was, I believe, a recommended but  
 6 not required textbook by Kenneth Rothman.  
 7 Q. And what year was that? Was that this  
 8 last semester or --  
 9 A. The -- it would have been last fall.  
 10 So a year ago now was the last time I taught  
 11 that course.  
 12 Q. What is your definition of causation?  
 13 MR. COPLE: Objection, vague. Also  
 14 objection to the extent it calls for a legal  
 15 opinion.  
 16 A. So as an epidemiologist, I think it's  
 17 most convenient to think of causality in terms  
 18 of the counterfactual. So you have a person who  
 19 is exposed to something. If you were to keep  
 20 everything the same about that person's  
 21 experience except for remove exposure, would the  
 22 person have the same -- would the same outcome  
 23 occur.  
 24 So, you know, we talk about this in  
 25 classes as, you know, putting people in time

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1 machines. If we could put someone in a time  
 2 machine, keep everything the same except remove  
 3 exposure, would that person still have the same  
 4 outcome.  
 5 BY MR. MILLER:  
 6 Q. If I was in one of your classes and I  
 7 said, "Dr. Rider, can there be more than one  
 8 cause of a condition," what would the answer be?  
 9 MR. COPLE: Objection. Vague,  
 10 incomplete hypothetical.  
 11 A. So in terms of cancer epidemiology, I  
 12 think we have established that many cancers have  
 13 many different causes.  
 14 BY MR. MILLER:  
 15 Q. And although you don't hold yourself  
 16 out as an expert in non-Hodgkin's lymphoma  
 17 personally, there's no reason to believe that  
 18 doesn't apply to that type of cancer as well;  
 19 true?  
 20 MR. COPLE: Objection to the form of  
 21 the question.  
 22 A. So I'm a cancer epidemiologist and --  
 23 BY MR. MILLER:  
 24 Q. Yes, ma'am, I'm not challenging that.  
 25 A. Yes. And I would say that, you know,

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1 we know very little about -- we have very few  
 2 established risk factors for NHL. And so, you  
 3 know, it would certainly be possible that the  
 4 unknown causes, which I think, you know, are --  
 5 have estimated to be somewhere in the area of  
 6 50 percent of NHL is -- you know, has an unknown  
 7 cause, that there could be several different  
 8 exposures that are related to the development of  
 9 those cancers.  
 10 Q. Dr. Rider, does smoking cause lung  
 11 cancer?  
 12 MR. COPLE: Objection. Vague.  
 13 A. I believe we have established, yes,  
 14 that smoking is a causal factor in lung cancer  
 15 development.  
 16 BY MR. MILLER:  
 17 Q. And we use epidemiology in part to do  
 18 that?  
 19 A. I think the epidemiology studies  
 20 were critical in determining that smoking was a  
 21 causal factor in lung cancer.  
 22 Q. And fair to say we use the  
 23 Bradford-Hill criteria in that regard as well?  
 24 MR. COPLE: Objection. Lacks  
 25 foundation, vague.

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| <p>1 A. I have no idea how the Bradford-Hill<br/>2 criteria factored into determining causation<br/>3 in smoking and lung cancer, but that is a<br/>4 disease for which, when we did the epidemiologic<br/>5 studies, we were seeing adjusted relative risks,<br/>6 you know, on the order of 20. So very, very<br/>7 strong associations between the exposure and the<br/>8 outcome.<br/>9 BY MR. MILLER:<br/>10 Q. You certainly don't think that one has<br/>11 to have odds ratios of 20 in order to find<br/>12 causality, do you?<br/>13 MR. COPLÉ: Objection to the form of<br/>14 the question. Vague.<br/>15 A. So I think that when we're talking<br/>16 about risk factors that have only, you know,<br/>17 very modest associations with the outcome, it<br/>18 becomes much harder to ensure that the<br/>19 association that we're seeing is actually a<br/>20 causal association.<br/>21 So going back to the lung cancer<br/>22 example, when you see a relative risk on the<br/>23 order of 20, it's very difficult to come up with<br/>24 a potential confounding factor that could<br/>25 explain all of that association that we see,</p> | <p>1 A. So we found about a 20 percent<br/>2 decrease in risk comparing the highest category<br/>3 of ejaculation frequency to four to seven times<br/>4 per month.<br/>5 Q. Yes, ma'am.<br/>6 And you felt that was important enough<br/>7 to be put in the medical literature; true?<br/>8 MR. COPLÉ: Objection. Vague.<br/>9 A. I certainly felt that it was important<br/>10 to publish the study, because it tells us<br/>11 something potentially about the etiology of<br/>12 prostate cancer. But nowhere in this article<br/>13 will you find me suggesting that we should make<br/>14 public health recommendations based on the<br/>15 results.<br/>16 BY MR. MILLER:<br/>17 Q. And the publisher of the articles felt<br/>18 it was important enough to publish it; true?<br/>19 MR. COPLÉ: Objection. Lacks<br/>20 foundation.<br/>21 A. I think science advances because<br/>22 articles are published, the scientific community<br/>23 gets an opportunity to discuss those results to<br/>24 formulate additional studies that can follow up<br/>25 on those results. But, you know, the reason for</p> |
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| <p>1 because that factor would have to be incredibly<br/>2 tightly related to the exposure and also a very,<br/>3 very strong risk factor for the outcome. But<br/>4 when you're looking at a relative risk of, you<br/>5 know, 1.2, even a relatively weak confounder<br/>6 could be responsible for that entire association<br/>7 we see.<br/>8 So, no, while theoretically it's<br/>9 possible to find causes of the outcome that are<br/>10 small, it's very difficult to do that in an<br/>11 epidemiologic study.<br/>12 BY MR. MILLER:<br/>13 Q. Sure.<br/>14 But when there are associations of<br/>15 20 percent, public policy decisions are often<br/>16 made on those associations, aren't they?<br/>17 MR. COPLÉ: Objection. Lacks<br/>18 foundation, vague.<br/>19 A. Yeah, I have no idea. I would need a<br/>20 specific example.<br/>21 BY MR. MILLER:<br/>22 Q. Well, let's use yours. Exhibit 1,<br/>23 your ejaculation frequency, what's the<br/>24 percentage of reduced risk of prostate cancer<br/>25 from your study?</p>  | <p>1 publishing an article is not because you've<br/>2 established causation.<br/>3 BY MR. MILLER:<br/>4 Q. Nor did I suggest that.<br/>5 You did say in your article that<br/>6 you've established strong evidence of a --<br/>7 A. Sorry.<br/>8 Q. Strong evidence to date of a<br/>9 beneficial role of ejaculation to prevent<br/>10 prostate cancer; right?<br/>11 MR. COPLÉ: Objection. Asked and<br/>12 answered.<br/>13 A. It says in the conclusions that this<br/>14 study "provides the strongest evidence to date<br/>15 of a beneficial role of ejaculation in<br/>16 prevention of prostate cancer."<br/>17 BY MR. MILLER:<br/>18 Q. Sure.<br/>19 And you know that articles like this<br/>20 are read by urologists who actually see and<br/>21 treat patients in an office setting; true?<br/>22 A. Yes, I imagine the primary audience<br/>23 for this particular journal is -- are<br/>24 urologists.<br/>25 Q. Sure.</p>   |

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| <p>1 So it would -- you would not be</p> <p>2 surprised to learn that urologists are making</p> <p>3 decisions with real patients based upon these</p> <p>4 kinds of articles that they read from experts in</p> <p>5 the field; right?</p> <p>6 MR. COPLE: Objection, vague. Object</p> <p>7 to the form of the question.</p> <p>8 BY MR. MILLER:</p> <p>9 Q. You can answer.</p> <p>10 A. I think that urologists are interested</p> <p>11 in research surrounding prostate cancer, even</p> <p>12 when the point of that research isn't to make</p> <p>13 public health or clinical recommendations. So,</p> <p>14 you know, nowhere in this article did we</p> <p>15 instruct the clinical community to advise their</p> <p>16 patients to change their behavior based on our</p> <p>17 results.</p> <p>18 Q. What is the level of certainty that an</p> <p>19 expert needs before they can say there is</p> <p>20 causation?</p> <p>21 MR. COPLE: Objection. Vague.</p> <p>22 A. It varies very much from situation to</p> <p>23 situation.</p> <p>24 BY MR. MILLER:</p> <p>25 Q. How many epidemiological studies were</p> | <p>1 Q. As we sit here today, we can both</p> <p>2 agree, I think, that there have been people out</p> <p>3 there who have gotten oropharyngeal cancer as a</p> <p>4 result of smoking; true?</p> <p>5 MR. COPLE: Objection. Lacks</p> <p>6 foundation, vague, form of the question.</p> <p>7 A. Again, I would say that oropharyngeal</p> <p>8 cancer, one risk factor for that cancer is</p> <p>9 smoking. But we can never know on an individual</p> <p>10 level, of course, what caused someone's cancer.</p> <p>11 BY MR. MILLER:</p> <p>12 Q. So we never know what causes someone's</p> <p>13 cancer?</p> <p>14 A. Not an individual, I'm afraid, no,</p> <p>15 because we don't have the time machine.</p> <p>16 Q. Very good. All right.</p> <p>17 Is Roundup a risk factor for</p> <p>18 non-Hodgkin's lymphoma?</p> <p>19 MR. COPLE: Objection. Vague.</p> <p>20 A. In my review of the epidemiologic</p> <p>21 literature, I would say there is no evidence</p> <p>22 that Roundup is a risk factor for NHL.</p> <p>23 BY MR. MILLER:</p> <p>24 Q. And in your review of the literature,</p> <p>25 did you review the IARC report on the issue?</p> |
| Page 39  | Page 41   |
| <p>1 available to scientists before they concluded</p> <p>2 smoking causes lung cancer?</p> <p>3 MR. COPLE: Objection. Lacks</p> <p>4 foundation.</p> <p>5 A. I don't recall. It's been a long time</p> <p>6 since I've reviewed all of the specific studies.</p> <p>7 BY MR. MILLER:</p> <p>8 Q. Sure.</p> <p>9 Does smoking cause oral cancers?</p> <p>10 MR. COPLE: Objection. Vague.</p> <p>11 A. So smoking is a risk factor for</p> <p>12 oropharyngeal cancers, say.</p> <p>13 BY MR. MILLER:</p> <p>14 Q. When we say "risk factor for</p> <p>15 oropharyngeal cancer," if a student were to</p> <p>16 raise their hand and say, Dr. Rider, my uncle</p> <p>17 smokes tobacco, is he at increased risk of</p> <p>18 oropharyngeal cancer, what would the answer be?</p> <p>19 MR. COPLE: Objection. Vague,</p> <p>20 incomplete hypothetical.</p> <p>21 BY MR. MILLER:</p> <p>22 Q. You can answer.</p> <p>23 A. So I would say that smoking is one</p> <p>24 established risk factor for oropharyngeal</p> <p>25 cancer.</p>  | <p>1 A. I did read through the IARC report,</p> <p>2 yes.</p> <p>3 Q. You said you read through it. Did you</p> <p>4 read the whole thing?</p> <p>5 A. I definitely skimmed over the entire</p> <p>6 thing, but the IARC report wasn't critical to me</p> <p>7 coming to my own independent expert opinion</p> <p>8 because I thought it was important to go back to</p> <p>9 the primary studies.</p> <p>10 MR. MILLER: Take a break and walk my</p> <p>11 knee like we talked about. I appreciate your</p> <p>12 indulgence.</p> <p>13 THE VIDEOGRAPHER: Going off the</p> <p>14 record. The time is 9:37.</p> <p>15 (Whereupon, a recess was taken.)</p> <p>16 THE VIDEOGRAPHER: Back on the record.</p> <p>17 The time is 9:41.</p> <p>18 MR. COPLE: Confirm who is on the line</p> <p>19 again, Mike. We're on the record.</p> <p>20 MR. MILLER: We're back on the record,</p> <p>21 and it's just Mr. Traverse on the phone, right?</p> <p>22 All right. Hearing no one argue with me, I</p> <p>23 assume it's just Mr. Traverse on the phone.</p> <p>24 MR. COPLE: Mr. Traverse, are you</p> <p>25 still with us now?</p>                                |

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| Page 42  | Page 44   |
| <p>1 MR. TRAVERSE: Yes. I'll be on the<br/>2 whole time.<br/>3 BY MR. MILLER:<br/>4 Q. Dr. Rider, let's get back to work.<br/>5 Do any other pesticides cause<br/>6 non-Hodgkin's lymphoma?<br/>7 MR. COPLE: Objection. Vague.<br/>8 BY MR. MILLER:<br/>9 Q. Or herbicides?<br/>10 MR. COPLE: Objection. Vague.<br/>11 A. I have not reviewed all of the<br/>12 evidence for all other pesticides.<br/>13 BY MR. MILLER:<br/>14 Q. So it's fair to say, as we sit here<br/>15 today, you do not hold an opinion to a<br/>16 reasonable degree of scientific certainty that<br/>17 other herbicides or pesticides, other than<br/>18 glyphosate, cause non-Hodgkin's lymphoma; true?<br/>19 MR. COPLE: Objection. Argumentative.<br/>20 A. My role was to evaluate all of the<br/>21 epidemiologic studies on glyphosate and NHL, so<br/>22 that's what I have reviewed.<br/>23 BY MR. MILLER:<br/>24 Q. Yes, ma'am.<br/>25 Is there a difference between a human</p> | <p>1 A. I did read it, yes, but I did not rely<br/>2 on any other meta-analysis in coming up with my<br/>3 own expert opinion.<br/>4 Q. So you did not rely upon the Chang<br/>5 meta-analysis; is that right? I just want to<br/>6 make sure.<br/>7 A. That is correct. I thought it was<br/>8 important to evaluate all of the primary<br/>9 studies, so that's how I approached my own<br/>10 review of the literature.<br/>11 Q. Do you know Dr. Chang?<br/>12 A. We both are graduates of the Harvard<br/>13 School of Public Health. We may or may not have<br/>14 overlapped for a year. So I certainly know of<br/>15 her, but we don't know each other well.<br/>16 Q. Are you Facebook friends?<br/>17 A. No, we are not Facebook friends.<br/>18 Q. That's the rage these days, isn't it?<br/>19 What I have, and I'll mark it as 23-3,<br/>20 this is the forest plots from Dr. Chang's<br/>21 meta-analysis, see if you've seen this before.<br/>22 (Whereupon, Rider Exhibit 23-3, Forest<br/>23 plots from Dr. Chang's meta-analysis,<br/>24 was marked for identification.)<br/>25 MR. COPLE: Is there a question</p> |
| Page 43  | Page 45   |
| <p>1 health risk and a human health hazard?<br/>2 MR. COPLE: Objection. Vague.<br/>3 A. Yeah, I really have no idea what you<br/>4 mean by that.<br/>5 BY MR. MILLER:<br/>6 Q. Me either. Okay.<br/>7 (Whereupon, Rider Exhibit 23-2,<br/>8 Non-Hodgkin Lymphoma and Occupational<br/>9 Exposure to Agricultural Pesticide<br/>10 Chemical Groups and Active<br/>11 Ingredients: A Systematic Review and<br/>12 Meta-Analysis, was marked for<br/>13 identification.)<br/>14 BY MR. MILLER:<br/>15 Q. I show you what we've marked as<br/>16 Exhibit 23-2, and ask if you can identify this<br/>17 for me, ma'am.<br/>18 A. I actually can't identify this. It<br/>19 just says that it's supplementary information,<br/>20 but there are no authors listed. I'm not<br/>21 exactly sure what this is.<br/>22 BY MR. MILLER:<br/>23 Q. Okay. We'll set that aside for now.<br/>24 Have you reviewed the Chang<br/>25 meta-analysis?</p>                              | <p>1 pending?<br/>2 MR. MILLER: Yes.<br/>3 BY MR. MILLER:<br/>4 Q. Have you seen this before?<br/>5 A. So I mean, this is --<br/>6 MR. COPLE: I'm going to object right<br/>7 now. We don't know which document this came<br/>8 from.<br/>9 BY MR. MILLER:<br/>10 Q. You can answer.<br/>11 A. Yeah, I am afraid I agree. I mean,<br/>12 this is just the forest plot from some<br/>13 meta-analysis, but the rest of the paper is<br/>14 missing, so it's hard for me to confirm whether<br/>15 or not it's from that paper.<br/>16 Q. Sure. And I agree with you the rest<br/>17 of the paper is missing. Let's mark the rest of<br/>18 the paper. We'll mark it as 23-4.<br/>19 Before I do, I want to go back to an<br/>20 answer you just gave. Did you say you performed<br/>21 your own meta-analysis?<br/>22 A. I did not say I performed a<br/>23 meta-analysis. I believe I said that I did my<br/>24 own review of the primary studies.<br/>25 Q. Okay. But it's fair to say that you</p>  |



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| <p>1 did not do a meta-analysis?<br/>                 2 A. I did not complete a meta-analysis as<br/>                 3 part of my review, no.<br/>                 4 Q. Did you start one?<br/>                 5 A. I actually think that meta-analyses<br/>                 6 have limited value when the studies that you<br/>                 7 would include in them have problems with their<br/>                 8 internal validity, because those problems would<br/>                 9 then carry through to the results of the<br/>                 10 meta-analysis, so I think it's much more useful<br/>                 11 to individually analyze the individual studies.<br/>                 12 Q. I remember that from your report. But<br/>                 13 did you start a meta-analysis?<br/>                 14 MR. COPLE: Objection. Asked and<br/>                 15 answered.<br/>                 16 A. I did not start a meta-analysis<br/>                 17 because I didn't think it would be valuable in<br/>                 18 synthesizing this particular literature.<br/>                 19 BY MR. MILLER:<br/>                 20 Q. Did you do a pooled analysis?<br/>                 21 A. So I did not do a pooled analysis,<br/>                 22 because, again, what I felt was important were<br/>                 23 the independent -- were the primary studies in<br/>                 24 evaluating all of the strengths and limitations<br/>                 25 of those individual studies.</p> | <p>1 Q. What were the issues in the published<br/>                 2 2005 version?<br/>                 3 A. That the updated analysis addressed?<br/>                 4 Q. Yes.<br/>                 5 A. So I mean, for one, the number of<br/>                 6 cases of NHL that had developed by the<br/>                 7 publication -- by the time the publication of<br/>                 8 the -- or the time of the drafting of the 2013<br/>                 9 manuscript had tripled, so the first thing would<br/>                 10 just be an increase in case numbers.<br/>                 11 Q. Anything else?<br/>                 12 A. For me, I think that that was -- that<br/>                 13 the additional case numbers and the longer<br/>                 14 follow-up time would have been the two issues.<br/>                 15 Q. We'll go back to that later, but thank<br/>                 16 you.<br/>                 17 Okay. Let's look, if we could, then,<br/>                 18 we have now got 23-3, which is the forest plot<br/>                 19 and your concern that you didn't -- you weren't<br/>                 20 sure where it came from, so we marked 23-4,<br/>                 21 which is the full Chang article.<br/>                 22 If you'd be kind enough to turn to<br/>                 23 Page 404 in that article, I believe you'll see<br/>                 24 that --<br/>                 25 MR. COPLE: Do you have a copy for us?</p> |
| Page 47  | Page 49   |
| <p>1 Q. I'm going to find that page so we can<br/>                 2 tie them up, and then we'll sort of move on<br/>                 3 here, I hope.<br/>                 4 While we're waiting for that, fair to<br/>                 5 say you put the most emphasis in your expert<br/>                 6 review on the Agricultural Health Study?<br/>                 7 MR. COPLE: Objection to the form of<br/>                 8 the question.<br/>                 9 A. I felt that the Agricultural Health<br/>                 10 Study offered the strongest level of evidence<br/>                 11 for a variety of reasons that I outline in my<br/>                 12 report.<br/>                 13 BY MR. MILLER:<br/>                 14 Q. Yes, ma'am.<br/>                 15 And not just the published<br/>                 16 Agricultural Health Study, but the unpublished<br/>                 17 one; right?<br/>                 18 A. Well, I had come to my opinion<br/>                 19 regarding the epidemiologic literature before I<br/>                 20 had the opportunity to see the draft manuscripts<br/>                 21 that you're referring to. So while that draft<br/>                 22 manuscript didn't change my -- alter my expert<br/>                 23 opinion, I did think it provided confirmatory<br/>                 24 evidence and addressed some of the issues that<br/>                 25 were in the published 2005 version.</p>  | <p>1 MR. MILLER: Sure (handing).<br/>                 2 (Whereupon, Rider Exhibit 23-4, Chang<br/>                 3 and Delzell article, Systematic review<br/>                 4 and meta-analysis of glyphosate<br/>                 5 exposure and risk of<br/>                 6 lymphohematopoietic cancers, was<br/>                 7 marked for identification.)<br/>                 8 MR. HOLLINGSWORTH: Does the witness<br/>                 9 have one?<br/>                 10 THE WITNESS: I don't have one.<br/>                 11 BY MR. MILLER:<br/>                 12 Q. I apologize. I kept the original. My<br/>                 13 fault. I'll even turn it over to the right<br/>                 14 page, but it's on Page 404 there.<br/>                 15 So can we agree now that 23-3 is a<br/>                 16 blow-up of what is found at Page 404?<br/>                 17 A. Yes.<br/>                 18 Q. Okay. And what that is is a forest<br/>                 19 plot, we can agree; right?<br/>                 20 A. Yes, it is a forest plot.<br/>                 21 Q. So where we have a long vertical line<br/>                 22 down the middle, it has 1.0; right?<br/>                 23 A. Mm-hmm.<br/>                 24 Q. 1.0 means no effect; right?<br/>                 25 A. That is correct. When you're dealing</p>  |

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| Page 50 | <p>1 with relative risk measures, that would be no<br/>2 association.<br/>3 Q. And so everything to the left of 1.0<br/>4 in that vertical line would be a study that<br/>5 indicated a protective effect; right?<br/>6 A. So relative risks of less .1 indicate<br/>7 that the exposure -- that the outcome is less<br/>8 common among those who are exposed.<br/>9 Q. Yes, ma'am.<br/>10 And a result to the right of 1.0 means<br/>11 it's more common in those that are exposed;<br/>12 right?<br/>13 A. That is correct.<br/>14 Q. Sure.<br/>15 And so in this forest plot, it talks<br/>16 about the De Roos 2003 study. You read that<br/>17 one, right, ma'am?<br/>18 A. I did.<br/>19 Q. And the De Roos 2005 study which, I<br/>20 believe, is the AHS study; right?<br/>21 A. That is correct.<br/>22 Q. And you read that?<br/>23 A. Mm-hmm.<br/>24 Q. And you read the Eriksson study 2008?<br/>25 A. I did.</p> | Page 52 | <p>1 risk of 30 percent between glyphosate Roundup<br/>2 and non-Hodgkin's lymphoma; right?<br/>3 MR. COPLE: Objection. Lacks<br/>4 foundation.<br/>5 A. I think what you're referring to is<br/>6 the results of the meta-analysis. But again, to<br/>7 me, that result has very little meaning because<br/>8 you need to take into account the quality of the<br/>9 individual studies that are included in that<br/>10 meta-analysis.<br/>11 BY MR. MILLER:<br/>12 Q. And I understand that that's your<br/>13 opinion. But she -- that's what she found.<br/>14 Whether it's valid or whether you should rely on<br/>15 it or not we can debate, but she did find a<br/>16 30 percent increased risk; right?<br/>17 MR. COPLE: Objection. Asked and<br/>18 answered.<br/>19 A. She found a meta-analysis relative<br/>20 risk of 1.3. But, again, there are problems<br/>21 with combining studies that lack internal<br/>22 validity.<br/>23 BY MR. MILLER:<br/>24 Q. And do you know who Exponent is?<br/>25 A. I have become familiar with who</p> |
| Page 51 | <p>1 Q. And you read the Hardell study 2002?<br/>2 A. Mm-hmm.<br/>3 Q. And the McDuffie, right?<br/>4 A. Mm-hmm.<br/>5 Q. And Orsi?<br/>6 A. Correct.<br/>7 Q. And the meta-analysis RR, that's from<br/>8 Dr. Chang's study here that we're looking at;<br/>9 right?<br/>10 A. That is correct.<br/>11 Q. And all of them come in on the right<br/>12 side of 1; right?<br/>13 A. Again, so the reason why I felt that<br/>14 it was important to evaluate these studies<br/>15 individually, and not just to look at the<br/>16 results of the meta-analysis, is that an<br/>17 association above 1 means absolutely nothing if<br/>18 you haven't evaluated that study's internal<br/>19 validity.<br/>20 Q. If it's a bad study, then you can't<br/>21 rely on it?<br/>22 A. Exactly.<br/>23 Q. Sure.<br/>24 And you understand that Dr. Chang, and<br/>25 this is Exhibit 23-4, she found an increased</p>               | Page 53 | <p>1 Exponent is. I know that Dr. Chang works for<br/>2 Exponent.<br/>3 Q. Do you know whether Exponent does<br/>4 studies for corporations?<br/>5 MR. COPLE: Objection. Vague.<br/>6 BY MR. MILLER:<br/>7 Q. That's what their job is?<br/>8 MR. COPLE: Objection. Vague.<br/>9 A. I really know nothing about the<br/>10 mission of the company.<br/>11 BY MR. MILLER:<br/>12 Q. If you could turn with me, please, to<br/>13 Page 424.<br/>14 A. Okay.<br/>15 Q. Do you see the Acknowledgments section<br/>16 there, ma'am?<br/>17 A. I do.<br/>18 Q. And it's important for authors of<br/>19 peer-reviewed journals to have a disclosure<br/>20 statement as well; right?<br/>21 MR. COPLE: Objection. Vague.<br/>22 A. I think the purpose of the disclosure<br/>23 statement is so that any sort of perceived<br/>24 conflicts can be evaluated by people who read<br/>25 the paper.</p>  |



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| <p>1 BY MR. MILLER:<br/>                 2 Q. Fair enough.<br/>                 3 Let's look at the acknowledgements.<br/>                 4 "The authors" -- which include Dr. Chang --<br/>                 5 "wish to thank John Acquavella and Thomas<br/>                 6 Sorahan for their thoughtful comments on earlier<br/>                 7 drafts of this manuscript."<br/>                 8 Do you know who John Acquavella is?<br/>                 9 A. I'm familiar with him only because I<br/>                 10 read a couple of his papers.<br/>                 11 Q. Are you aware that he was a full-time<br/>                 12 employee epidemiologist for Monsanto?<br/>                 13 MR. COPLE: Objection. Lacks<br/>                 14 foundation.<br/>                 15 A. My only awareness of Dr. Acquavella is<br/>                 16 in that he was an author of a couple of the<br/>                 17 papers that I read. I know nothing else about<br/>                 18 him.<br/>                 19 BY MR. MILLER:<br/>                 20 Q. I see.<br/>                 21 So, then, the answer to my question<br/>                 22 would be you did not know that he was a<br/>                 23 full-time employee for Monsanto at one time?<br/>                 24 MR. COPLE: Objection. Lacks<br/>                 25 foundation, asked and answered.</p> | <p>1 risk between glyphosate and non-Hodgkin's<br/>                 2 lymphoma, who was it funded by, ma'am?<br/>                 3 MR. COPLE: Objection. Lacks<br/>                 4 foundation.<br/>                 5 A. So first of all, I don't -- I don't<br/>                 6 think that the meta-analysis of 1.3 really tells<br/>                 7 us anything about the association between<br/>                 8 glyphosate and NHL. But I can read the funding<br/>                 9 statement in this paper.<br/>                 10 BY MR. MILLER:<br/>                 11 Q. Yes, if you would, please.<br/>                 12 A. Okay. "This work was supported by<br/>                 13 Monsanto Company, the original producer and<br/>                 14 marketer of glyphosate formulations."<br/>                 15 Q. Do you know who Donna Farmer is?<br/>                 16 MR. COPLE: Objection. Lacks<br/>                 17 foundation.<br/>                 18 A. I am not familiar with that name, no.<br/>                 19 BY MR. MILLER:<br/>                 20 Q. The people that comment and edit a<br/>                 21 particular paper, should their names be revealed<br/>                 22 in the paper?<br/>                 23 MR. COPLE: Objection. Vague.<br/>                 24 A. I would say it really depends on<br/>                 25 specific context, the type of contribution</p> |
| Page 55   | Page 57  |
| <p>1 A. I know nothing about his employment<br/>                 2 relationship, no.<br/>                 3 BY MR. MILLER:<br/>                 4 Q. And you know that Thomas Sorahan was<br/>                 5 an epidemiologist who did contract work for<br/>                 6 Monsanto?<br/>                 7 MR. COPLE: Objection. Lacks<br/>                 8 foundation.<br/>                 9 A. Again, Dr. Sorahan, I'm familiar with<br/>                 10 him only because, again, he authored some of the<br/>                 11 papers that I read. I know nothing about his<br/>                 12 specific relationship with any company.<br/>                 13 BY MR. MILLER:<br/>                 14 Q. So this -- may we call it the Chang<br/>                 15 meta-analysis for shorthand?<br/>                 16 A. Sure.<br/>                 17 Q. So the Chang meta-analysis was<br/>                 18 published in a peer-reviewed journal; is that<br/>                 19 fair?<br/>                 20 A. I could only assume that this journal<br/>                 21 is peer-reviewed. I've never published in this<br/>                 22 journal.<br/>                 23 Q. I see.<br/>                 24 And if you could look at Page 424<br/>                 25 again, her work finding a 30 percent increased</p>   | <p>1 someone is making. I couldn't generally say.<br/>                 2 BY MR. MILLER:<br/>                 3 Q. Did anyone who is not disclosed in<br/>                 4 your paper on ejaculation make comments about<br/>                 5 it --<br/>                 6 MR. COPLE: Objection. Vague.<br/>                 7 BY MR. MILLER:<br/>                 8 Q. -- and edit it? I'm sorry.<br/>                 9 MR. COPLE: Objection. Vague.<br/>                 10 A. I really don't recall, but, you know,<br/>                 11 it's possible that people could have provided<br/>                 12 editorial comments who weren't included on the<br/>                 13 manuscript. But I -- but I don't exactly<br/>                 14 remember all of the people who viewed that<br/>                 15 manuscript.<br/>                 16 BY MR. MILLER:<br/>                 17 Q. So you're not aware whether one of the<br/>                 18 lead toxicologists at Monsanto reviewed the<br/>                 19 Chang paper before it was published?<br/>                 20 MR. COPLE: Objection. Argumentative,<br/>                 21 lacks foundation, vague.<br/>                 22 BY MR. MILLER:<br/>                 23 Q. If you know. If you don't know --<br/>                 24 A. I have no awareness of that.<br/>                 25 Q. So while you don't agree with me on</p>                       |

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| <p>1 the significance of the forest plot, and I<br/>                 2 understand that, you would agree that it's been<br/>                 3 put together accurately as to what these studies<br/>                 4 represent? I mean what they found, whether<br/>                 5 they're valid or not, that's -- they're put in<br/>                 6 their correct place on the forest plot?<br/>                 7 MR. COPLE: Objection. Lacks<br/>                 8 foundation, vague.<br/>                 9 A. I would argue that a study that lacks<br/>                 10 internal validity should never be included on<br/>                 11 any forest plot.<br/>                 12 BY MR. MILLER:<br/>                 13 Q. I understand that.<br/>                 14 But the numbers from the study were<br/>                 15 accurately placed on the forest plot, that's all<br/>                 16 I'm trying to get agreement on.<br/>                 17 MR. COPLE: Objection.<br/>                 18 BY MR. MILLER:<br/>                 19 Q. Very little --<br/>                 20 MR. COPLE: Objection. Objection.<br/>                 21 Asked and answered.<br/>                 22 A. The numbers are meaningless. So it's<br/>                 23 very easy to find an association between one<br/>                 24 thing and another thing. But if what you're<br/>                 25 interested in is in causality, you have to</p> | <p>1 asked and answered.<br/>                 2 BY MR. MILLER:<br/>                 3 Q. You can answer.<br/>                 4 A. I can't speak to Dr. Chang's, you<br/>                 5 know, motivations for doing the meta-analysis.<br/>                 6 It's just my view that a meta-analysis is<br/>                 7 inappropriate in this case because so many of<br/>                 8 those studies included -- lack internal<br/>                 9 validity. And so I can't tell you that this is<br/>                 10 accurate because, in my view, it's not telling<br/>                 11 us anything.<br/>                 12 Q. I understand.<br/>                 13 As you sit here today, do you have an<br/>                 14 opinion as to whether Dr. Chang put any of the<br/>                 15 black boxes on 23-3 down inaccurately; that is<br/>                 16 to say, she simply did not follow fundamental<br/>                 17 rules of epidemiology as to where to place the<br/>                 18 black boxes? That's all.<br/>                 19 MR. COPLE: Objection. Asked and<br/>                 20 answered.<br/>                 21 A. Honestly we can -- in order to tell<br/>                 22 you whether or not the black boxes were placed<br/>                 23 in the correct place, I would need to go back to<br/>                 24 all of these individual studies and look at the<br/>                 25 point estimates that were selected.</p>    |
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| <p>1 consider the internal validity of those studies.<br/>                 2 BY MR. MILLER:<br/>                 3 Q. And I understand they're meaningless<br/>                 4 to you. They weren't meaningless to the World<br/>                 5 Health Organization, but on -- that's not my<br/>                 6 question. I'm trying to get away from that<br/>                 7 debate now.<br/>                 8 MR. COPLE: Objection. Counsel is<br/>                 9 testifying. Argumentative.<br/>                 10 BY MR. MILLER:<br/>                 11 Q. Here is what I'm trying to ask. And<br/>                 12 we can do this by taking each study out and we<br/>                 13 can draw it on the forest plot, or we can sort<br/>                 14 of agree that Dr. Chang, who is being funded by<br/>                 15 Monsanto, put these blots down on the forest<br/>                 16 plot accurately.<br/>                 17 MR. COPLE: Objection.<br/>                 18 BY MR. MILLER:<br/>                 19 Q. That's all I'm asking.<br/>                 20 MR. COPLE: Objection. Argumentative,<br/>                 21 asked and answered.<br/>                 22 BY MR. MILLER:<br/>                 23 Q. Or do you think Dr. Chang messed it<br/>                 24 up?<br/>                 25 MR. COPLE: Objection. Argumentative,</p>   | <p>1 BY MR. MILLER:<br/>                 2 Q. Okay. Here we go. In science, if<br/>                 3 someone does a study and shows an association,<br/>                 4 like you did with the high ejaculation and<br/>                 5 prostate cancer, if that association is a real<br/>                 6 association, one would expect to be able to do<br/>                 7 another study on high ejaculation and get the<br/>                 8 same results; true?<br/>                 9 MR. COPLE: Objection. Incomplete<br/>                 10 hypothetical, vague.<br/>                 11 A. So one of the things that you said was<br/>                 12 "a real association," and I don't quite know<br/>                 13 what you mean by that.<br/>                 14 BY MR. MILLER:<br/>                 15 Q. You've never used the phrase "a real<br/>                 16 association"?<br/>                 17 A. No, I wouldn't use that, because<br/>                 18 associations can be associations, you can see<br/>                 19 one variable that's related to another variable.<br/>                 20 Oftentimes in epidemiology that's not what we're<br/>                 21 interested in. We're interested in causal<br/>                 22 associations.<br/>                 23 Q. As a scientist, is it more important<br/>                 24 to you if you're able to repeat the association<br/>                 25 that you find in one study in the next study?</p> |

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| Page 62   | Page 64   |
| <p>1 MR. COPLE: Objection. Vague,<br/>                 2 incomplete hypothetical.<br/>                 3 A. It's very possible to replicate a<br/>                 4 study and get wrong answers twice. So, no, I<br/>                 5 don't think replication is that valuable unless<br/>                 6 you're confident in the results of the study in<br/>                 7 terms of that study's internal validity.<br/>                 8 BY MR. MILLER:<br/>                 9 Q. And if it replicates three times, does<br/>                 10 that have any value?<br/>                 11 MR. COPLE: Objection. Asked and<br/>                 12 answered.<br/>                 13 A. Again, you can replicate a study and<br/>                 14 get the wrong answer repeatedly. So, you<br/>                 15 know -- and there isn't a limit to the number of<br/>                 16 times that that can happen.<br/>                 17 BY MR. MILLER:<br/>                 18 Q. Is multiple myeloma a form of<br/>                 19 non-Hodgkin's lymphoma?<br/>                 20 A. The definition has relatively recently<br/>                 21 changed. So that's reflected in some of the<br/>                 22 epidemiologic papers. So in the more current<br/>                 23 definition, multiple myeloma was included, yes.<br/>                 24 Q. Have you spoken to anyone at Exponent<br/>                 25 since you've been retained by Monsanto?</p> | <p>1 MR. MILLER: Jeffrey Traverse, are you<br/>                 2 still there?<br/>                 3 MR. TRAVERSE: Yeah, I'm here.<br/>                 4 MR. MILLER: Anyone else on the phone?<br/>                 5 Hearing no one, we'll begin.<br/>                 6 (Whereupon, Rider Exhibit 23-5,<br/>                 7 McDuffie, et al article, Non-Hodgkin's<br/>                 8 Lymphoma and Specific Pesticide<br/>                 9 Exposures in Men, was marked for<br/>                 10 identification.)<br/>                 11 BY MR. MILLER:<br/>                 12 Q. Doctor, I just handed you 23-5, an<br/>                 13 exhibit. Can we call that the McDuff article?<br/>                 14 A. McDuffie, sure.<br/>                 15 Q. Dr. McDuffie.<br/>                 16 Do you know Dr. McDuffie?<br/>                 17 A. I do not.<br/>                 18 Q. Cancer Epidemiology, Biomarkers &amp;<br/>                 19 Prevention, a peer-reviewed journal?<br/>                 20 A. Yes, it is.<br/>                 21 Q. And so as we discussed before, the<br/>                 22 peer reviewer or reviewers would have analyzed<br/>                 23 this data and either accepted it, rejected it,<br/>                 24 or asked it to be revised?<br/>                 25 MR. COPLE: Objection. Lacks</p>   |
| Page 63   | Page 65   |
| <p>1 A. No, I have not.<br/>                 2 Q. Did you e-mail anyone at Exponent, or<br/>                 3 did they look at any drafts of your report?<br/>                 4 A. I've had no contact with anyone at<br/>                 5 Exponent.<br/>                 6 Q. All right. So keep 23-3 in front of<br/>                 7 you, and let's go to some studies and look at<br/>                 8 them.<br/>                 9 MR. COPLE: Before we jump into the<br/>                 10 studies, we've been going about an hour. How<br/>                 11 long do you plan to go before allowing Dr. Rider<br/>                 12 to take a break?<br/>                 13 BY MR. MILLER:<br/>                 14 Q. Any time you want to take a break,<br/>                 15 Doctor, it's fine with me.<br/>                 16 A. Yeah, I could take a brief break.<br/>                 17 Q. Sure.<br/>                 18 A. Thank you.<br/>                 19 THE VIDEOGRAPHER: Going off the<br/>                 20 record. The time is 10:06.<br/>                 21 (Whereupon, a recess was taken.)<br/>                 22 THE VIDEOGRAPHER: Back on the record.<br/>                 23 The time is 10:16.<br/>                 24 MR. COPLE: Can we be sure that no one<br/>                 25 has joined?</p>  | <p>1 foundation.<br/>                 2 A. So again, I know from my own<br/>                 3 experience in both publishing and peer reviewing<br/>                 4 for this journal that at least one peer reviewer<br/>                 5 would be invited to comment on the article. I<br/>                 6 don't recall whether this journal allows the<br/>                 7 reviewers to give recommendations specifically<br/>                 8 on whether to accept or reject it.<br/>                 9 Q. Okay. But at some point we can agree,<br/>                 10 because it's published, that the editors of this<br/>                 11 journal decided it was worthy of being<br/>                 12 published?<br/>                 13 A. Yes, we can agree.<br/>                 14 Q. And it's published by, I want to<br/>                 15 count -- one, two, three, four, five, six,<br/>                 16 seven, eight -- nine different scientists?<br/>                 17 MR. COPLE: Objection. Vague.<br/>                 18 A. I see nine different people listed in<br/>                 19 the author list. That's all I can say.<br/>                 20 BY MR. MILLER:<br/>                 21 Q. You're uncomfortable calling them<br/>                 22 scientists?<br/>                 23 MR. COPLE: Objection. Argumentative.<br/>                 24 A. I don't know anything about any of<br/>                 25 these people, so right now I can only tell that</p> |

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1 they're authors on this paper.  
 2 BY MR. MILLER:  
 3 Q. Well, it does tell you something about  
 4 them in the paragraph right below; right?  
 5 MR. COPLE: Objection. Argumentative.  
 6 A. In the affiliations we can certainly  
 7 see what department they're -- or company they  
 8 are affiliated with, yes.  
 9 BY MR. MILLER:  
 10 Q. Dr. McDuffie is with the Centre for  
 11 Agricultural Medicine, right?  
 12 A. At the University of Saskatchewan,  
 13 yes.  
 14 Q. And Dr. Pahwa is at the National  
 15 Cancer Institute of Canada, Epidemiology,  
 16 University of Toronto; right?  
 17 A. Actually I don't think so. I think  
 18 that's the person with the initials JRM.  
 19 Q. JRM.  
 20 A. McLaughlin.  
 21 Q. I see. Thank you. Yes, ma'am. Yes.  
 22 Other scientists here who are authors  
 23 are at the Centre for Health Evaluation &  
 24 Outcome Sciences at St. Paul Hospital in  
 25 Vancouver, British Columbia?

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1 A. That is another affiliation for one of  
 2 the authors, yes.  
 3 Q. And one of the authors is at the  
 4 Alberta Cancer Board, the division of  
 5 epidemiology, right?  
 6 A. That is correct.  
 7 Q. One of the authors is at the  
 8 department of pathology at the University of  
 9 Saskatchewan; right?  
 10 A. Correct.  
 11 Q. So is it fair to call these people  
 12 scientists?  
 13 MR. COPLE: Objection. Vague.  
 14 A. Again, they all have, at least the  
 15 ones that you have referenced here, have either  
 16 academic or some kind of government affiliation.  
 17 But, again, I don't know any of these people or  
 18 their background or training.  
 19 BY MR. MILLER:  
 20 Q. It's fair to say that, of course, you  
 21 have never studied non-Hodgkin's lymphoma and  
 22 its relationship to glyphosate, true, prior to  
 23 being asked to be an expert in this case; right?  
 24 MR. COPLE: Objection. Vague.  
 25 A. I've never done my own research on

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1 glyphosate and NHL. And before being retained  
 2 by Hollingsworth, I had not done a full review  
 3 of that literature.  
 4 BY MR. MILLER:  
 5 Q. And when you were retained by  
 6 Hollingsworth, you understood they were retained  
 7 by Monsanto; right?  
 8 A. I knew who the defendant was, yes.  
 9 Q. Okay. If you'd please turn with me to  
 10 Page 1161 of this peer-reviewed journal, Table  
 11 8.  
 12 A. Okay.  
 13 Q. "Phosphonic acid: glyphosate." Do you  
 14 see where I am in the table regarding individual  
 15 compounds?  
 16 A. I do.  
 17 Q. And it shows for exposed greater than  
 18 two days per year. Am I reading that correctly?  
 19 A. Right. There is unexposed, greater  
 20 than zero to less than or equal to two days, and  
 21 then greater than two day categories, yes.  
 22 Q. And for greater than two days, it  
 23 shows an odds ratio of what, Doctor?  
 24 A. The odds ratio that's listed in this  
 25 table is 2.12. But again, that number, you

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1 know, isn't controlling for other chemicals.  
 2 And you'll also notice that almost  
 3 every other -- in fact, every other pesticide or  
 4 herbicide that they investigated also has an  
 5 odds ratio above 1.  
 6 Q. The odds ratio of 2.12 for greater  
 7 than two days' use of glyphosate, is that a  
 8 statistically significant finding?  
 9 A. So meaning that the confidence  
 10 intervals don't overlap 1, yes. But there's  
 11 really no point in evaluating statistical  
 12 significance if you don't have confidence in the  
 13 internal validity of the findings.  
 14 Q. Well, these people apparently did have  
 15 internal validity in the findings because they  
 16 published this; right?  
 17 MR. COPLE: Objection. Argumentative.  
 18 A. No. I think we can find a number of  
 19 examples where there are limitations in the  
 20 methodologic design or the statistical analysis  
 21 of a study, and those papers get published, and  
 22 that's why it's so important to interpret all  
 23 these estimates in light of the limitations of  
 24 those studies. It's why putting the numbers,  
 25 just easily putting them into a meta-analysis

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| <p>1 doesn't really give us very valuable information<br/>                 2 about whether an exposure causes disease.<br/>                 3 BY MR. MILLER:<br/>                 4 Q. Were there limitations in your high<br/>                 5 ejaculation study?<br/>                 6 A. Yes, there were definitely limitations<br/>                 7 in the ejaculation frequency study, and we<br/>                 8 disclosed many of those limitations in the<br/>                 9 Discussion section.<br/>                 10 Q. Yet, in spite of those limitations, it<br/>                 11 provided strong evidence; right?<br/>                 12 MR. COPLE: Objection. Argumentative.<br/>                 13 A. As I said before, that is not how it<br/>                 14 was characterized. We said the strongest<br/>                 15 evidence to date in -- was what that study<br/>                 16 provided. And even in light of some of the<br/>                 17 limitations, those findings were still<br/>                 18 compelling.<br/>                 19 BY MR. MILLER:<br/>                 20 Q. In the McDuffie study on Page 1161,<br/>                 21 under the table, if you'd look on the right side<br/>                 22 of the typed information, they explain to us,<br/>                 23 "We have included many people in many<br/>                 24 occupations as well as home and garden users."<br/>                 25 Do you see that sentence there?</p> | <p>1 committee for the project.<br/>                 2 Do you see that, ma'am?<br/>                 3 A. Yes, I do.<br/>                 4 Q. What's an advisory committee for a<br/>                 5 project? What's it mean to a layperson, I guess<br/>                 6 I'm trying to ask.<br/>                 7 A. Honestly, I'm not really sure. I've<br/>                 8 not been involved in an advisory committee, so<br/>                 9 it seems like it would vary from situation to<br/>                 10 situation.<br/>                 11 Q. If you turn with me, please, to<br/>                 12 Page 1160.<br/>                 13 A. Okay.<br/>                 14 Q. And I'm looking at the printed portion<br/>                 15 under the graph, to the left, first full<br/>                 16 paragraph, last sentence. And you can read it<br/>                 17 to yourself. But these authors, at least in<br/>                 18 their opinion, felt they found a dose-response<br/>                 19 relationship with glyphosate and non-Hodgkin's<br/>                 20 lymphoma; true?<br/>                 21 MR. COPLE: Objection. The document<br/>                 22 speaks for itself.<br/>                 23 A. I would need to, you know, reread the<br/>                 24 authors' Results section to tell you what they<br/>                 25 think that they found from the results.</p>  |
| Page 71  | Page 73  |
| <p>1 A. I do.<br/>                 2 Q. "These are groups for whom we did not<br/>                 3 find extensive validation studies. Their<br/>                 4 inclusion may have biased our dose-response<br/>                 5 findings towards the null."<br/>                 6 What does "biased our dose-response<br/>                 7 findings towards the null" mean, ma'am?<br/>                 8 A. So, I mean, generally I think<br/>                 9 anything -- anytime something is biased towards<br/>                 10 the null, it would mean that the true<br/>                 11 association is stronger than the association<br/>                 12 that you observe.<br/>                 13 Q. Would you turn to Page 1162, please?<br/>                 14 A. Okay.<br/>                 15 Q. If you would look, please, printed<br/>                 16 underneath the table, first sentence, first<br/>                 17 paragraph, I want to read it to you and ask you<br/>                 18 a question. "Our results support previous<br/>                 19 findings of an association between non-Hodgkin's<br/>                 20 lymphoma and specific pesticide exposures."<br/>                 21 That was their conclusion; true?<br/>                 22 A. That's what it says here in this last<br/>                 23 paragraph.<br/>                 24 Q. And you'll see under<br/>                 25 "Acknowledgements" they had an advisory</p>                         | <p>1 BY MR. MILLER:<br/>                 2 Q. Let me read that sentence and ask you,<br/>                 3 "The exceptions were 2,4-D for which there was<br/>                 4 no dose-response relationship, and glyphosate,<br/>                 5 which was not significant for exposure but for<br/>                 6 which we demonstrated a dose-response<br/>                 7 relationship."<br/>                 8 Did I read that correctly?<br/>                 9 A. Yes, you did.<br/>                 10 Q. And what is a "dose-response<br/>                 11 relationship"? What does that concept mean in<br/>                 12 epidemiology?<br/>                 13 A. Sure. So the idea is that -- and, of<br/>                 14 course, dose-response is one of the<br/>                 15 Bradford-Hill criteria.<br/>                 16 Q. Yes, ma'am.<br/>                 17 A. But the idea is that you would be more<br/>                 18 likely to see a risk of your outcome among<br/>                 19 people who use -- or who have more of a<br/>                 20 particular exposure compared to people who have<br/>                 21 lower levels of exposure. So if you sort of<br/>                 22 look at risk in categories of increasing<br/>                 23 exposure, you would see an increasing risk of<br/>                 24 the outcome.<br/>                 25 Q. Yes, ma'am.</p> |



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| <p>1 And let's go, if we can, to our</p> <p>2 Exhibit 23-3, the forest plot that Dr. Chang has</p> <p>3 in her article. And when you look at McDuffie</p> <p>4 and the relative risk of 1.2, .833 to 1.74 for</p> <p>5 the confidence interval, does that accurately</p> <p>6 reflect what we see here in the McDuffie</p> <p>7 article?</p> <p>8 A. That is the odds ratio that's taken</p> <p>9 from Table 2. It is the odds ratio that's been</p> <p>10 adjusted for only the variables that showed a</p> <p>11 statistically significant association with the</p> <p>12 outcome, so things like measles, mumps, allergy,</p> <p>13 family history, but not adjusted for any other</p> <p>14 pesticides.</p> <p>15 Q. All right. Let's look at -- I know</p> <p>16 you disagree with it, but when you read this</p> <p>17 article, it shows a positive association,</p> <p>18 whether you agree with -- and I know you agree</p> <p>19 that it's -- that you think it's a poor quality</p> <p>20 study, it doesn't show us anything, but at least</p> <p>21 from the view of these authors, it's a positive</p> <p>22 association study; right?</p> <p>23 MR. COPLER: Objection. Vague, asked</p> <p>24 and answered.</p> <p>25 A. Again, positive association, if what</p> | <p>1 (Whereupon, Rider Exhibit 23-6,</p> <p>2 Hardell, et al article, Exposure to</p> <p>3 Pesticides as Risk Factor for</p> <p>4 Non-Hodgkin's Lymphoma and Hairy Cell</p> <p>5 Leukemia, was marked for</p> <p>6 identification.)</p> <p>7 BY MR. MILLER:</p> <p>8 Q. And this is the article by</p> <p>9 Dr. Hardell, Eriksson, and Nordstrom?</p> <p>10 A. That's correct.</p> <p>11 Q. And it's on the issue of exposure to</p> <p>12 pesticides as a risk factor for non-Hodgkin's</p> <p>13 lymphoma; right?</p> <p>14 A. Yes, it is. That is stated in the</p> <p>15 title, yes.</p> <p>16 Q. It's a Pooled Analysis of Two Swedish</p> <p>17 Case-control Studies; right?</p> <p>18 A. That is correct.</p> <p>19 Q. And how would you explain to a</p> <p>20 layperson what a pooled analysis is?</p> <p>21 A. So a pooled analysis is when you take</p> <p>22 the original data from more than one study, two</p> <p>23 or more studies, and you re-analyze that data,</p> <p>24 pooling the exposure and the outcome information</p> <p>25 that you have from those two studies.</p> |
| Page 75  | Page 77  |
| <p>1 you mean by that is just that they found an odds</p> <p>2 ratio above 1, that is certainly reflected in</p> <p>3 their results. But as I stated before, that</p> <p>4 tells us absolutely nothing about whether the</p> <p>5 exposure is causally related to the outcome,</p> <p>6 which is, I think, what we're interested in.</p> <p>7 BY MR. MILLER:</p> <p>8 Q. At the end of the day, that is what</p> <p>9 we're interested in.</p> <p>10 So would it be fair to say from a lay</p> <p>11 perspective you simply disagree with these</p> <p>12 authors?</p> <p>13 A. I think that from, you know, taking</p> <p>14 into account the quality of the study design,</p> <p>15 and the limitations in the statistical analysis,</p> <p>16 one could conclude that the association that</p> <p>17 they observe is not reflective of a causal</p> <p>18 association.</p> <p>19 Q. Let's look at 23-6. This is a Hardell</p> <p>20 article.</p> <p>21 You reviewed that, haven't you, ma'am?</p> <p>22 A. Yes, I have.</p> <p>23 Q. Here's a copy for you (handing).</p> <p>24 ///</p> <p>25 ///</p>   | <p>1 Q. A recognized and valid concept within</p> <p>2 epidemiology; fair?</p> <p>3 A. So it is a way that can be useful for</p> <p>4 looking at outcomes that are rare. That's one</p> <p>5 strength of this method. So it's a way to</p> <p>6 increase your number of outcomes.</p> <p>7 Q. Yes, ma'am.</p> <p>8 Have you ever performed and published</p> <p>9 a pooled analysis?</p> <p>10 A. I don't believe so, no.</p> <p>11 Q. Have you ever performed and published</p> <p>12 a meta-analysis?</p> <p>13 A. I am a co-author on one meta-analysis,</p> <p>14 yes.</p> <p>15 Q. And what is the name of that?</p> <p>16 A. I would have to look at my CV to give</p> <p>17 you the exact title.</p> <p>18 Q. Is it regards in some fashion prostate</p> <p>19 cancer?</p> <p>20 A. Yes, it does relate to prostate cancer</p> <p>21 as the outcome.</p> <p>22 Q. Okay. Let's go back to the Hardell</p> <p>23 study. This is in the journal Leukemia &amp;</p> <p>24 Lymphoma. Is that a peer-reviewed journal?</p> <p>25 A. I couldn't be certain. I've never</p>                       |

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| <p>1 published in this journal.<br/>                 2 Q. Dr. Hardell, the papers tells us, is<br/>                 3 an oncologist?<br/>                 4 A. Well, I think it just tells us that<br/>                 5 he's affiliated with the department of oncology.<br/>                 6 Q. And if you'd look at the Abstract<br/>                 7 section of the first page.<br/>                 8 A. Okay.<br/>                 9 Q. He tells us, "Among herbicides,<br/>                 10 significant associations were found for<br/>                 11 glyphosate."<br/>                 12 And what's the odds ratio, ma'am?<br/>                 13 A. The odds ratio that they list in the<br/>                 14 abstract is 3.04. He also lists associations<br/>                 15 with another chemical where they also found a<br/>                 16 statistically significant association.<br/>                 17 Q. And is the odds ratio of 3.04<br/>                 18 statistically significant in his findings?<br/>                 19 A. Again, just in looking at the<br/>                 20 abstract, the confidence interval that they list<br/>                 21 here does not include the value of 1. It goes<br/>                 22 from 1.08.<br/>                 23 But, again, I don't think it's useful<br/>                 24 to look at the statistical significance before<br/>                 25 you're comfortable with the study being free</p>  | <p>1 MR. COPLE: Objection.<br/>                 2 BY MR. MILLER:<br/>                 3 Q. Let's narrow it down.<br/>                 4 MR. COPLE: Objection. Vague,<br/>                 5 argumentative.<br/>                 6 A. I have not written commentaries on<br/>                 7 glyphosate and NHL prior to being retained in<br/>                 8 this case, that is correct.<br/>                 9 BY MR. MILLER:<br/>                 10 Q. Have you since -- since you've been<br/>                 11 retained, have you written to the authors of<br/>                 12 either the McDuffie paper or the Hardell paper<br/>                 13 or the journals that published them to voice<br/>                 14 your criticisms about these papers?<br/>                 15 MR. COPLE: Objection. Vague.<br/>                 16 A. No, I have not.<br/>                 17 BY MR. MILLER:<br/>                 18 Q. The authors conclude -- and if you'll<br/>                 19 please turn with me on Page 1047. I'm on the<br/>                 20 bottom left side of the paper, and let me know<br/>                 21 when you're there, and I'll wait until you're<br/>                 22 there.<br/>                 23 A. Okay.<br/>                 24 Q. I'm reading a sentence, about the<br/>                 25 fourth up from the bottom, "In this study,</p>   |
| Page 79   | Page 81   |
| <p>1 from systematic bias, because you can have a<br/>                 2 very statistically significant finding that<br/>                 3 doesn't reflect the truth.<br/>                 4 Q. Now, like the McDuffie article before<br/>                 5 this, at no time prior to you being retained as<br/>                 6 an expert in this case did you ever write any<br/>                 7 criticisms of either of these studies; that is<br/>                 8 true?<br/>                 9 A. That is correct.<br/>                 10 Q. And at times epidemiologists will<br/>                 11 write letters to the editor if they want to<br/>                 12 debate a study, right? That process occurs?<br/>                 13 A. I think the process of writing letters<br/>                 14 to journal in response to article is sort of how<br/>                 15 some of the scientific debate happens. In a way<br/>                 16 it's an extension of the peer review process.<br/>                 17 Once a paper is out there in the literature, it<br/>                 18 gives the opportunity for scientists to talk<br/>                 19 about it.<br/>                 20 Q. And that was my point. You were not<br/>                 21 part of that scientific process or debate prior<br/>                 22 to being retained as an expert in this case?<br/>                 23 MR. COPLE: Objection. Vague.<br/>                 24 BY MR. MILLER:<br/>                 25 Q. On this issue or this paper.</p> | <p>1 exposure to glyphosate was a risk factor for<br/>                 2 non-Hodgkin's lymphoma."<br/>                 3 A. Sorry, I'm struggling to find where<br/>                 4 you are.<br/>                 5 Q. Sure. Down here at the bottom<br/>                 6 (indicating).<br/>                 7 A. Okay. Great.<br/>                 8 Q. The gly- -- okay. I'm going to quote<br/>                 9 it again. "Glyphosate is the herbicide now<br/>                 10 most" -- well, strike that.<br/>                 11 "In this study, exposure to glyphosate<br/>                 12 was a risk factor for non-Hodgkin's lymphoma."<br/>                 13 You disagree with the finding of these<br/>                 14 authors in that regard?<br/>                 15 A. So, again, the way the authors use the<br/>                 16 term "risk factor," you know, they could just be<br/>                 17 indicating by that that what they observed was a<br/>                 18 statistical association between the exposure and<br/>                 19 the outcome. They certainly don't say here that<br/>                 20 they think that glyphosate is causally related<br/>                 21 to NHL.<br/>                 22 Q. Well, nobody says causally related in<br/>                 23 articles in epidemiology, they talk about<br/>                 24 associations and risk factors usually; true?<br/>                 25 MR. COPLE: Objection. Lacks</p> |



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|---|--|
| Page 82   | Page 84  |
| <p>1 foundation, vague, argumentative.<br/>                 2 BY MR. MILLER:<br/>                 3 Q. You can answer.<br/>                 4 A. Why we do the work that we do is we're<br/>                 5 interested in determining what factors are<br/>                 6 causally associated in, in this case, cancer<br/>                 7 development.<br/>                 8 Q. How many articles have you published<br/>                 9 in a peer-reviewed journal?<br/>                 10 A. I would have to look at my CV to give<br/>                 11 you an exact count, but --<br/>                 12 Q. An estimate.<br/>                 13 A. -- in terms of original published<br/>                 14 article, it's in the 70s, I believe.<br/>                 15 Q. In how many of that 70 do you<br/>                 16 determine cause?<br/>                 17 A. I can say with confidence I have never<br/>                 18 said in one of my discussions that I have<br/>                 19 established causality.<br/>                 20 Q. And that's because, generally<br/>                 21 speaking, that's not what we do in these<br/>                 22 articles, we talk about association, and then as<br/>                 23 a public policy matter causality will be<br/>                 24 determined or not determined later; isn't that<br/>                 25 fair?</p> | <p>1 MR. COPLE: Objection. Asked and<br/>                 2 answered.<br/>                 3 A. So I believe that the point estimate<br/>                 4 and confidence interval in the Chang<br/>                 5 meta-analysis comes from Table 7 of the Hardell<br/>                 6 study. So, yes, that is the point estimate and<br/>                 7 confidence interval that they used. But, again,<br/>                 8 it -- that point estimate doesn't reflect -- as<br/>                 9 actually the authors Chang and Delzell in the<br/>                 10 introduction of this paper point out, the<br/>                 11 meta-analysis does not take into account some of<br/>                 12 the severe limitations in the quality of these<br/>                 13 studies.<br/>                 14 BY MR. MILLER:<br/>                 15 Q. How would you define to a layperson<br/>                 16 what a risk factor is?<br/>                 17 A. So a risk factor for disease is a<br/>                 18 factor that would increase the probability of<br/>                 19 you having that disease, controlling for other<br/>                 20 factors.<br/>                 21 Q. Let's look to a new article here.<br/>                 22 We're making progress. Let's look at<br/>                 23 Dr. De Roos's 2003 article. This will be 23-7.<br/>                 24<br/>                 25</p> |
| Page 83   | Page 85  |
| <p>1 MR. COPLE: Objection. Argumentative,<br/>                 2 vague.<br/>                 3 A. I think that it is important to<br/>                 4 consider sort of the body of evidence. So it<br/>                 5 would be unusual -- I can't think of a case<br/>                 6 where causality would be established in a single<br/>                 7 study.<br/>                 8 BY MR. MILLER:<br/>                 9 Q. Sure.<br/>                 10 Going back to this study and these<br/>                 11 authors, do you agree with these authors that<br/>                 12 glyphosate is a risk factor for non-Hodgkin's<br/>                 13 lymphoma, or not?<br/>                 14 MR. COPLE: Objection. Asked and<br/>                 15 answered.<br/>                 16 A. In the way that I use risk factors,<br/>                 17 no, I do not agree with the authors.<br/>                 18 BY MR. MILLER:<br/>                 19 Q. Yes, ma'am.<br/>                 20 Going to Exhibit 23-3, Dr. Chang's<br/>                 21 forest plot for these authors, Dr. Hardell, they<br/>                 22 show a relative risk of 1.85 and a confidence<br/>                 23 interval from .55 to 6.2. Is that accurately<br/>                 24 reflected in Dr. Chang's forest plot now that<br/>                 25 you have the Hardell article with you there?</p>     | <p>1 (Whereupon, Rider Exhibit 23-7, De<br/>                 2 Roos, et al article, Integrative<br/>                 3 assessment of multiple pesticides as<br/>                 4 risk factors for non-Hodgkin's<br/>                 5 lymphoma among men, was marked for<br/>                 6 identification.)<br/>                 7 BY MR. MILLER:<br/>                 8 Q. You reviewed this article before?<br/>                 9 A. This is -- yes, I have reviewed this<br/>                 10 article before, yes.<br/>                 11 Q. And it's written by -- one, two,<br/>                 12 three, four, five, six -- seven, may I call them<br/>                 13 scientists?<br/>                 14 A. I would just call them authors.<br/>                 15 Q. Authors.<br/>                 16 Okay. Do you know any of them?<br/>                 17 A. I do not know any of the authors, no.<br/>                 18 Q. Is this a peer-reviewed journal?<br/>                 19 A. The -- this is the Journal of<br/>                 20 Occupational and Environmental Medicine. Again,<br/>                 21 I've never published in this journal, so I can't<br/>                 22 be certain.<br/>                 23 Q. We can agree that this is an<br/>                 24 "assessment of multiple pesticides as risk<br/>                 25 factors of non-Hodgkin's lymphoma among men"?</p>                         |

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| <p>1 A. That's what's stated in the title,<br/>2 yes.<br/>3 Q. And if you'd please turn with me to<br/>4 Table 3.<br/>5 A. Okay.<br/>6 Q. And in this article in Table 3, what<br/>7 these authors are looking at is the "Effect<br/>8 estimates for use of specific pesticides and<br/>9 non-Hodgkin's lymphoma incidence, adjusting for<br/>10 use of other pesticides"; right?<br/>11 A. So I believe the -- they present<br/>12 results here that are both unadjusted and<br/>13 adjusted for other pesticides, yes.<br/>14 Q. And they adjust under two<br/>15 methodologies, logistic regression and<br/>16 hierarchal regression; right?<br/>17 A. Logistic regression is not controlling<br/>18 for other pesticides.<br/>19 Q. The logistic regression odds ratio for<br/>20 glyphosate in Table 3 indicates an odds ratio of<br/>21 2.1?<br/>22 A. Here it is. The unadjusted logistic<br/>23 regression analysis, yes, finds an odds ratio of<br/>24 2.1.<br/>25 Q. Statistically significant?</p>  | <p>1 study had good internal validity, in that case<br/>2 you would interpret an odds ratio of 1.6 as<br/>3 having 60 percent increase in the odds of that<br/>4 outcome.<br/>5 Q. As an author, as a scientist, you<br/>6 wouldn't publish a data that you didn't have<br/>7 confidence in; right?<br/>8 MR. COPLE: Objection. Vague,<br/>9 argumentative.<br/>10 A. I agree that I would -- as an<br/>11 epidemiologist, part of my process is to try and<br/>12 determine all of the explanations for my<br/>13 findings, other than the fact that there's a<br/>14 causal association between the exposure and the<br/>15 outcome.<br/>16 BY MR. MILLER:<br/>17 Q. And one of your criticisms about this<br/>18 study is you think that there's confounding with<br/>19 other pesticide use; right? That's one of your<br/>20 criticisms?<br/>21 A. I think that the results here, I'm<br/>22 seeing the odds ratio decrease from 2.1 to 1.6,<br/>23 is consistent with there being confounding from<br/>24 other pesticides, yes.<br/>25 Q. Let's go to Page 7 of 9.</p>                                      |
| Page 87  | Page 89  |
| <p>1 A. Again, if you want to look at that,<br/>2 that's fine, but it doesn't tell you anything if<br/>3 you don't have confidence in that point estimate<br/>4 because of issues of internal validity.<br/>5 Q. I understand you don't agree with it.<br/>6 But is it statistically significant per these<br/>7 authors?<br/>8 A. Well, I --<br/>9 MR. COPLE: Objection. Asked and<br/>10 answered.<br/>11 A. Actually I don't agree with it<br/>12 because, again, statistical significance doesn't<br/>13 mean anything if you put tight confidence limits<br/>14 around an estimate that's incorrect.<br/>15 BY MR. MILLER:<br/>16 Q. And adjusted for hierarchal<br/>17 regression, the odds ratio is 1.6; right?<br/>18 A. The odds ratio is reduced to 1.6 after<br/>19 their approach for controlling for other<br/>20 pesticides, which was hierarchal logistic<br/>21 regression, yes.<br/>22 Q. And that's a 60 percent increase;<br/>23 right? That's what 1.6 means?<br/>24 A. If you had confidence in the result<br/>25 that you were getting because you felt like the</p> | <p>1 A. Okay.<br/>2 Q. And if you look at, please -- and I'm<br/>3 on the left side about halfway down.<br/>4 A. Okay.<br/>5 Q. I'll read you what the authors say in<br/>6 that regard. "Adjustment for multiple<br/>7 pesticides suggested that there were few<br/>8 instances of substantial confounding of<br/>9 pesticide effects by other pesticides."<br/>10 Do you see that?<br/>11 A. I do see that sentence, yes.<br/>12 Q. So fair to say that the authors<br/>13 disagree with you that there was substantial<br/>14 confounding by other pesticides; true?<br/>15 A. So, again, I can't really tell you<br/>16 what the authors mean without having the larger<br/>17 context of this discussion, which I don't<br/>18 completely recall. But what they're saying is<br/>19 that there were few instances of substantial<br/>20 confounding of pesticide effects by other<br/>21 pesticides. We don't know what chemicals<br/>22 they're referring to, or certainly what they<br/>23 define as substantial.<br/>24 Q. Do you think this article has a<br/>25 problem with systematic recall bias?</p> |

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| Page 90  | Page 92   |
| <p>1 A. I would have to just take a moment<br/>2 again to refresh myself --<br/>3 Q. Sure. Go ahead.<br/>4 A. -- with the methods.<br/>5 (Witness reviewing document.)<br/>6 A. So I think that, you know, whenever<br/>7 we're conducting a retrospective case control<br/>8 study, you know, we have to keep in mind that<br/>9 the cases who are sort of potentially searching<br/>10 for a cause of their cancer might provide a<br/>11 different quality of exposure reporting than the<br/>12 people without cancer, the controls. So I think<br/>13 that, you know, in any retrospective case<br/>14 control study we'd be concerned about that,<br/>15 even -- you know, especially since we're looking<br/>16 for exposures, you know, a relatively long time<br/>17 ago.<br/>18 And then on top of that there is a<br/>19 potential issue with proxy respondents, so that<br/>20 the quality of information that you might get<br/>21 would vary between the cases who reported their<br/>22 exposure directly and the cases for whom next of<br/>23 kin was used to gather that exposure<br/>24 information.<br/>25 Q. The authors considered recall bias and</p> | <p>1 this study; right?<br/>2 A. I have not submitted letters to the<br/>3 editor, no.<br/>4 Q. And if you go back to Dr. Chang's<br/>5 forest plot, you'll see that De Roos '03 is on<br/>6 the plot. And is it accurately represented?<br/>7 MR. COPLE: Objection. Asked and<br/>8 answered.<br/>9 A. So the point estimate and confidence<br/>10 interval in the Chang and Delzell systematic<br/>11 review and meta-analysis comes from the<br/>12 hierarchal logistic regression results for<br/>13 glyphosate in the Hardell paper.<br/>14 BY MR. MILLER:<br/>15 Q. Okay. Let's move on to --<br/>16 A. Sorry, the De Roos paper. I<br/>17 apologize.<br/>18 Q. Yes. Under De Roos '03?<br/>19 A. Exactly.<br/>20 Q. Yes, thank you. All right. We'll<br/>21 move on.<br/>22 Let's talk about Eriksson '08.<br/>23<br/>24<br/>25</p>  |
| Page 91  | Page 93   |
| <p>1 selection bias and concluded they did not have a<br/>2 problem with it in this article; true?<br/>3 A. I would have to reread their<br/>4 discussion.<br/>5 Q. If you'd look at Page 8, and halfway<br/>6 down on the left, I'll read you a sentence. It<br/>7 says -- let me know when you have it. Okay?<br/>8 A. Okay.<br/>9 Q. "Second, the fact that there were few<br/>10 associations suggests that the positive results<br/>11 we observed are not likely to be due to a<br/>12 systematic recall bias for pesticide exposures,<br/>13 or selection bias for the subgroup included in<br/>14 the analyses of multiple pesticides."<br/>15 So they considered it and felt it<br/>16 wasn't a problem; true?<br/>17 A. I agree that the authors came to the<br/>18 conclusion that those weren't major issues, but<br/>19 I would sort of -- I would disagree with --<br/>20 Q. I understand.<br/>21 A. -- the impact that that could have on<br/>22 the findings.<br/>23 Q. And just a follow-up question.<br/>24 Like the last article, you did not<br/>25 submit any letters to the editor criticizing</p>   | <p>1 (Whereupon, Rider Exhibit 23-8,<br/>2 Eriksson, et al article, Pesticide<br/>3 exposure as risk factor for<br/>4 non-Hodgkin lymphoma including<br/>5 histopathological subgroup analysis,<br/>6 was marked for identification.)<br/>7 BY MR. MILLER:<br/>8 Q. You've reviewed this paper?<br/>9 A. I have, yes.<br/>10 Q. And we can agree the International<br/>11 Journal of Cancer is a peer-reviewed journal?<br/>12 A. It is, yes.<br/>13 Q. Have you published in that journal?<br/>14 A. I have, yes.<br/>15 Q. Respected journal?<br/>16 A. Yes.<br/>17 Q. Have you been a peer reviewer for that<br/>18 journal?<br/>19 A. Yes, I have.<br/>20 Q. How many peer reviewers do they<br/>21 generally have review a paper?<br/>22 A. Honestly, I couldn't recall. It's<br/>23 been awhile.<br/>24 Q. And so there's -- one, two, three --<br/>25 four authors to this paper that's in the</p> |

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1 peer-reviewed journal, International Journal of  
 2 Cancer; true?  
 3 A. There are four authors listed, yes.  
 4 Q. And this is a paper on the issue of  
 5 pesticide exposure as a risk factor for  
 6 non-Hodgkin's lymphoma; true?  
 7 A. Correct.  
 8 Q. And generally -- we'll get to some  
 9 quotes in a minute. But generally speaking,  
 10 they found some positive associations for  
 11 glyphosate and non-Hodgkin's lymphoma; true?  
 12 MR. COPLE: Objection. Lacks  
 13 foundation.  
 14 BY MR. MILLER:  
 15 Q. And I know you don't agree with them  
 16 that these findings are significant, but that's  
 17 what they found?  
 18 MR. COPLE: Objection. Lacks  
 19 foundation, vague.  
 20 A. The associations that they found, yes,  
 21 were above 1. But, again, I think that those  
 22 results can be explained by systematic bias.  
 23 BY MR. MILLER:  
 24 Q. Yes, ma'am.  
 25 Let's read a couple of quotes and see

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1 if this is what the authors say. The Eriksson  
 2 paper, and I'm looking at the abstract section,  
 3 they say, "Exposure to glyphosate gave an odds  
 4 ratio 2.02." Statistically significant; true?  
 5 A. That is what it says, that the  
 6 glyphosate gave OR 2.02, and then they list a  
 7 confidence interval that does not include the  
 8 value of 1.  
 9 Q. Yes.  
 10 And for greater than ten-year latency  
 11 period, the odds ratio was 2.26, and  
 12 statistically significant; right?  
 13 A. Again, 2.26, and then they list a  
 14 confidence interval that does not include the  
 15 value of 1, that is correct. But, again, those  
 16 results, especially for the ten-year latency  
 17 period, aren't controlling for other chemicals.  
 18 Q. And have you done any calculations to  
 19 see what the odds ratio would be if they control  
 20 for the other pesticides?  
 21 A. It's not possible to do that with the  
 22 information that's provided in the paper. And,  
 23 also, controlling for other pesticides requires  
 24 that you are collecting the information on those  
 25 pesticides, and at a quality that's sufficient

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1 to control for them.  
 2 Q. And I repeat this question. You did  
 3 not write any letter to the editor to criticize  
 4 the Eriksson paper; right?  
 5 A. I have never written a letter, no, to  
 6 criticize the Eriksson paper.  
 7 Q. Before I forget, have you and  
 8 Dr. Mucci e-mailed each other about your  
 9 respective work here as expert witnesses for  
 10 Monsanto?  
 11 A. No, we have not.  
 12 Q. Have you spoken to each other about  
 13 it?  
 14 A. We have not -- we are both aware that  
 15 we are being retained by Hollingsworth as expert  
 16 witnesses, but we have not spoken about the  
 17 case, no.  
 18 Q. Who did they retain first, you or  
 19 Dr. Mucci?  
 20 A. I have no idea.  
 21 Q. Did you first get contacted by  
 22 Dr. Mucci about this, or by the lawyers of  
 23 Monsanto?  
 24 A. It was attorneys at Hollingsworth LLP  
 25 that contacted me.

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1 Q. Did any other epidemiologists tell you  
 2 that they were going to be calling?  
 3 A. No. It was the attorneys at  
 4 Hollingsworth that contacted me.  
 5 Q. These authors thought about the issue  
 6 of misclassification; right?  
 7 MR. COPLE: Objection. Vague.  
 8 A. Can you tell me what you mean by that?  
 9 What type of misclassification?  
 10 BY MR. MILLER:  
 11 Q. Let's hit it at 30,000 feet. What is  
 12 misclassification in the context of  
 13 epidemiology?  
 14 A. Well, there's both exposure and  
 15 disease misclassification, so those are sort of  
 16 two separate misclassification issues. And then  
 17 within both exposure and disease  
 18 misclassification you can have differential and  
 19 non-differential misclassification. I can  
 20 explain what that means, if you'd like.  
 21 Q. Yes, in a bit we will, but I think I'm  
 22 fairly familiar with it.  
 23 But here they talked about exposure  
 24 misclassification. The authors discussed that  
 25 and decided that if there was any, it would only

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| <p>1 weaken their results; right?</p> <p>2 MR. COPLE: Objection. Lacks</p> <p>3 foundation.</p> <p>4 A. I would need to reread the paper to</p> <p>5 determine what the authors -- how they</p> <p>6 interpreted that. I don't recall.</p> <p>7 BY MR. MILLER:</p> <p>8 Q. Yes, ma'am.</p> <p>9 Let's turn to Page 1660, in their</p> <p>10 Discussion section there on the right side.</p> <p>11 A. Okay.</p> <p>12 Q. Yes. I'm reading about the third</p> <p>13 paragraph down, halfway through the paragraph,</p> <p>14 "Exposure to pesticides may be difficult to</p> <p>15 assess, and some misclassification regarding</p> <p>16 quantity of exposure has probably occurred, but</p> <p>17 such misclassification would most probably be</p> <p>18 nondependent of case/control status, and</p> <p>19 therefore only weaken any true risk."</p> <p>20 That's true, isn't it?</p> <p>21 A. I would disagree with that statement.</p> <p>22 In a case control study where you're evaluating</p> <p>23 exposure after disease has occurred, it's a very</p> <p>24 strong assumption to assume that the level of</p> <p>25 misclassification you have in the cases would be</p>                                      | <p>1 Q. And in that table they say if you've</p> <p>2 been exposed to greater than ten days of</p> <p>3 glyphosate, your odds ratio is 2.36; right?</p> <p>4 A. So this is an analysis where they</p> <p>5 attempted to take into account the duration of</p> <p>6 exposure using this relatively low category of</p> <p>7 ten total days. And, again, this analysis is</p> <p>8 unadjusted for other pesticides. And there they</p> <p>9 find an odds ratio of 2.36, yes.</p> <p>10 Q. 2.36 means it would be over a doubling</p> <p>11 of the risk; right?</p> <p>12 A. Only if you, again, believe in the</p> <p>13 internal validity of this study, and that that</p> <p>14 result isn't confounded by the use of other</p> <p>15 pesticides or other risk factors for NHL.</p> <p>16 Q. I understand the caution.</p> <p>17 But just to assume hypothetically in</p> <p>18 any study, if it was about smoking or lung</p> <p>19 cancer, an odds ratio of 2.36 means we have a</p> <p>20 doubling of the risk; right?</p> <p>21 MR. COPLE: Objection. Asked and</p> <p>22 answered, incomplete hypothetical.</p> <p>23 A. Again, it's easy to find an</p> <p>24 association between variables, so an odds ratio</p> <p>25 of 2.36 is consistent with that outcome being</p> |
| Page 99  | Page 101  |
| <p>1 equivalent to that that's in the controls.</p> <p>2 Q. What evidence do you have that they're</p> <p>3 not correct on that?</p> <p>4 A. So I mean, first of all, all of my</p> <p>5 training as an epidemiologist where we're</p> <p>6 cautioned to be concerned about the quality of</p> <p>7 exposure reporting in retrospective case</p> <p>8 controlled studies. It's sort of a fundamental</p> <p>9 concept in case control design. But, you know,</p> <p>10 when it's one of those issues that, you know,</p> <p>11 just because you can't, you know, show that it's</p> <p>12 happening, you still need to interpret your</p> <p>13 findings in consideration of the impact that it</p> <p>14 would have on those results. And -- yeah.</p> <p>15 Q. If you'd please turn to Page 1659.</p> <p>16 A. Okay.</p> <p>17 Q. On Table 2 in this peer-reviewed</p> <p>18 article by Dr. Eriksson and three other</p> <p>19 scientists from International Journal of Cancer,</p> <p>20 they have a table about exposure to various</p> <p>21 herbicides; true?</p> <p>22 A. Yes, they do.</p> <p>23 Q. And one of those herbicides is</p> <p>24 glyphosate; right?</p> <p>25 A. Yes, it is listed in the table.</p> | <p>1 twice as common among -- that exposure being</p> <p>2 twice as common among people with the outcome,</p> <p>3 but it doesn't tell you what the causal</p> <p>4 relationship is.</p> <p>5 BY MR. MILLER:</p> <p>6 Q. Dr. Rider, can you point to me a study</p> <p>7 done on the issue of glyphosate and</p> <p>8 non-Hodgkin's lymphoma where the results</p> <p>9 indicated people who were exposed to glyphosate</p> <p>10 had less non-Hodgkin's lymphoma than people who</p> <p>11 were?</p> <p>12 A. Well, I think, no, I can't point to a</p> <p>13 study where I could confidently tell you that</p> <p>14 glyphosate exposure was a protective factor for</p> <p>15 non-Hodgkin's lymphoma, if that's what you're</p> <p>16 saying. If you're asking me if there are</p> <p>17 studies where we've observed relative risk</p> <p>18 estimates that are below 1, I can certainly</p> <p>19 point you to those examples.</p> <p>20 Q. Please do.</p> <p>21 A. So, for instance, if we look at the</p> <p>22 dose-response analyses in the Agricultural</p> <p>23 Health Study.</p> <p>24 Q. Any others besides the Agricultural</p> <p>25 Health Study? Because we're going to look at</p>   |



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| <p>1 that, as you might imagine, in more detail</p> <p>2 later.</p> <p>3 A. That is the first one that comes to</p> <p>4 mind.</p> <p>5 Q. Do any others come to mind?</p> <p>6 A. I would have to review the results of</p> <p>7 the pooling project data, but there could be an</p> <p>8 example in there as well.</p> <p>9 Q. That's the NAPP study?</p> <p>10 A. Correct.</p> <p>11 Q. Any others?</p> <p>12 A. That's all I can think of off the top</p> <p>13 of my head. But, again, it would be helpful to</p> <p>14 either look at my report or to see the original</p> <p>15 studies to say for certain.</p> <p>16 Q. Let's go back to this peer-reviewed</p> <p>17 article by Eriksson and his three colleagues,</p> <p>18 and we're still on Page 1659.</p> <p>19 These scientists also indicate on</p> <p>20 Table 3 an odds ratio for B cell lymphoma;</p> <p>21 right? Do you see that, ma'am?</p> <p>22 A. I do, yes.</p> <p>23 Q. And, of course, B cell lymphoma is a</p> <p>24 form of non-Hodgkin's lymphoma; right?</p> <p>25 A. That is correct, yes.</p>  | <p>1 Q. These authors did a univariate</p> <p>2 analysis as well as a multivariate analysis;</p> <p>3 right?</p> <p>4 A. I don't know that I'd describe it as</p> <p>5 univariate. I believe they adjusted for the</p> <p>6 matching factors in the study, which is</p> <p>7 appropriate, but they did do sort of a minimally</p> <p>8 adjusted analysis and then an analysis adjusted</p> <p>9 for additional variables, yes.</p> <p>10 Q. And there was still an increased risk</p> <p>11 under the multivariate analysis; true?</p> <p>12 A. What results are you referring to?</p> <p>13 Q. Yes, ma'am. 1661, Table 7.</p> <p>14 A. Okay. I see it there. So the results</p> <p>15 of the multivariate analysis, they found an odds</p> <p>16 ratio of 1.51, and that was substantially</p> <p>17 reduced from the odds ratio that was not</p> <p>18 controlling for other factors.</p> <p>19 Q. For the univariate risk they saw a</p> <p>20 doubling of the risk, and for the multivariate</p> <p>21 risk they saw a 50 percent increased risk;</p> <p>22 right?</p> <p>23 A. Again, I think that's not an accurate</p> <p>24 way to portray the findings because it makes it</p> <p>25 sound like you're making a causal interpretation</p> |
| Page 103   | Page 105   |
| <p>1 Q. And they show an odds ratio for</p> <p>2 glyphosate for B cell lymphoma of what, ma'am?</p> <p>3 A. The odds ratio listed there is 1.87.</p> <p>4 Q. And that is statistically significant?</p> <p>5 A. Again, I don't really think it's</p> <p>6 meaningful to talk about that, because I don't</p> <p>7 have confidence in the point estimate. So,</p> <p>8 again, as I said before, you can have a very</p> <p>9 precise confidence interval around an estimate</p> <p>10 that's inaccurate and not reflective of the</p> <p>11 truth.</p> <p>12 Q. Yes. And I understand that is your</p> <p>13 strongly held belief. But it is statistically</p> <p>14 significant?</p> <p>15 MR. COPLE: Objection. Asked and</p> <p>16 answered.</p> <p>17 A. Again, if you're asking me does that</p> <p>18 confidence interval include the value of 1,</p> <p>19 actually it does. It's not statistically</p> <p>20 significant. It goes from .998 to 3.51.</p> <p>21 BY MR. MILLER:</p> <p>22 Q. So the p-value would be what in that</p> <p>23 instance?</p> <p>24 A. I can't do that math in my head. I</p> <p>25 can't tell you what the exact p-value would be.</p> | <p>1 of the findings, which I don't think is</p> <p>2 appropriate.</p> <p>3 Q. Setting aside, I'm not trying to make</p> <p>4 a causal association on one study, but that --</p> <p>5 the numbers mean 50 percent more likely or</p> <p>6 100 percent more likely, and I'm -- whether</p> <p>7 they're valid or not, but isn't that what odds</p> <p>8 ratios mean?</p> <p>9 MR. COPLE: Objection. Asked and</p> <p>10 answered.</p> <p>11 A. If you had confidence in the methods</p> <p>12 of the study and the internal validities of the</p> <p>13 study and you found an odds ratio of 1.5, only</p> <p>14 in that case would you say there was a</p> <p>15 50 percent increase in the odds of the outcome.</p> <p>16 BY MR. MILLER:</p> <p>17 Q. Yes. Okay. All right. So last</p> <p>18 question on this peer-reviewed study, and that</p> <p>19 is, could you please take Dr. Chang's 23-3 chart</p> <p>20 and look to see if Eriksson is accurately</p> <p>21 portrayed there by Dr. Chang?</p> <p>22 MR. COPLE: Objection. Asked and</p> <p>23 answered.</p> <p>24 A. So the Eriksson results that are</p> <p>25 included in the Chang and Delzell systematic</p>  |

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| <p style="text-align: right;">Page 106</p> <p>1 review and meta-analysis come from this Table 7,<br/>                 2 the multivariate findings.<br/>                 3 MR. MILLER: All right. I've been<br/>                 4 advised we have to take a break to change tapes.<br/>                 5 A. Okay.<br/>                 6 THE VIDEOGRAPHER: Going off the<br/>                 7 record. The time is 11:08.<br/>                 8 (Whereupon, a recess was taken.)<br/>                 9 THE VIDEOGRAPHER: Back on the record.<br/>                 10 The time is 1:24.<br/>                 11 BY MR. MILLER:<br/>                 12 Q. All right, Doctor, back to work.<br/>                 13 Before we move -- we were going<br/>                 14 through the studies, the case control studies, I<br/>                 15 want to go back to a De Roos '03. And we talked<br/>                 16 about the logistic regression and the hierarchal<br/>                 17 -- how do you say that?<br/>                 18 A. Hierarchical.<br/>                 19 Q. Hierarchical. I'll forget that.<br/>                 20 But I thought you mentioned logistic<br/>                 21 regression was not -- had not been adjusted?<br/>                 22 A. That's right. The authors don't<br/>                 23 indicate that the logistic regression analysis<br/>                 24 has been adjusted for other pesticides.<br/>                 25 Q. Let's go back and look at Table 3.</p>  | <p style="text-align: right;">Page 108</p> <p>1 table, but the asterisk doesn't tell us which<br/>                 2 analysis they're referring to when they say,<br/>                 3 "Each estimate is adjusted for use of other<br/>                 4 pesticides."<br/>                 5 And then when you go to the Methods<br/>                 6 section, they do not discuss controlling for<br/>                 7 other pesticides in their logistic regression<br/>                 8 analysis.<br/>                 9 BY MR. MILLER:<br/>                 10 Q. Do they say in the Methods section we<br/>                 11 did not control for other pesticides?<br/>                 12 A. I would need to go back to the Methods<br/>                 13 to tell you exactly what they say.<br/>                 14 (Witness reviewing document.)<br/>                 15 A. So if you look in the middle of the<br/>                 16 Statistical analyses paragraph on Page 2 of 9.<br/>                 17 Q. Where are you now?<br/>                 18 A. In about the middle of the Statistical<br/>                 19 analyses paragraph on Page 2 of 9 --<br/>                 20 Q. Yes.<br/>                 21 A. -- they talk about how, "We employed<br/>                 22 two approaches to our analyses: standard<br/>                 23 logistic regression (maximum likelihood<br/>                 24 estimation) and hierarchical regression,<br/>                 25 calculating odds ratios to estimate the relative</p>   |
| <p style="text-align: right;">Page 107</p> <p>1 Mr. Traverse wanted me to point this out. If<br/>                 2 you'll look and see where it says "Logistic<br/>                 3 regression." Do you see on Table 3?<br/>                 4 A. I do.<br/>                 5 Q. And then the asterisk underneath Table<br/>                 6 3 it says, "Each estimate is adjusted for use of<br/>                 7 all other pesticides listed in Table 3."<br/>                 8 Do you see that?<br/>                 9 A. I do see that. But when you read the<br/>                 10 methods, it appears as though it is the<br/>                 11 hierarchical logistic regression that is<br/>                 12 adjusted for other pesticides, while the<br/>                 13 logistic regression is not.<br/>                 14 Q. So you agree that at least in this<br/>                 15 table where it says, "Effect estimates for use<br/>                 16 of specific pesticides and non-Hodgkin's<br/>                 17 lymphoma incidence, adjusting for use of other<br/>                 18 pesticides," asterisk, and then it goes to the<br/>                 19 asterisk, it says, "Each estimate is adjusted<br/>                 20 for use of other pesticides."<br/>                 21 MR. COPLE: Objection. Objection,<br/>                 22 asked and answered.<br/>                 23 A. So I agree with you that there is an<br/>                 24 asterisk in the title of the table that is<br/>                 25 referred to as a footnote at the bottom of that</p> | <p style="text-align: right;">Page 109</p> <p>1 risk associated with each pesticide. All models<br/>                 2 included variables for age and indicator<br/>                 3 variables for the study site. Other factors<br/>                 4 known or suspected to be associated with NHL,<br/>                 5 including first degree relative with<br/>                 6 hematopoietic cancer, education, and smoking,<br/>                 7 were evaluated and found not to be important<br/>                 8 confounders of the associations between NHL and<br/>                 9 pesticides. The standard logistic regression<br/>                 10 models did not assume any prior distribution of<br/>                 11 pesticides effects, in contrast to the<br/>                 12 hierarchical regression modeling."<br/>                 13 So there in that paragraph they do not<br/>                 14 talk about how the logistic regression models<br/>                 15 included other pesticides as potential<br/>                 16 confounders, but then they go through a whole<br/>                 17 column of methods describing their approach,<br/>                 18 hierarchical regression that controls for other<br/>                 19 pesticides.<br/>                 20 Q. Have we already asked, do you agree<br/>                 21 that Eriksson on the Chang chart is correctly<br/>                 22 portrayed? And I'm sorry to bounce around on<br/>                 23 you, but I'm trying to move back now.<br/>                 24 A. Sorry. So now we're going back to --<br/>                 25 Q. Back to the Eriksson.</p> |



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|---|---|
| <p>1 A. -- Eriksson?</p> <p>2 Q. Yes, ma'am. And asking if -- I think</p> <p>3 I've already asked. If I have, I apologize. I</p> <p>4 want to make sure that the Chang chart forest</p> <p>5 plot Eriksson is accurately represented on that?</p> <p>6 A. So we did go over that the odds ratio</p> <p>7 that's presented here in the Chang and Delzell</p> <p>8 systematic review and meta-analysis does come</p> <p>9 from Table 7 of the Eriksson paper. But as I</p> <p>10 said before, I'm just including that point</p> <p>11 estimate and confidence interval there is really</p> <p>12 meaningless unless you consider all of the</p> <p>13 threats to internal validity, as well as the</p> <p>14 fact that, you know, these authors found</p> <p>15 associations with every chemical that they</p> <p>16 evaluated when they looked at NHL, which is</p> <p>17 consistent with some form of systematic bias.</p> <p>18 And, also, you know, if we wanted to</p> <p>19 look at my report, I outline several other</p> <p>20 issues also with the Eriksson study.</p> <p>21 (Whereupon, Rider Exhibit 23-9, Cocco,</p> <p>22 et al article, Lymphoma risk and</p> <p>23 occupational exposure to pesticides,</p> <p>24 was marked for identification.)</p> <p>25 BY MR. MILLER:</p> | <p>1 Q. And who are they?</p> <p>2 A. Paul Brennan and Paolo Boffetta.</p> <p>3 Q. Are they well-respected in their</p> <p>4 field?</p> <p>5 A. Yes. I believe they are</p> <p>6 well-respected epidemiologists, yes.</p> <p>7 Q. Paolo Boffetta used to be the head of</p> <p>8 IARC?</p> <p>9 MR. COPLE: Objection. Lacks</p> <p>10 foundation.</p> <p>11 A. I know that Dr. Boffetta had some role</p> <p>12 at IARC, but honestly I don't know what that</p> <p>13 role was.</p> <p>14 BY MR. MILLER:</p> <p>15 Q. Do you know where he is now?</p> <p>16 A. No, I do not know where he's currently</p> <p>17 affiliated.</p> <p>18 Q. Let's go, please, to Page 4, and</p> <p>19 please go to Table 4 on Page 4. Let me know</p> <p>20 when you're there.</p> <p>21 A. Okay. Yep, I'm there.</p> <p>22 Q. This is "Risk of B cell lymphoma and</p> <p>23 occupational exposure to selected active</p> <p>24 ingredients of pesticides"; right?</p> <p>25 A. That is correct.</p>                       |
| Page 111  | Page 113  |
| <p>1 Q. 23-9, the Cocco study, you reviewed</p> <p>2 that before?</p> <p>3 A. I did read the Cocco study, yes.</p> <p>4 Q. The Cocco study, there's -- one, two,</p> <p>5 three, four, five, six, seven, eight --</p> <p>6 MR. COPLE: Do we have a copy?</p> <p>7 MR. MILLER: Of course (handing).</p> <p>8 BY MR. MILLER:</p> <p>9 Q. -- 18 authors?</p> <p>10 A. I would need to count them. One, two,</p> <p>11 three, four, five, six, seven, eight, nine,</p> <p>12 ten -- yes, there are 18 authors on this</p> <p>13 publication, correct.</p> <p>14 Q. And the name of this publication is</p> <p>15 the Occupational Environmental Medicine?</p> <p>16 A. Oh, I'm sorry, the name of the</p> <p>17 journal?</p> <p>18 Q. Yes.</p> <p>19 A. Occupational and Environmental</p> <p>20 Medicine, yes, that's correct.</p> <p>21 Q. A peer-reviewed journal?</p> <p>22 A. I have not published in this journal,</p> <p>23 so I'm not certain.</p> <p>24 Q. Do you know any of these authors?</p> <p>25 A. I do know two of these authors.</p>  | <p>1 Q. And they list one of those pesticides</p> <p>2 as glyphosate; right?</p> <p>3 A. That is correct.</p> <p>4 Q. And the odds ratio they list is 4</p> <p>5 point -- I'm sorry, 3.1?</p> <p>6 A. That is true. But what's more</p> <p>7 striking to me in this table is that the</p> <p>8 analysis is based on four exposed cases and two</p> <p>9 exposed controls only.</p> <p>10 Q. You'll agree that non-Hodgkin's</p> <p>11 lymphoma is a rare cancer?</p> <p>12 MR. COPLE: Objection. Lacks</p> <p>13 foundation.</p> <p>14 A. In terms of cancers in the US, yes,</p> <p>15 there are many more common cancers.</p> <p>16 BY MR. MILLER:</p> <p>17 Q. Let's go to the next page. I'm</p> <p>18 going -- I'm just going to back up and not even</p> <p>19 ask a question.</p> <p>20 Is 2,4-D a herbicide? Is that your</p> <p>21 understanding?</p> <p>22 MR. COPLE: Objection. Vague.</p> <p>23 BY MR. MILLER:</p> <p>24 Q. That's a broad question.</p> <p>25 MR. COPLE: Objection. Vague.</p> |

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1 A. I know that 2,4-D was a common  
 2 chemical that has been evaluated in many of the  
 3 same studies that has identified -- that have  
 4 looked at glyphosate.  
 5 BY MR. MILLER:  
 6 Q. Yes.  
 7 And have these studies indicated an  
 8 association between 2,4-D and an increased risk  
 9 of non-Hodgkin's lymphoma?  
 10 MR. COPLE: Objection. Vague, lacks  
 11 foundation.  
 12 A. Yes, some of the studies have  
 13 identified an association between 2,4-D and NHL.  
 14 BY MR. MILLER:  
 15 Q. And if a person is exposed to two  
 16 substances, both of which increase the risk of a  
 17 condition, would that make them at an even more  
 18 increased risk than being exposed to only one of  
 19 those items?  
 20 MR. COPLE: Objection. Vague,  
 21 incomplete hypothetical.  
 22 A. Yeah, it really depends on the -- on  
 23 the specific relationship between those  
 24 exposures and between the disease.  
 25 BY MR. MILLER:

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1 combined exposure with exposure B were sort of  
 2 more than the sum total of the individual  
 3 exposures.  
 4 Q. Does chewing tobacco cause  
 5 oropharyngeal cancer?  
 6 MR. COPLE: Objection. Vague.  
 7 A. Actually, I'm not sure.  
 8 BY MR. MILLER:  
 9 Q. Okay. Does -- we've talked about  
 10 smoking causes lung cancer. And here's my next  
 11 question.  
 12 Does smoking and moderate drinking  
 13 increase the risk of cancer --  
 14 MR. COPLE: Objection. Vague.  
 15 BY MR. MILLER:  
 16 Q. -- over one who smokes and does not  
 17 drink?  
 18 MR. COPLE: Objection. Vague.  
 19 A. Sorry, which cancer are we talking  
 20 about?  
 21 BY MR. MILLER:  
 22 Q. Any cancer.  
 23 MR. COPLE: Objection. Vague.  
 24 A. So it depends on the cancer that we  
 25 are talking about.

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1 Q. Could not teach that to a class in the  
 2 abstract without knowing the specific exposures?  
 3 A. Not based on the way that you  
 4 described it, no.  
 5 Q. And I know I'm not a real smart guy.  
 6 What's wrong with the way I described it?  
 7 A. Well, I don't know what concept you're  
 8 trying to get at in your description.  
 9 Q. Well, I'm not trying -- just forget  
 10 about pesticides, forget about herbicides.  
 11 A. Okay.  
 12 Q. If condition A -- exposure to A can  
 13 cause an injury, and if separately exposure to B  
 14 can cause an injury, would I increase my risk of  
 15 that injury if I was exposed to both A and B?  
 16 MR. COPLE: Objection. Vague,  
 17 incomplete hypothetical.  
 18 A. It depends whether there was a  
 19 synergistic relationship between A and B.  
 20 BY MR. MILLER:  
 21 Q. And how would you describe to a  
 22 layperson what a synergistic effect is?  
 23 A. So when we're talking about sort of  
 24 biological synergy, that would mean that the  
 25 effect of exposure A on the outcome and the

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1 BY MR. MILLER:  
 2 Q. Okay. Any cancer, I mean, just any  
 3 one.  
 4 MR. COPLE: Objection. Asked and  
 5 answered.  
 6 A. I can't tell you the answer to that  
 7 question if I don't know what specific cancer  
 8 we're talking about. It would certainly vary  
 9 according to which cancer we're talking about.  
 10 BY MR. MILLER:  
 11 Q. Okay. Some cancers it would increase  
 12 the risk, and some it wouldn't?  
 13 MR. COPLE: Objection. Asked and  
 14 answered.  
 15 A. Again, could you rephrase the question  
 16 that you're asking, please?  
 17 BY MR. MILLER:  
 18 Q. I'm not trying to hide the ball. I  
 19 mean, I'm just trying --  
 20 A. I just don't understand the question.  
 21 Q. Okay. Like smoking and drinking as  
 22 compared to just smoking, does that increase  
 23 one's risk of lung cancer?  
 24 A. Not that I'm aware of, no.  
 25 Q. How about oropharyngeal cancer?

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|   |   |
|---|---|
| Page 118  | Page 120  |
| <p>1 MR. COPLE: Objection. Asked and<br/>2 answered.<br/>3 A. So again, if what you're asking is, is<br/>4 there a biological interaction between smoking<br/>5 and drinking with respect to oropharyngeal<br/>6 cancer, if that's what you're asking, I'm<br/>7 actually not sure. I believe that both of those<br/>8 are independent risk factors for oropharyngeal<br/>9 cancer. I don't know if there's a synergistic<br/>10 relationship. I'm not sure.<br/>11 BY MR. MILLER:<br/>12 Q. Going back to the last study we looked<br/>13 at, the Cocco study, the odds ratio 3.1 that we<br/>14 saw in Table 4 --<br/>15 A. Mm-hmm.<br/>16 Q. -- do you remember that conversation?<br/>17 Do you criticize this study or this<br/>18 result?<br/>19 A. I think that an analysis based on four<br/>20 exposed cases and two exposed controls should be<br/>21 interpreted as exploratory at the very most.<br/>22 Q. Let's move on to the next study.<br/>23<br/>24<br/>25</p>  | <p>1 A. Yes, that's correct.<br/>2 Q. Is it a peer-reviewed journal?<br/>3 A. Again, I haven't published in this<br/>4 journal, so I couldn't be certain.<br/>5 Q. Oh, I've got to switch with you. I<br/>6 gave you the wrong copy. Sorry. All right.<br/>7 Doctor, that same thing, just not my work copy<br/>8 (handing). Okay?<br/>9 A. Okay.<br/>10 Q. Do you know either of the authors?<br/>11 A. I do not.<br/>12 Q. And the issue they're studying in this<br/>13 article is Non-Hodgkin's Lymphoma and<br/>14 Occupational Exposure to Agricultural Pesticide<br/>15 Chemical Groups and Active Ingredients; right?<br/>16 A. That is correct.<br/>17 Q. And it's a meta-analysis; right?<br/>18 A. Well, like the Chang and Delzell paper<br/>19 that we've also been referring to, it is a<br/>20 systematic review and meta-analysis, so the<br/>21 combining of the relative risks and the<br/>22 confidence intervals is just one sort of small<br/>23 piece of the paper.<br/>24 Q. Let's look at this meta-analysis, if<br/>25 we could, please, on Page 4513.</p>               |
| Page 119  | Page 121  |
| <p>1 (Whereupon, Rider Exhibit 23-10,<br/>2 Schinasi and Leon article, Non-Hodgkin<br/>3 Lymphoma and Occupational Exposure to<br/>4 Agricultural Pesticide Chemical Groups<br/>5 and Active Ingredients, was marked for<br/>6 identification.)<br/>7 BY MR. MILLER:<br/>8 Q. We're at our first meta-analysis. Can<br/>9 we look at 23-10 together? This is Schinasi.<br/>10 Am I pronouncing that right?<br/>11 A. I have no idea.<br/>12 Q. I don't know. Nor do I. You've --<br/>13 have you reviewed this?<br/>14 A. I did look at this, yes. But as I<br/>15 said before, none of the analyses really weighed<br/>16 into my own independent expert opinion.<br/>17 Q. You say you looked at it. Did you<br/>18 read the whole thing?<br/>19 A. I probably skimmed over the whole<br/>20 thing. I don't think I read the whole thing<br/>21 thoroughly.<br/>22 Q. And this is published in the<br/>23 International Journal for Environmental Public<br/>24 Health, I don't know what the RES stands for,<br/>25 frankly -- Research and Public Health.</p> | <p>1 A. Okay.<br/>2 Q. And that is a table on the<br/>3 meta-analytic summary estimates of association<br/>4 between herbicides and insecticides with<br/>5 non-Hodgkin's lymphoma; right?<br/>6 A. That is correct, yes.<br/>7 Q. And one of the herbicides that they<br/>8 look at is glyphosate; right?<br/>9 A. That is listed here in the table, yes.<br/>10 Q. And they give us a meta-risk ratio<br/>11 estimate, and for glyphosate they give us 1.5 as<br/>12 the risk ratio; right?<br/>13 A. That is the number that's listed in<br/>14 the table, yes.<br/>15 Q. And the width of the confidence<br/>16 interval is 1.1 to 2.0; right?<br/>17 A. That is correct. But as I've said,<br/>18 unless you believe that the -- all of the<br/>19 studies that are included in this meta-analysis<br/>20 have internal validity, there's really no<br/>21 meaning to that point estimate or the confidence<br/>22 interval.<br/>23 Q. And the papers that these authors say<br/>24 contribute to this meta-analysis are papers 30,<br/>25 31, 33, 43, and 46 in their footnotes; right?</p> |

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|---|--|
| <p>1 A. 30 to 33, 43, and 46, that is correct.</p> <p>2 Q. So that would be the De Roos paper in</p> <p>3 '03?</p> <p>4 A. Yeah, I'm there.</p> <p>5 Q. And it would be the De Roos paper in</p> <p>6 '05, which is the Agricultural Health Study;</p> <p>7 right?</p> <p>8 A. That is correct.</p> <p>9 Q. And it would include Eriksson's study</p> <p>10 from '08 that we've just discussed; right?</p> <p>11 A. Correct.</p> <p>12 Q. And they also analyzed the Hardell</p> <p>13 study from '02?</p> <p>14 A. Correct.</p> <p>15 Q. And also in the Schinasi</p> <p>16 meta-analysis. They looked at the McDuff paper</p> <p>17 that we've talked about; right?</p> <p>18 A. McDuffie, yes.</p> <p>19 Q. McDuffie.</p> <p>20 And finally, they looked at the Orsi</p> <p>21 paper, right?</p> <p>22 A. Yes, that is correct.</p> <p>23 Q. And when they looked at all these</p> <p>24 papers and performed a meta-analysis on them, at</p> <p>25 least to these authors they felt there was a</p>   | <p>1 of scientific certainty did affect; right?</p> <p>2 MR. COPLÉ: Objection. Argumentative.</p> <p>3 A. Can you tell me, affect what? What do</p> <p>4 you mean?</p> <p>5 BY MR. MILLER:</p> <p>6 Q. You said -- I want to go back and</p> <p>7 look. Give me a second here. You said that</p> <p>8 this didn't -- I want to go back and get the</p> <p>9 right language here. One second, excuse me.</p> <p>10 "But even more importantly, that 1.5</p> <p>11 doesn't take into account the systemic bias that</p> <p>12 could have affected the results in all of these</p> <p>13 individual studies." And "could have affected,"</p> <p>14 but you can't say to a reasonable degree of</p> <p>15 scientific certainty did affect. And that's</p> <p>16 fair; right?</p> <p>17 MR. COPLÉ: Objection. Argumentative.</p> <p>18 A. I think that from what we now know</p> <p>19 from the Agricultural Health Study and from the</p> <p>20 NAPP, it seems very clear that these studies did</p> <p>21 have systematic bias that influenced their</p> <p>22 results.</p> <p>23 BY MR. MILLER:</p> <p>24 Q. How does the -- you're referring to</p> <p>25 the AHS unpublished study, is that --</p> |
| Page 123  | Page 125   |
| <p>1 50 percent meta-risk ratio; right?</p> <p>2 MR. COPLÉ: Objection. Asked and</p> <p>3 answered.</p> <p>4 A. So as I said, that is the result of</p> <p>5 their meta-analysis from those papers that you</p> <p>6 just -- that you just listed. I think it's</p> <p>7 important to point out that that list does not</p> <p>8 include some of the more recent and, in my</p> <p>9 opinion, the strongest evidence that we have to</p> <p>10 date on glyphosate and NHL, as was included in</p> <p>11 the subsequent meta-analysis by Chang and</p> <p>12 Delzell. But even more importantly, that 1.5</p> <p>13 doesn't take into account the systematic bias</p> <p>14 that could have affected the results in all of</p> <p>15 those individual studies.</p> <p>16 And if, you know, we read through the</p> <p>17 systematic review portion of this article, as</p> <p>18 well as the Chang and Delzell article, I think</p> <p>19 you get a much better sense for how there could</p> <p>20 be alternative reasons for those odds ratios</p> <p>21 that were above 1, other than that glyphosate is</p> <p>22 a cause of NHL.</p> <p>23 BY MR. MILLER:</p> <p>24 Q. You said "could have affected," but</p> <p>25 you certainly can't say to a reasonable degree</p> | <p>1 A. Or even the 2005 study.</p> <p>2 Q. And we're going to talk about both of</p> <p>3 those in more detail. But let's go back to the</p> <p>4 published meta-analysis by Schinasi and Leon --</p> <p>5 A. Okay.</p> <p>6 Q. -- still on Table 5.</p> <p>7 In addition to showing a 50 percent</p> <p>8 risk for glyphosate, they also looked at the</p> <p>9 glyphosate association specifically with B cell</p> <p>10 lymphoma; right?</p> <p>11 A. Yes.</p> <p>12 Could you remind me of that page</p> <p>13 number again?</p> <p>14 Q. Yes, ma'am. That's 4513.</p> <p>15 A. Thank you.</p> <p>16 Okay. Yes, they also present another</p> <p>17 estimate for the glyphosate association</p> <p>18 specifically with B cell lymphoma.</p> <p>19 Q. And they showed a doubling of the</p> <p>20 risk, right?</p> <p>21 A. I wouldn't characterize it that way.</p> <p>22 I would say in their meta-analysis, using all of</p> <p>23 these studies that I've told you I think have</p> <p>24 some very important limitations, they found</p> <p>25 meta-analysis RR of 2.0.</p>  |

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| <p>1 Q. And they cite as the studies they used<br/>2 in that finding as the Eriksson study, and 63,<br/>3 which is the Cocco study that we just looked at,<br/>4 right?<br/>5 A. That is correct, yes.<br/>6 Q. And you disagree that these are<br/>7 accurate findings; right?<br/>8 A. I do. As we talked about before, the<br/>9 Cocco study was based on only four exposed<br/>10 cases. I definitely don't believe you can make<br/>11 causal inferences based on four people. And the<br/>12 Eriksson study was -- had a number of issues,<br/>13 including the fact that every single chemical<br/>14 that was investigated in the Eriksson study -- I<br/>15 can't tell you how many there are offhand, but<br/>16 if we looked at my report we could tell. Every<br/>17 single chemical they looked at showed an<br/>18 association with NHL. So we could take that to<br/>19 mean that every single one of those chemicals is<br/>20 associated -- is a cause of NHL, or the much<br/>21 more likely explanation is that study suffers<br/>22 from a systematic bias.<br/>23 Q. Let's look at Table 5. It's not true<br/>24 to say that every chemical was associated with a<br/>25 risk, is it, Doctor?</p> | <p>1 of the studies for all of these other chemicals,<br/>2 so I can't speak to their quality. I would need<br/>3 to go and look at all those primary studies to<br/>4 tell you.<br/>5 Q. For Alkalol they do not show an<br/>6 increased risk; true?<br/>7 MR. COPLE: Objection. Asked and<br/>8 answered.<br/>9 A. I'm sorry. Alkalol in this Table 5?<br/>10 BY MR. MILLER:<br/>11 Q. Yes. It's at the top of Table 5.<br/>12 MR. COPLE: Same objection.<br/>13 A. So, you know, I can look at this<br/>14 meta-risk ratio in this table from the<br/>15 meta-analysis component of this systematic<br/>16 review and meta-analysis, and indeed it does<br/>17 show that there is a risk ratio of .9, but that<br/>18 risk ratio means absolutely nothing if we don't<br/>19 interpret it in terms of the context of the<br/>20 quality of those studies that it went into<br/>21 generating that meta-analysis risk ratio<br/>22 estimate.<br/>23 BY MR. MILLER:<br/>24 Q. And they showed no increased risk for<br/>25 trifluralin, right?</p>  |
| Page 127   | Page 129   |
| <p>1 MR. COPLE: Objection. Argumentative.<br/>2 A. Sorry, Table 5 in this -- in the<br/>3 meta-analysis?<br/>4 BY MR. MILLER:<br/>5 Q. Yes.<br/>6 A. Okay.<br/>7 Q. Alkalol, whatever that is, was not<br/>8 associated with an increased risk, was it?<br/>9 A. I was talking about the Eriksson<br/>10 study. So you were asking me about whether I<br/>11 believe those results were true for B cell<br/>12 lymphoma specifically, and I was explaining<br/>13 that --<br/>14 Q. I see.<br/>15 A. Yes.<br/>16 Q. I misunderstood you then.<br/>17 But you'll agree from Table 5 on this<br/>18 meta-analysis done by Schinasi, they list<br/>19 several chemicals where they don't show an<br/>20 increased risk; true?<br/>21 A. Again, so I mean, I think, you know,<br/>22 all of these meta-analysis risk ratios are<br/>23 dependent solely on the quality of the studies<br/>24 that went into developing that meta-analysis<br/>25 estimate. So, you know, I haven't reviewed all</p>  | <p>1 A. Sorry.<br/>2 Q. It's about a third of the way down,<br/>3 trifluralin.<br/>4 A. Trifluralin. So I can really give you<br/>5 the same response that I just said a moment ago,<br/>6 that's that while this meta-risk ratio is .9,<br/>7 that estimate means absolutely nothing if we<br/>8 don't have confidence in the results of the<br/>9 independent studies that were used to generate<br/>10 that meta-analysis risk ratio.<br/>11 Q. Urea herbicides, they show an<br/>12 increased risk on Table 5; right?<br/>13 MR. COPLE: Objection. Asked and<br/>14 answered.<br/>15 A. So once again, that meta-risk ratio<br/>16 estimate is 1.0. I would know really nothing<br/>17 about how meaningful that meta-analysis risk<br/>18 estimate is without reviewing all of the<br/>19 individual studies that went into that estimate,<br/>20 because if those studies are biased, then so,<br/>21 too, will be this meta-analysis risk ratio<br/>22 estimate.<br/>23 Q. Indeed, Table 5 from this<br/>24 peer-reviewed published meta-analysis shows the<br/>25 meta-risk ratio for a whole page load of these</p> |



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| <p style="text-align: right;">Page 130</p> <p>1 items, and the highest risk ratio for any item<br/>                 2 is glyphosate associated with B cell lymphoma;<br/>                 3 true?<br/>                 4 MR. COPLE: Objection. The document<br/>                 5 speaks for itself. Asked and answered.<br/>                 6 A. So I mean, there are other risk ratio<br/>                 7 estimates on this page that are equivalent to<br/>                 8 the one found from glyphosate. But again, none<br/>                 9 of these mean anything at all. We can combine<br/>                 10 lots of estimates from lots of different studies<br/>                 11 that were improperly conducted or had flaws in<br/>                 12 their analysis and, you know, we can see a risk<br/>                 13 ratio that's above 1, but that doesn't provide<br/>                 14 us with any greater assurance as to the<br/>                 15 association, the causal association between the<br/>                 16 exposure and the outcome than those poorly<br/>                 17 conducted individual studies did.<br/>                 18 BY MR. MILLER:<br/>                 19 Q. And have you written to anyone to tell<br/>                 20 the journal that this was a poorly conducted<br/>                 21 study, the Schinasi and Leon? Have you<br/>                 22 criticized it in writing before being hired as<br/>                 23 an expert by Monsanto in any way?<br/>                 24 MR. COPLE: Objection. Vague.<br/>                 25 A. I don't need to contact the journals</p> | <p style="text-align: right;">Page 132</p> <p>1 frequency wasn't a cause of prostate cancer, and<br/>                 2 in our response to those articles we provided<br/>                 3 them with evidence that that was actually an<br/>                 4 implausible hypothesis.<br/>                 5 Q. And so that's what I'm asking. As<br/>                 6 regard that happens in science, people write<br/>                 7 letters to editors to debate articles, and<br/>                 8 authors respond; right?<br/>                 9 MR. COPLE: Objection. Asked and<br/>                 10 answered.<br/>                 11 A. So it certainly happens, but more<br/>                 12 often than not it doesn't happen. I think the<br/>                 13 number of articles that are out there in the<br/>                 14 peer-reviewed literature for which there's never<br/>                 15 been a letter written far exceeds the number of<br/>                 16 articles for which there has been this dialogue<br/>                 17 through letters. And I think that has nothing<br/>                 18 to do with the quality of those publications.<br/>                 19 BY MR. MILLER:<br/>                 20 Q. To be clear, before we leave the<br/>                 21 Schinasi article, you did not write such a<br/>                 22 letter criticizing the Schinasi article to the<br/>                 23 International Journal of Research and Public<br/>                 24 Health?<br/>                 25 MR. COPLE: Objection. Asked and</p> |
| <p style="text-align: right;">Page 131</p> <p>1 to be able to offer my opinions and review of<br/>                 2 the literature.<br/>                 3 BY MR. MILLER:<br/>                 4 Q. I'm sorry, I interrupted. Go ahead<br/>                 5 and finish.<br/>                 6 A. That's not typically how this works.<br/>                 7 And while, you know, you have stated again that<br/>                 8 this is a peer-reviewed publication, I think any<br/>                 9 scientist would agree that the quality of the<br/>                 10 peer-reviewed published literature varies<br/>                 11 substantially. So just because we see something<br/>                 12 in print doesn't mean that we can just take<br/>                 13 those results at face value without considering<br/>                 14 the limitations of the study.<br/>                 15 Q. In your high ejaculation low risk of<br/>                 16 prostate cancer study, someone did write a<br/>                 17 letter to the editor and criticized that study.<br/>                 18 Do you remember that?<br/>                 19 A. There was a dialogue, and I responded<br/>                 20 to that letter that I believe you're referring<br/>                 21 to. I wouldn't really characterize that as a<br/>                 22 criticism. I think the authors were sort of<br/>                 23 seeking clarification. They had one specific<br/>                 24 hypothesis about how they thought that our<br/>                 25 results might have come about if ejaculation</p>                 | <p style="text-align: right;">Page 133</p> <p>1 answered four times.<br/>                 2 A. Yeah, I don't think it's necessary to<br/>                 3 write letters for every article that I might<br/>                 4 have criticisms of, no.<br/>                 5 BY MR. MILLER:<br/>                 6 Q. All right. Can you think of anyone<br/>                 7 that wrote a letter criticizing this article by<br/>                 8 Schinasi and Leon?<br/>                 9 MR. COPLE: Objection. Vague.<br/>                 10 A. I would have to look in PubMed to tell<br/>                 11 you whether or not there were -- there were<br/>                 12 letters written.<br/>                 13 BY MR. MILLER:<br/>                 14 Q. Since you've been retained as an<br/>                 15 expert by Monsanto, have you written any letters<br/>                 16 criticizing this --<br/>                 17 MR. COPLE: Objection. Asked and<br/>                 18 answered.<br/>                 19 BY MR. MILLER:<br/>                 20 Q. -- article?<br/>                 21 A. So I have answered that already. I<br/>                 22 have not written letters about any of these<br/>                 23 articles. That has nothing to do with my<br/>                 24 determination about the quality of those<br/>                 25 articles, and, yeah, those two things aren't</p>   |

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| Page 134   | Page 136   |
| <p>1 related.</p> <p>2 Q. Let's go to the NAPP study. You</p> <p>3 reviewed that, right, Doctor?</p> <p>4 A. The draft manuscript is what you're</p> <p>5 referring to, or the -- what aspect of the NAPP</p> <p>6 study?</p> <p>7 (Whereupon, Rider Exhibit 23-11,</p> <p>8 9/21/15 NAPP manuscript, was marked</p> <p>9 for identification.)</p> <p>10 BY MR. MILLER:</p> <p>11 Q. What aspects of it have you reviewed?</p> <p>12 MR. COPLE: Objection. Vague.</p> <p>13 A. So I have reviewed both a draft</p> <p>14 manuscript as well as some oral presentations</p> <p>15 and PowerPoint slides that were presented at</p> <p>16 conferences.</p> <p>17 BY MR. MILLER:</p> <p>18 Q. Let's start with the manuscript. Is</p> <p>19 this 23-11 the manuscript that you reviewed?</p> <p>20 MR. COPLE: Do you have a copy?</p> <p>21 MR. MILLER: Of course (handing).</p> <p>22 A. Yes. So I believe this is the same</p> <p>23 version that I reviewed, but in my report I</p> <p>24 primarily relied on the results from the</p> <p>25 PowerPoint presentations that were presented at</p> | <p>1 That's covered by the protocol.</p> <p>2 A. I did not take any --</p> <p>3 MR. COPLE: Don't --</p> <p>4 A. -- any notes.</p> <p>5 MR. COPLE: Okay.</p> <p>6 BY MR. MILLER:</p> <p>7 Q. Okay. Is there anything you're going</p> <p>8 to tell a jury, gee, Dr. Neugut's just</p> <p>9 scientifically wrong on this, other than we</p> <p>10 disagree -- we have a reasonable disagreement</p> <p>11 about conclusions?</p> <p>12 MR. COPLE: Objection. Argumentative.</p> <p>13 A. There were a number of things that I</p> <p>14 disagreed with in Dr. Neugut's testimony.</p> <p>15 BY MR. MILLER:</p> <p>16 Q. And I'm sure you disagree with him</p> <p>17 using the Bradford-Hill criteria here, or coming</p> <p>18 to the conclusions on causality that he did, but</p> <p>19 is there anything that you read that you</p> <p>20 thought, gee, this guy just doesn't know his</p> <p>21 epidemiology?</p> <p>22 MR. COPLE: Objection. Argumentative,</p> <p>23 vague.</p> <p>24 A. I would need to see Dr. Neugut's</p> <p>25 deposition to point you to specific examples.</p> |
| Page 135   | Page 137   |
| <p>1 various conferences.</p> <p>2 BY MR. MILLER:</p> <p>3 Q. And this is authored by 12 authors?</p> <p>4 MR. COPLE: Objection. The document</p> <p>5 speaks for itself.</p> <p>6 A. Yes, I count 12 authors, correct.</p> <p>7 BY MR. MILLER:</p> <p>8 Q. Do you know Dr. Aaron Blair?</p> <p>9 A. I do not.</p> <p>10 Q. Have you read his deposition in this</p> <p>11 case?</p> <p>12 A. I do not believe I've reviewed</p> <p>13 Dr. Blair's deposition, no.</p> <p>14 Q. Let me back up.</p> <p>15 Have you reviewed any depositions in</p> <p>16 this case?</p> <p>17 A. I have. I've reviewed Dr. Neugut's</p> <p>18 deposition, and also Dr. Ritz's deposition.</p> <p>19 Q. Do you know Dr. Neugut?</p> <p>20 A. I have never met Dr. Neugut, no.</p> <p>21 Q. Did you take any notes, any criticisms</p> <p>22 about Dr. Neugut's testimony?</p> <p>23 A. I did --</p> <p>24 MR. COPLE: Objection to the extent</p> <p>25 you're looking for notes by an expert witness.</p>   | <p>1 But, yes, it was -- there were issues, other</p> <p>2 than the use of the Bradford-Hill criteria, for</p> <p>3 which I disagreed with his application of</p> <p>4 epidemiologic methods, yes.</p> <p>5 BY MR. MILLER:</p> <p>6 Q. Looking at 23-11, do you know anything</p> <p>7 about Dr. Blair's credentials or his expertise?</p> <p>8 A. No. I had not -- I was not familiar</p> <p>9 with Dr. Blair until reading in these -- the</p> <p>10 papers that he had co-authored.</p> <p>11 Q. Do you whether he had any relationship</p> <p>12 with IARC?</p> <p>13 A. I know that he was present at the IARC</p> <p>14 monograph, because that's disclosed in the</p> <p>15 actual monograph.</p> <p>16 Q. Was he the chair of that monograph</p> <p>17 Volume 112?</p> <p>18 MR. COPLE: Objection. Monograph</p> <p>19 speaks for itself.</p> <p>20 A. I would have to look again at the</p> <p>21 monograph. I don't recall.</p> <p>22 BY MR. MILLER:</p> <p>23 Q. Let's go to Page 2, and it says "What</p> <p>24 This Paper Adds."</p> <p>25 Do you see that?</p>               |



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| Page 138   | Page 140   |
| <p>1 A. I do.</p> <p>2 Q. And let me go back. I think I jumped</p> <p>3 ahead.</p> <p>4 The title of the paper is, and it's on</p> <p>5 Page 1, "An evaluation of glyphosate use and the</p> <p>6 risk of non-Hodgkin's lymphoma major</p> <p>7 histological sub-types in the North American</p> <p>8 Pooled Project (NAPP)"; right?</p> <p>9 A. That is correct.</p> <p>10 Q. So looking at that issue, on Page 2</p> <p>11 the authors say "What This Paper Adds," "Date of</p> <p>12 last revision: September 21, 2015."</p> <p>13 A. Uh-huh.</p> <p>14 Q. Do you know if that was after IARC</p> <p>15 Volume 112?</p> <p>16 A. I actually don't recall the exact date</p> <p>17 of the IARC meeting, no.</p> <p>18 Q. So what this paper adds, sub-bullet</p> <p>19 three, "Subjects who ever used glyphosate had</p> <p>20 elevated odds ratios for non-Hodgkin's lymphoma</p> <p>21 overall and for all subtypes except follicular</p> <p>22 lymphoma."</p> <p>23 Did I read that correctly?</p> <p>24 MR. COPLE: Objection. The document</p> <p>25 speaks for itself.</p>  | <p>1 A. Okay.</p> <p>2 Q. In the Discussion section, the second</p> <p>3 paragraph, these authors state, "This report</p> <p>4 confirms previous analyses indicating increased</p> <p>5 risk of non-Hodgkin's lymphoma in association</p> <p>6 with glyphosate exposure."</p> <p>7 Do you agree, or not agree?</p> <p>8 A. I disagree with that statement.</p> <p>9 Q. And below that, the next paragraph,</p> <p>10 "Our results are also aligned with findings from</p> <p>11 epidemiological studies of other populations</p> <p>12 that found an elevated risk of non-Hodgkin's</p> <p>13 lymphoma for glyphosate exposure and with a</p> <p>14 greater number of days/years of glyphosate use,</p> <p>15 as well as a meta-analysis of glyphosate use and</p> <p>16 non-Hodgkin's lymphoma risk. From our</p> <p>17 epidemiological perspective, our results were</p> <p>18 supportive of the IARC evaluation of glyphosate</p> <p>19 as a probable carcinogen for non-Hodgkin's</p> <p>20 lymphoma."</p> <p>21 Agree or disagree?</p> <p>22 A. Well, I would disagree, because these</p> <p>23 results that they are referring to don't adjust</p> <p>24 for other pesticides, as I've mentioned. And,</p> <p>25 you know, you can see clearly in their oral</p> |
| Page 139   | Page 141   |
| <p>1 A. Yes, follicular lymphoma, yes.</p> <p>2 BY MR. MILLER:</p> <p>3 Q. And you disagree with the authors in</p> <p>4 that conclusion?</p> <p>5 A. Well, I think that when we look at the</p> <p>6 results of the analysis in the NAPP that were</p> <p>7 adjusted for other chemicals, and also the</p> <p>8 analysis where they excluded proxy respondents,</p> <p>9 we see no association between glyphosate and</p> <p>10 NHL.</p> <p>11 Q. These authors write, "Significant or</p> <p>12 nearly significant risk of non-Hodgkin's</p> <p>13 lymphoma overall were observed for greater than</p> <p>14 two days per year (odds ratio 2.42)."</p> <p>15 Is that an association that you think</p> <p>16 was -- that you criticize?</p> <p>17 A. I think that the results from the NAPP</p> <p>18 that are adjusted for other chemicals, so they</p> <p>19 adjusted for three other chemicals, and then</p> <p>20 found no association between glyphosate and NHL.</p> <p>21 I believe those results are much more compelling</p> <p>22 because their results are consistent with there</p> <p>23 being confounding by those other pesticides.</p> <p>24 Q. Go to, if you would, to Page 12,</p> <p>25 please.</p> | <p>1 presentations where they adjust for those</p> <p>2 pesticides that that adjustment has a profound</p> <p>3 impact on the results and the conclusions that</p> <p>4 you would draw from those results.</p> <p>5 They also, in those same</p> <p>6 presentations, determine that proxy respondents</p> <p>7 were extremely influential and drove the odds</p> <p>8 ratios upward, and when they removed those proxy</p> <p>9 respondents the association was no longer</p> <p>10 apparent.</p> <p>11 So it's my view that when they're</p> <p>12 talking about how their results are consistent</p> <p>13 with previous findings, first of all, I don't</p> <p>14 think those findings tell us much because of the</p> <p>15 quality of many of those studies, but also</p> <p>16 they're choosing the wrong estimates to base</p> <p>17 that opinion on.</p> <p>18 Q. They end their discussion -- well, not</p> <p>19 quite the end, but go to the bottom of Page 14</p> <p>20 of 19.</p> <p>21 A. Okay.</p> <p>22 Q. They talk about recall bias and state</p> <p>23 that it is not a major concern in the Canadian</p> <p>24 studies or in the NAPP as a whole.</p> <p>25 Do you see that statement?</p>  |

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| Page 142   | Page 144   |
| <p>1 MR. COPLE: Objection. The document</p> <p>2 speaks for itself.</p> <p>3 A. Could you give me a little more</p> <p>4 direction on where that statement is?</p> <p>5 BY MR. MILLER:</p> <p>6 Q. Yes, ma'am. At the bottom of Page 14,</p> <p>7 "No similar analysis of recall bias has been</p> <p>8 conducted in the Canadian case-control study,</p> <p>9 but the similarity of study designs between the</p> <p>10 US and Canada make it likely that recall bias is</p> <p>11 not a major concern in the Canadian study and</p> <p>12 NAPP as a whole."</p> <p>13 Do you agree or disagree?</p> <p>14 A. Well, I mean, I think that in their</p> <p>15 own analyses of the NAPP they've demonstrated</p> <p>16 that recall bias was a problem, because when you</p> <p>17 don't include the proxy respondents, you get a</p> <p>18 different result. So I would disagree with that</p> <p>19 statement.</p> <p>20 But I think even if you don't think</p> <p>21 that recall bias is an issue, there are a number</p> <p>22 of other issues in these case control studies</p> <p>23 that went into the pooling project data. I</p> <p>24 mean, I think I outline them all in my report,</p> <p>25 and we can go through those.</p>  | <p>1 some of my concerns regarding the individual</p> <p>2 North American case control studies.</p> <p>3 Q. Okay. Switching topics.</p> <p>4 A. Okay.</p> <p>5 Q. Exponent meta-analysis. Do you know</p> <p>6 what I mean when I say that?</p> <p>7 MR. COPLE: Objection. Vague, lacks</p> <p>8 foundation.</p> <p>9 A. You would need to show me what you</p> <p>10 mean by that.</p> <p>11 BY MR. MILLER:</p> <p>12 Q. Dr. Chang's meta-analysis, are you</p> <p>13 familiar when I say that?</p> <p>14 A. Well, the one you showed me previously</p> <p>15 was also Dr. Chang's meta-analysis.</p> <p>16 (Whereupon, Rider Exhibit 23-12,</p> <p>17 5/24/17 Exponent paper, Meta-Analysis</p> <p>18 of Glyphosate Use and Risk of</p> <p>19 Non-Hodgkin Lymphoma, was marked for</p> <p>20 identification.)</p> <p>21 BY MR. MILLER:</p> <p>22 Q. Doctor, I'm showing you what we've</p> <p>23 marked as 23-12.</p> <p>24 A. Okay.</p> <p>25 Q. Have you seen this document before</p>   |
| Page 143   | Page 145   |
| <p>1 But just, for example, the timing of</p> <p>2 when the studies were conducted, with respect</p> <p>3 to when glyphosate went on the market, allowed</p> <p>4 for only a very, very short latency period, and</p> <p>5 it's very unlikely that the cancer cases that</p> <p>6 arose during that study could have been due to</p> <p>7 exposure by glyphosate.</p> <p>8 Q. So you take this study as support for</p> <p>9 your opinion that there is no association</p> <p>10 between glyphosate and Roundup; right?</p> <p>11 A. I wouldn't say that. You've just been</p> <p>12 asking me if I agree with the authors'</p> <p>13 conclusions of the paper, and I, as I said, I</p> <p>14 disagree with many of their conclusions because</p> <p>15 I think they're looking at the wrong results.</p> <p>16 Q. Okay. And this is a new question. So</p> <p>17 I want to make sure I understand.</p> <p>18 When I think about Dr. Rider's</p> <p>19 opinions, Dr. Rider does not say the NAPP study</p> <p>20 supports, or does say the NAPP study supports</p> <p>21 her opinion there's no association?</p> <p>22 A. So I would say that the analyses in</p> <p>23 the NAPP study, particularly those that were not</p> <p>24 presented in this -- in the manuscript but are</p> <p>25 available in those oral presentations, confirm</p> | <p>1 (handing)?</p> <p>2 A. Yes, I have.</p> <p>3 Q. And provided to you by the attorneys</p> <p>4 at Hollingsworth?</p> <p>5 A. That is correct.</p> <p>6 Q. Did you rely in part on this in</p> <p>7 formulating your opinions?</p> <p>8 A. No, I did not. I reviewed the</p> <p>9 meta-analysis, but it was not influential in</p> <p>10 coming up with my own independent expert</p> <p>11 opinion. I felt like it was important to review</p> <p>12 the primary studies.</p> <p>13 Q. So later when I ask you what</p> <p>14 information you rely upon in formulating your</p> <p>15 opinions, this document will not be one of those</p> <p>16 things?</p> <p>17 MR. COPLE: Objection. Argumentative,</p> <p>18 misstates the witness --</p> <p>19 MR. MILLER: I'm just asking.</p> <p>20 MR. COPLE: Augmentative, misstates</p> <p>21 the witness's testimony.</p> <p>22 A. So as I said, I have had access to</p> <p>23 this document. I did review it and read it, but</p> <p>24 in formulating my own independent expert</p> <p>25 opinion, meta-analysis -- meta-analyses did not</p> |

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| Page 146 | <p>1 come into play because of the shortcomings of</p> <p>2 meta-analyses and observational studies. I</p> <p>3 relied on only the primary studies in coming up</p> <p>4 with my expert opinion.</p> <p>5 BY MR. MILLER:</p> <p>6 Q. I'm going to show you what we marked</p> <p>7 as Exhibit 23-13, and this is --</p> <p>8 (Whereupon, Rider Exhibit 23-13,</p> <p>9 1/28/16 retainer letter, was marked</p> <p>10 for identification.)</p> <p>11 MR. COPLE: Before -- excuse me, Mike.</p> <p>12 Before we get into this, is this a good time for</p> <p>13 lunch, or do you want to wait?</p> <p>14 MR. MILLER: I have a couple more</p> <p>15 minutes, if you don't mind.</p> <p>16 BY MR. MILLER:</p> <p>17 Q. Is that okay?</p> <p>18 A. Yes.</p> <p>19 Q. Okay. Here's 23-13. Identify that</p> <p>20 for me, please.</p> <p>21 A. I believe this is my retainer letter</p> <p>22 from Hollingsworth.</p> <p>23 Q. And I want to read the first sentence.</p> <p>24 "This letter confirms that Hollingsworth, on</p> <p>25 behalf of Monsanto, has retained you to provide</p>                        | Page 148 | <p>1 involved in litigation before for some advice on</p> <p>2 the hourly rate.</p> <p>3 Q. And is that money going to you, or to</p> <p>4 the university where you're employed, or how</p> <p>5 does it work?</p> <p>6 A. I am employed as a consultant. So it</p> <p>7 is separate from my employment at Boston</p> <p>8 University.</p> <p>9 Q. When you were retained, when did you</p> <p>10 first learn that IARC had -- well, let's back</p> <p>11 up.</p> <p>12 You know what IARC is; right?</p> <p>13 A. I do, yes.</p> <p>14 Q. And what do those initials stand for?</p> <p>15 A. The International Agency for Research</p> <p>16 on Cancer.</p> <p>17 Q. And you are now, as we sit here,</p> <p>18 currently affiliated with Harvard?</p> <p>19 A. I have an adjunct appointment at the</p> <p>20 Harvard School of Public Health. My primary</p> <p>21 appointment is at the Boston University School</p> <p>22 of Public Health.</p> <p>23 Q. So for us, as laypeople, you sort of</p> <p>24 work at Boston University now, but still have</p> <p>25 some sort of affiliation that you just described</p> |
| Page 147 | <p>1 expert consulting services to HLLP" -- that's</p> <p>2 the Hollingsworth -- "for the purpose of</p> <p>3 assisting Hollingsworth in representing Monsanto</p> <p>4 in connection with potential and/or actual</p> <p>5 litigation against Monsanto involving injuries</p> <p>6 allegedly caused by Roundup and/or glyphosate."</p> <p>7 Did I read that correctly?</p> <p>8 A. Yes.</p> <p>9 MR. COPLE: Objection. The document</p> <p>10 speaks for itself.</p> <p>11 BY MR. MILLER:</p> <p>12 Q. Were you advised of what assisting</p> <p>13 Monsanto would involve when you were first</p> <p>14 contacted?</p> <p>15 A. I -- again, I don't recall the</p> <p>16 specific conversations, but I was going to</p> <p>17 provide my own expert opinion on the</p> <p>18 epidemiologic literature on glyphosate and NHL.</p> <p>19 Q. You've never been an expert before;</p> <p>20 right?</p> <p>21 A. I've never been an expert in a case</p> <p>22 before, no.</p> <p>23 Q. How did you arrive at your hourly fee</p> <p>24 of \$400 an hour?</p> <p>25 A. I asked some colleagues who have been</p> | Page 149 | <p>1 with Harvard. Would that be --</p> <p>2 A. That is correct.</p> <p>3 Q. Okay. And the reason I bring up</p> <p>4 Harvard, I think that's where Dr. Mucci is</p> <p>5 employed; is that right?</p> <p>6 A. Dr. Mucci's primary employment is at</p> <p>7 the Harvard School of Public Health; correct.</p> <p>8 Q. Would it be fair to say she's a mentor</p> <p>9 of yours?</p> <p>10 A. She was on my doctoral dissertation</p> <p>11 committee, yes.</p> <p>12 Q. IARC has had numerous members of</p> <p>13 Harvard participate as members of IARC. Are you</p> <p>14 aware of that, or no?</p> <p>15 MR. COPLE: Objection. Vague, lacks</p> <p>16 foundation.</p> <p>17 A. Yeah, I'm really not aware of who has</p> <p>18 participated on a panel except -- beyond the one</p> <p>19 person I know who has participated.</p> <p>20 Q. And who is that?</p> <p>21 A. Kathryn Wilson.</p> <p>22 Q. And how do you know Dr. Wilson?</p> <p>23 A. We were both students at Harvard at</p> <p>24 the same time.</p> <p>25 Q. And how did Kathryn Wilson get invited</p>  |

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| <p style="text-align: right;">Page 150</p> <p>1 to participate in IARC?</p> <p>2 A. Actually I'm not aware of the details</p> <p>3 of how she was invited.</p> <p>4 Q. Have you ever been invited to</p> <p>5 participate in IARC?</p> <p>6 A. I have not been invited to participate</p> <p>7 on a panel.</p> <p>8 Q. When Volume 112, which relates in part</p> <p>9 to glyphosate, was being voted upon and reported</p> <p>10 by IARC, were you involved at all in the</p> <p>11 process?</p> <p>12 A. I was not involved on the IARC panel,</p> <p>13 no.</p> <p>14 Q. Were you following the issue at all?</p> <p>15 A. I was not aware that those meetings</p> <p>16 were going on at the time, no.</p> <p>17 Q. Okay. As you sit here now, you know</p> <p>18 that IARC voted that glyphosate was a 2A under</p> <p>19 IARC classification; right?</p> <p>20 MR. COPLÉ: Objection. Lacks</p> <p>21 foundation.</p> <p>22 A. IARC's conclusion, correct, was 2A,</p> <p>23 yeah.</p> <p>24 BY MR. MILLER:</p> <p>25 Q. And what do you understand 2A to mean?</p>   | <p style="text-align: right;">Page 152</p> <p>1 Q. It would be fair to say that Dr. Rider</p> <p>2 disagrees with the conclusion that IARC reached;</p> <p>3 true?</p> <p>4 A. That is correct, I disagree with the</p> <p>5 conclusions they came to in terms of reviewing</p> <p>6 the epidemiologic literature on glyphosate and</p> <p>7 NHL.</p> <p>8 Q. Do you know a Tom Smith at Harvard</p> <p>9 School of Public Health?</p> <p>10 A. I do not.</p> <p>11 Q. In 2012, are you aware Dr. Smith was a</p> <p>12 member of an IARC panel?</p> <p>13 MR. COPLÉ: Objection. Lacks</p> <p>14 foundation.</p> <p>15 A. I have no awareness of Dr. Smith, so I</p> <p>16 wouldn't know anything about that.</p> <p>17 BY MR. MILLER:</p> <p>18 Q. I show you here -- this is marked as</p> <p>19 23-14.</p> <p>20 (Whereupon, Rider Exhibit 23-14, IARC</p> <p>21 Monographs List of Participants, was</p> <p>22 marked for identification.)</p> <p>23 BY MR. MILLER:</p> <p>24 Q. And this is a list of participants for</p> <p>25 Volume 105 IARC monograph. You see Dr. Tom</p> |
| <p style="text-align: right;">Page 151</p> <p>1 A. Again, I think I will get the wording</p> <p>2 wrong without looking at the IARC monograph, so</p> <p>3 I'd be happy me to tell you if we looked at</p> <p>4 that, but...</p> <p>5 Q. And we will. You don't remember right</p> <p>6 now you don't remember right now.</p> <p>7 One of Monsanto's goals since IARC has</p> <p>8 determined that glyphosate is a 2A has been to</p> <p>9 attempt to invalidate and discredit IARC. Are</p> <p>10 you aware of that?</p> <p>11 MR. COPLÉ: Objection. Argumentative,</p> <p>12 lacks foundation, vague.</p> <p>13 BY MR. MILLER:</p> <p>14 Q. You can answer.</p> <p>15 A. I have no awareness of that</p> <p>16 relationship. My role in this was to evaluate</p> <p>17 the epidemiologic literature.</p> <p>18 Q. So you're not going to in any way</p> <p>19 criticize IARC as part of your expert process</p> <p>20 here?</p> <p>21 MR. COPLÉ: Objection. Argumentative.</p> <p>22 A. I am critical of IARC's conclusions in</p> <p>23 reviewing the data on -- the epidemiologic data</p> <p>24 specifically on glyphosate and NHL, yes.</p> <p>25 BY MR. MILLER:</p> | <p style="text-align: right;">Page 153</p> <p>1 Smith, Harvard School of Public Health as a</p> <p>2 member? Do you see that?</p> <p>3 A. I see that.</p> <p>4 MR. COPLÉ: Objection. The document</p> <p>5 speaks for itself.</p> <p>6 A. I see his name listed, yes.</p> <p>7 BY MR. MILLER:</p> <p>8 Q. But you don't know him?</p> <p>9 A. No, I do not.</p> <p>10 MR. COPLÉ: Objection. Asked and</p> <p>11 answered.</p> <p>12 BY MR. MILLER:</p> <p>13 Q. I apologize for asking the same</p> <p>14 question.</p> <p>15 You're aware that Harvard School of</p> <p>16 Public Health has a website?</p> <p>17 MR. COPLÉ: Objection. Vague, lacks</p> <p>18 foundation.</p> <p>19 A. Yes, I'm aware that they have a</p> <p>20 website.</p> <p>21 BY MR. MILLER:</p> <p>22 Q. Are you aware that they published</p> <p>23 information concerning IARC's findings about</p> <p>24 glyphosate?</p> <p>25 MR. COPLÉ: Objection. Lacks</p>   |

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| <p>1 foundation.<br/>                 2 A. I was not aware of that, no.<br/>                 3 BY MR. MILLER:<br/>                 4 Q. We'll take a look at it. Here's what<br/>                 5 we've marked as Exhibit 23-15.<br/>                 6 (Whereupon, Rider Exhibit 23-15,<br/>                 7 Document from Harvard T.H. Chan<br/>                 8 website titled Research Roundup, was<br/>                 9 marked for identification.)<br/>                 10 BY MR. MILLER:<br/>                 11 Q. Take a minute to look at that. I have<br/>                 12 a few questions.<br/>                 13 (Witness reviewing document.)<br/>                 14 A. Okay.<br/>                 15 BY MR. MILLER:<br/>                 16 Q. All right. Let's go to the first<br/>                 17 page.<br/>                 18 You're familiar with this website,<br/>                 19 right?<br/>                 20 A. I mean, it looks like this was taken<br/>                 21 somewhere from the Harvard School of Public<br/>                 22 Health website, so...<br/>                 23 Q. And you've been a member of the<br/>                 24 Harvard School of Public Health, right?<br/>                 25 A. I was a student there and had a</p>                                       | <p>1 Q. The first bullet point states, "In<br/>                 2 this report, glyphosate was classified as<br/>                 3 'probably carcinogenic to humans' (Group 2A)."<br/>                 4 Do you see that, ma'am?<br/>                 5 MR. COPLE: Same objection.<br/>                 6 A. I do see that, yes.<br/>                 7 BY MR. MILLER:<br/>                 8 Q. And do you disagree that glyphosate is<br/>                 9 probably carcinogenic to humans for<br/>                 10 non-Hodgkin's lymphoma?<br/>                 11 A. As I said, I disagree with IARC's<br/>                 12 conclusions of the epidemiologic studies on<br/>                 13 glyphosate and NHL.<br/>                 14 Q. This Harvard publication goes on to<br/>                 15 say, "Specifically, increased risk of<br/>                 16 non-Hodgkin's lymphoma was consistent across<br/>                 17 case-control studies of occupational exposure in<br/>                 18 the USA, Canada, and Sweden."<br/>                 19 That's what you observed in the<br/>                 20 studies that we've gone over here this morning;<br/>                 21 right?<br/>                 22 MR. COPLE: Objection. The document<br/>                 23 speaks for itself, misstates the witness's prior<br/>                 24 testimony.<br/>                 25 A. I think I've been -- I've stated</p> |
| Page 155  | Page 157   |
| <p>1 post-doc appointment there. And then, as I<br/>                 2 mentioned, more recently I have an adjunct<br/>                 3 faculty appointment there.<br/>                 4 Q. In March of 2015 were you at Boston,<br/>                 5 or were you over at Harvard?<br/>                 6 A. I moved to Boston University in<br/>                 7 October of 2015.<br/>                 8 Q. Okay. So in March you were still at<br/>                 9 Harvard?<br/>                 10 A. That's correct.<br/>                 11 Q. Were you finishing up a fellowship, I<br/>                 12 guess?<br/>                 13 A. No, I was a faculty member.<br/>                 14 Q. Yes, ma'am. Let's look at this<br/>                 15 report.<br/>                 16 It says in the bottom half of the<br/>                 17 page, "In March, 2015, 17 experts from 11<br/>                 18 countries assessed the carcinogenicity of five<br/>                 19 pesticides including glyphosate at the<br/>                 20 International Agency for Research on Cancer."<br/>                 21 Do you see that?<br/>                 22 A. I do.<br/>                 23 MR. COPLE: Objection. The document<br/>                 24 speaks for itself.<br/>                 25 BY MR. MILLER:</p> | <p>1 repeatedly that I do not see those case control<br/>                 2 studies as showing evidence of an increased<br/>                 3 association between glyphosate and NHL because<br/>                 4 of the limitations of those studies.<br/>                 5 BY MR. MILLER:<br/>                 6 Q. So you disagree with this statement<br/>                 7 then?<br/>                 8 A. I do.<br/>                 9 Q. Okay. And it says at the bottom<br/>                 10 bullet point, "Evidence suggested the potential<br/>                 11 mechanisms for cancer were primarily through two<br/>                 12 pathways: First, the chemicals damaged DNA,<br/>                 13 which caused mutations or alterations in their<br/>                 14 gene codes. Second, glyphosate could induce<br/>                 15 oxidative stress."<br/>                 16 And my question is, are you staying<br/>                 17 out of the toxicology end of this whole thing?<br/>                 18 Right?<br/>                 19 MR. COPLE: Objection. Vague.<br/>                 20 A. That's right, I'm not an expert in<br/>                 21 toxicology.<br/>                 22 BY MR. MILLER:<br/>                 23 Q. And did not factor any of the non-epi<br/>                 24 science in your opinions; fair?<br/>                 25 A. I did not review all of that</p>                   |



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| <p style="text-align: right;">Page 158</p> <p>1 literature, and I focused on the epidemiologic<br/>2 evidence.<br/>3 Q. Yes. All right. Let's move on.<br/>4 I saw in your review materials --<br/>5 correct me if I'm wrong -- but you did see the<br/>6 list of participants in that IARC conclusion of<br/>7 Volume 112?<br/>8 A. So somewhere, I believe it's in that<br/>9 monograph, there is a list of who participated<br/>10 in the meeting, yes, and I did look at that.<br/>11 Q. Here's Exhibit 23-16, which I believe<br/>12 is a list of participants for Volume 112.<br/>13 (Whereupon, Rider Exhibit 23-16, IARC<br/>14 Monographs Volume 112 List of<br/>15 Participants, was marked for<br/>16 identification.)<br/>17 A. Okay.<br/>18 BY MR. MILLER:<br/>19 Q. Do you know any of these folks?<br/>20 (Witness reviewing document.)<br/>21 A. I do not. Many of them I have now<br/>22 read some of the publications for which they<br/>23 were authors. But other than that, I do not<br/>24 know any of them.<br/>25 BY MR. MILLER:</p>   | <p style="text-align: right;">Page 160</p> <p>1 systematic bias or the lack of internal validity<br/>2 in those studies, and that they underestimated<br/>3 the results from the case -- the cohort study,<br/>4 I'm sorry, the Agricultural Health Study.<br/>5 BY MR. MILLER:<br/>6 Q. And the Agricultural Health Study is a<br/>7 very important piece of what you're formulating<br/>8 your opinions on; is that a fair statement?<br/>9 A. Yes, it is.<br/>10 Q. And Aaron Blair who is listed here,<br/>11 he's one of the authors of the Agricultural<br/>12 Health Study, isn't he?<br/>13 A. That is correct.<br/>14 Q. And he's also the overall chairman of<br/>15 the IARC group that found glyphosate a probable<br/>16 carcinogen; right?<br/>17 A. Yes. It appears that way, yes.<br/>18 Q. So wouldn't it be fair to say that<br/>19 Aaron Blair is in a better position to evaluate<br/>20 the evidence as the author of the AHS study<br/>21 rather than someone who had to be brought in<br/>22 later and hadn't looked at it? Isn't that fair?<br/>23 MR. COPLE: Objection. Argumentative.<br/>24 A. I really couldn't speculate as to why<br/>25 the more -- the updated results of the</p> |
| <p style="text-align: right;">Page 159</p> <p>1 Q. Just because I am a layperson, and as<br/>2 a layperson, you already told us you disagree<br/>3 with these 17 people. Could you tell me if were<br/>4 sitting in a coffee shop, how did they get it<br/>5 wrong and you get it right?<br/>6 MR. COPLE: Objection. Argumentative.<br/>7 BY MR. MILLER:<br/>8 Q. I'm just asking.<br/>9 MR. COPLE: Argumentative, lacks<br/>10 foundation.<br/>11 A. So, first of all, I think it's<br/>12 important to point out that they did not have<br/>13 access to some of the more recent data on<br/>14 glyphosate and NHL, so we don't know what<br/>15 conclusion they would have come to had they<br/>16 reviewed that additional data. I mentioned, I<br/>17 think, that strengthens the existing evidence<br/>18 substantially.<br/>19 However, they did review the Swedish<br/>20 and the North American case control studies as<br/>21 well as the Agricultural Health Study, the only<br/>22 cohort study that's -- that looks at glyphosate<br/>23 and NHL and, in my view, I believe that they<br/>24 overinterpreted the results of the case control<br/>25 studies, not taking into account all of the</p> | <p style="text-align: right;">Page 161</p> <p>1 Agricultural Health Study weren't published or<br/>2 weren't included in their review. I just know<br/>3 that in my review of all of the epidemiology,<br/>4 there is -- I disagree with the conclusion that<br/>5 there is evidence that glyphosate is a probable<br/>6 human carcinogen.<br/>7 BY MR. MILLER:<br/>8 Q. Are you aware whether Dr. Blair is one<br/>9 of the authors of the NAPP study that you<br/>10 referred to and relied upon?<br/>11 A. I don't recall whether he's an author.<br/>12 Q. Are you aware whether he's one of the<br/>13 authors of the unpublished Agricultural Health<br/>14 Study that you also relied on?<br/>15 A. He is listed an author at least on the<br/>16 draft that I have access to, yes.<br/>17 Q. Now, are you aware that even though he<br/>18 is an author on each of those, he has testified<br/>19 under oath that with that new data, he still<br/>20 believes that glyphosate is a probable human<br/>21 carcinogen for non-Hodgkin's lymphoma? Are you<br/>22 aware of that?<br/>23 MR. COPLE: Objection. Lacks<br/>24 foundation.<br/>25 A. As I said, I haven't reviewed his</p>                      |

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| <p>1 testimony, so I can't be sure that's what he</p> <p>2 believes.</p> <p>3 MR. COPLE: Let me interrupt you. How</p> <p>4 long do you want to go?</p> <p>5 MR. MILLER: Yeah, if you want to have</p> <p>6 lunch now, sure. Sure. Let's take a break.</p> <p>7 THE VIDEOGRAPHER: Going off the</p> <p>8 record. The time is 12:32.</p> <p>9 (Whereupon, a luncheon recess was</p> <p>10 taken.)</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>   | <p>1 what Dr. Blair, the author of the AHS study,</p> <p>2 says about these issues?</p> <p>3 MR. COPLE: Objection. Vague.</p> <p>4 A. So I've reviewed two papers that</p> <p>5 Dr Blair -- at least two that he's been a</p> <p>6 co-author on, both from the Agricultural Health</p> <p>7 Study. And so I don't really see it necessary</p> <p>8 to have a conversation with him, because I can</p> <p>9 review the data that's available in those two</p> <p>10 manuscripts.</p> <p>11 BY MR. MILLER:</p> <p>12 Q. You and I talked earlier about how</p> <p>13 it's accepted now that tobacco causes lung</p> <p>14 cancer.</p> <p>15 You generally remember that line of</p> <p>16 questioning?</p> <p>17 A. Yes, I do.</p> <p>18 Q. And you would agree with me that a</p> <p>19 barrier to acceptance of that by the scientific</p> <p>20 community was the tobacco companies' influence;</p> <p>21 right?</p> <p>22 MR. COPLE: Objection. Argumentative,</p> <p>23 lacks foundation.</p> <p>24 A. Again, I could evaluate the</p> <p>25 epidemiologic studies on tobacco and lung</p> |
| Page 163   | Page 165  |
| <p>1 AFTERNOON SESSION</p> <p>2</p> <p>3 THE VIDEOGRAPHER: Back on the record.</p> <p>4 The time is 1:20.</p> <p>5 MR. COPLE: Reconfirm who is on the</p> <p>6 line.</p> <p>7 MR. MILLER: Mr. Traverse, are you</p> <p>8 there?</p> <p>9 MR. TRAVERSE: I'm here.</p> <p>10 MR. MILLER: Anyone else on the phone?</p> <p>11 All right. All present and accounted for.</p> <p>12 BY MR. MILLER:</p> <p>13 Q. Dr. Rider, you had a good lunch?</p> <p>14 A. Yes. Thank you.</p> <p>15 Q. Before the magic of these machines, I</p> <p>16 just looked at my last question, I asked you if</p> <p>17 you were aware of whether Dr. Blair still</p> <p>18 believes that glyphosate is a probable human</p> <p>19 carcinogen, and you told me you hadn't reviewed</p> <p>20 his testimony, so I can't be sure what he</p> <p>21 believes.</p> <p>22 Do you remember that general question?</p> <p>23 A. Yes, I do. Yeah, I don't know</p> <p>24 Dr. Blair, so I couldn't tell you.</p> <p>25 Q. Would it be important to you to learn</p> | <p>1 cancer, but all of the other factors, I'm not an</p> <p>2 expert on those.</p> <p>3 BY MR. MILLER:</p> <p>4 Q. Have you ever said that before --</p> <p>5 MR. COPLE: Objection.</p> <p>6 BY MR. MILLER:</p> <p>7 Q. -- that tobacco companies were a</p> <p>8 barrier to the acceptance of the notion that</p> <p>9 lung cancer is caused by tobacco?</p> <p>10 MR. COPLE: Objection. Vague, lacks</p> <p>11 foundation.</p> <p>12 A. I don't recall, but I couldn't be</p> <p>13 certain, no.</p> <p>14 BY MR. MILLER:</p> <p>15 Q. Let's took a look at it. Here's</p> <p>16 Exhibit 23-17.</p> <p>17 (Whereupon, Rider Exhibit 23-17,</p> <p>18 PowerPoint titled Lung Cancer,</p> <p>19 Molecular Pathology of Cancer Boot</p> <p>20 Camp, 1/4/12, was marked for</p> <p>21 identification.)</p> <p>22 BY MR. MILLER:</p> <p>23 Q. And is that a PowerPoint prepared by</p> <p>24 you, ma'am?</p> <p>25 A. It is. It's in a short course that I</p>  |

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| <p>1 contributed to at the Dana Farber Cancer<br/>2 Institute.<br/>3 Q. And this was January 4, 2012, right?<br/>4 A. That is correct, yes.<br/>5 Q. Turn with me to page -- and I'm afraid<br/>6 the pages aren't marked, so I can show you the<br/>7 pages that I'm referring to. It's "Barriers to<br/>8 acceptance of smoking-lung cancer relationship."<br/>9 A. Yes, I found that actually.<br/>10 Q. "Ecological data - other plausible<br/>11 alternatives" was one issue that you raised;<br/>12 right?<br/>13 A. Mm-hmm.<br/>14 Q. "Smoking common in scientific<br/>15 community" was another issue; right?<br/>16 A. Mm-hmm.<br/>17 Q. Scientists smoked, and they had<br/>18 trouble trying to believe that they were doing<br/>19 something that was bad for them?<br/>20 MR. COPLER: Objection. Lacks<br/>21 foundation.<br/>22 BY MR. MILLER:<br/>23 Q. That's what you meant, right?<br/>24 MR. COPLER: Objection. Argumentative.<br/>25 A. Honestly it's been years, five years</p>  | <p>1 I said, it was five -- over five years ago since<br/>2 I've looked at this lecture.<br/>3 Q. What you did point out, and this would<br/>4 be the next page after the "Barriers to<br/>5 acceptance-smoke and lung cancer relationship,"<br/>6 you did an entire page on "A new model of<br/>7 causality," and you typed out the Bradford-Hill<br/>8 guidelines; right, ma'am?<br/>9 A. So yes, the title of the slide is "A<br/>10 new model of causality," and then I summarize<br/>11 the Bradford-Hill guidelines.<br/>12 So, but I think, again, out of<br/>13 context, it might be a little difficult to<br/>14 appreciate why I was presenting this. I was<br/>15 talking about how the Bradford-Hill came along<br/>16 when studies of epidemiology started to focus on<br/>17 chronic disease rather than infectious disease,<br/>18 so that was the context. So rather than an<br/>19 infectious disease model of causation, there<br/>20 were now these new guidelines that were<br/>21 presented.<br/>22 Q. And, yes, when we say "new," the<br/>23 Bradford-Hill criteria came about in the late<br/>24 '50s, early '60s?<br/>25 A. Honestly I can't recall what the date</p> |
| Page 167   | Page 169   |
| <p>1 actually since I -- or more since I've looked at<br/>2 this, so it's a little hard to judge out of<br/>3 context. But it is true that I bulleted there<br/>4 "Smoking common in the scientific community."<br/>5 BY MR. MILLER:<br/>6 Q. Hopefully less common now?<br/>7 A. Hopefully, yes.<br/>8 Q. And you wrote here in January, 2012,<br/>9 that a barrier to acceptance of smoking-lung<br/>10 cancer relationship was the influence of tobacco<br/>11 companies; right?<br/>12 A. Influence of tobacco companies is one<br/>13 of the bullet points, yes.<br/>14 Q. And at this boot camp on cancer, you<br/>15 wrote, this is -- so you can find it there.<br/>16 A. Is that after this?<br/>17 Q. I think it is. No, it's actually two<br/>18 pages before that, four pages before.<br/>19 A. Okay.<br/>20 Q. You point out a 1933 Journal of<br/>21 American Medical Ad that stated, "Just as pure<br/>22 as the water you drink...and practically<br/>23 untouched by human hands," as a cigarette ad.<br/>24 What's the importance of that in your lecture?<br/>25 A. Honestly I don't remember because, as</p> | <p>1 was, but I'm not sure.<br/>2 Q. And you list the guidelines, the<br/>3 various points that are sometimes used in the<br/>4 Bradford-Hill guideline, right?<br/>5 A. So I believe these are, again, just<br/>6 the bullet points of what is included in the<br/>7 Bradford-Hill criteria.<br/>8 Q. And then as you and I discussed, the<br/>9 only one that's actually required is the<br/>10 temporal sequencer?<br/>11 A. Temporality is the only of all of<br/>12 these Bradford-Hill criteria that is required<br/>13 for causation; correct.<br/>14 Q. Sure. I show you what we're going to<br/>15 mark as Exhibit 23-18.<br/>16 (Whereupon, Rider Exhibit 23-18,<br/>17 Report from School of Public Health<br/>18 website, Report links welding fumes<br/>19 with risk of cancer, was marked for<br/>20 identification.)<br/>21 BY MR. MILLER:<br/>22 Q. Another report pulled down from<br/>23 Harvard Chan School of Public Health.<br/>24 You're familiar with Harvard School of<br/>25 Public Health; right? We talked about it?</p>  |

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| <p>1 A. Yes. I was a student and then a<br/>2 faculty member there, yes.<br/>3 Q. Sure.<br/>4 And this report from Harvard tells us,<br/>5 and I quote, "The IARC is a World Health<br/>6 Organization body that has among its activities<br/>7 to produce independent scientific consensus<br/>8 reports on the causes of cancer."<br/>9 That's true; isn't it?<br/>10 MR. COPLE: Objection. The document<br/>11 speaks for itself.<br/>12 A. So you've read a quote from this page<br/>13 of the website that I've never seen before, and<br/>14 it's true that what you said appears on the<br/>15 page, yes.<br/>16 BY MR. MILLER:<br/>17 Q. In fact, Harvard School of Public<br/>18 Health works with IARC on various issues<br/>19 concerning cancer; isn't that true?<br/>20 MR. COPLE: Objection. Lacks<br/>21 foundation, vague.<br/>22 A. I'm unaware of that.<br/>23 BY MR. MILLER:<br/>24 Q. Let's look at this publication from<br/>25 the Harvard Chan School of Public Health. We'll</p>                                    | <p>1 Research on Cancer"?<br/>2 A. Mm-hmm.<br/>3 Q. Were you aware before today that, in<br/>4 fact, Harvard is working in partnership with<br/>5 IARC?<br/>6 MR. COPLE: Objection. The document<br/>7 speaks for itself.<br/>8 A. So I've never seen this document, this<br/>9 page from the website before. So in order to<br/>10 sort of learn more about the nature of that<br/>11 relationship, I'd have to really read this.<br/>12 BY MR. MILLER:<br/>13 Q. Sure. Take your time.<br/>14 (Witness reviewing document.)<br/>15 A. So as I've said, I've never seen this<br/>16 document and wasn't familiar with this work<br/>17 before just now, but it seems like the Harvard<br/>18 School of Public Health is working with IARC,<br/>19 PATH, I'm not sure who that is, and the WHO to<br/>20 pursue a coordinated strategy to make new<br/>21 diagnostics and HPV vaccines accessible,<br/>22 affordable, and sustainable in developing<br/>23 countries.<br/>24 Q. Sounds like a worthy goal; fair<br/>25 enough?</p> |
| Page 171  | Page 173   |
| <p>1 mark it as Exhibit 23-19.<br/>2 (Whereupon, Rider Exhibit 23-19,<br/>3 Publication titled Global Cervical<br/>4 Cancer: HPV Vaccination and<br/>5 Diagnostics, was marked for<br/>6 identification.)<br/>7 BY MR. MILLER:<br/>8 Q. I want to call your attention to,<br/>9 again, the T.H. Chan School of Public Health is<br/>10 at Harvard; right, ma'am?<br/>11 A. The Harvard T.H. Chan School of Public<br/>12 Health is the new name for the Harvard School of<br/>13 Public Health, yes.<br/>14 Q. And are you familiar with the Center<br/>15 for Health Decision Science there?<br/>16 A. I've heard of it, but I've never<br/>17 worked with them, no.<br/>18 Q. Do you know these -- any of these<br/>19 investigators, Sue Goldie, Jan Kim, and others<br/>20 here?<br/>21 A. I know a couple of them by name, but<br/>22 I've never worked with them.<br/>23 Q. And if you'd move down -- halfway down<br/>24 the page, it says "Our partners include," do you<br/>25 see where it says "The International Agency for</p> | <p>1 A. Again, I don't know anything about<br/>2 this project.<br/>3 Q. Sure. Let's go to 23-20.<br/>4 (Whereupon, Rider Exhibit 23-20, IARC<br/>5 Monograph Volume 114 List of<br/>6 Participants, was marked for<br/>7 identification.)<br/>8 BY MR. MILLER:<br/>9 Q. In this case counsel for Monsanto<br/>10 often brings up the red meat conclusions of<br/>11 IARC, and I just want to look at that list of<br/>12 participants from that and go over that with you<br/>13 for a second.<br/>14 Are you aware that IARC did look at<br/>15 red meat? This is 23-20.<br/>16 MR. COPLE: Objection. Argumentative.<br/>17 A. I believe I do recall hearing about<br/>18 this, but I haven't reviewed the monograph, and<br/>19 don't know any of the details.<br/>20 BY MR. MILLER:<br/>21 Q. Fair enough. We're not going to get<br/>22 into the details of it.<br/>23 But one of the members of that<br/>24 monograph team for red meat was Kana Wu from<br/>25 Harvard School of Public Health, and my question</p>          |

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1 to you is, do you know him or her?  
 2 A. Kana Wu was at the Harvard School of  
 3 Public Health when I was there, and we sometimes  
 4 would attend the same meetings on the health  
 5 professionals follow-up study cohort, the cohort  
 6 where my ejaculation frequency results study  
 7 took place.  
 8 Q. Well-respected scientist?  
 9 A. Again, I -- other than her attendance  
 10 at the meeting, I'm not familiar with her work.  
 11 Q. Sure.  
 12 Do you know a Richard Clapp at  
 13 Harvard?  
 14 A. I do not.  
 15 Q. I'm sorry, he's at Boston University.  
 16 Isn't that where you are now?  
 17 A. I am.  
 18 Q. He's a professor emeritus. I guess  
 19 that means he's an old guy like me. Is that  
 20 what that means?  
 21 A. I don't know. I don't know.  
 22 Q. I'm going to show you, Doctor,  
 23 Exhibit 23-21. It's from the Harvard T.H. Chan  
 24 School of Public Health. I just want to ask you  
 25 a few questions about it.

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1 (Whereupon, Rider Exhibit 23-21,  
 2 Harvard School of Public Health  
 3 website page of Richard Clapp, D.Sc,  
 4 MPH, was marked for identification.)  
 5 MR. COPLE: Do you have a copy for me?  
 6 MR. MILLER: There you go (handing).  
 7 BY MR. MILLER:  
 8 Q. Talks about a Richard Clapp, he's a  
 9 professor emeritus at Boston University School  
 10 of Public Health. Does that ring a bell about  
 11 how you might know him, or I guess no?  
 12 A. No. I don't believe we've ever met,  
 13 no.  
 14 Q. The reason I bring it up, he co-signed  
 15 a letter with a physician named Chris Portier  
 16 concerning that glyphosate and non-Hodgkin's  
 17 lymphoma issue. Have you seen that letter?  
 18 A. No, I have not. I was given a lot of  
 19 materials to review, but I don't recall that  
 20 being one of the items I reviewed.  
 21 Q. Let me show it to you. 23-22  
 22 (handing).  
 23  
 24  
 25

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1 (Whereupon, Rider Exhibit 23-22,  
 2 Portier, et al article titled  
 3 Differences in the carcinogenic  
 4 evaluation of glyphosate between the  
 5 IARC and the EFSA, was marked for  
 6 identification.)  
 7 BY MR. MILLER:  
 8 Q. Here's that letter (handing). All  
 9 right. We can do this quick, I'm not going  
 10 to -- Richard Clapp is one of the authors. Do  
 11 you see that?  
 12 A. I do.  
 13 MR. COPLE: Objection. The document  
 14 speaks for itself.  
 15 BY MR. MILLER:  
 16 Q. Was this ever provided to you by  
 17 Monsanto or their attorneys?  
 18 MR. COPLE: Objection. Argumentative.  
 19 A. So my only interaction has been with  
 20 the attorneys at Hollingsworth, and I don't  
 21 recognize this. I would have to look at the  
 22 list of materials that I was provided, but I  
 23 don't recall reviewing this letter.  
 24 BY MR. MILLER:  
 25 Q. What does it mean to be a professor

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1 emeritus? Obviously, you know, I don't even  
 2 know what that means. That's why I'm asking.  
 3 MR. COPLE: Objection. Vague.  
 4 A. I actually can't tell you exactly what  
 5 that means.  
 6 BY MR. MILLER:  
 7 Q. He, Richard Clapp, is at the same  
 8 university that you're at now, right?  
 9 A. Mm-hmm.  
 10 Q. And so he writes with lots of other  
 11 scientists in this letter, and I'm looking at  
 12 the top right-hand page. And we've already gone  
 13 over this point before, but the working group,  
 14 "The WG concluded that the data for glyphosate  
 15 met the criteria for classification as a  
 16 probable human carcinogen."  
 17 Do you see where I'm reading?  
 18 A. I do.  
 19 Q. And you disagree with that; right?  
 20 A. I agree with IARC's conclusions based  
 21 on the epidemiologic data on glyphosate and NHL,  
 22 yes.  
 23 Q. You do agree or don't agree?  
 24 A. I disagree with --  
 25 Q. Yes.



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| <p>1 A. -- IARC's conclusions.</p> <p>2 Q. Take -- if we could now go, please, to</p> <p>3 Page 743 of this letter from Chris Portier,</p> <p>4 Richard Clapp, and others, and I want to just</p> <p>5 read one sentence to you, what they write. This</p> <p>6 is on -- over here on the last column of that.</p> <p>7 A. Okay.</p> <p>8 Q. They write, "The most appropriate and</p> <p>9 scientifically based evaluation of the cancers</p> <p>10 reported in humans and laboratory animals as</p> <p>11 well as supportive mechanistic data is that</p> <p>12 glyphosate is a probable human carcinogen."</p> <p>13 You disagree with them or --</p> <p>14 A. Again, I've never seen this particular</p> <p>15 letter before, so I couldn't tell you whether I</p> <p>16 agreed or disagreed with it. But I do disagree</p> <p>17 with IARC's conclusions based on the</p> <p>18 population-based studies, the human studies of</p> <p>19 glyphosate and NHL.</p> <p>20 Q. Okay. Let me rephrase my question.</p> <p>21 A. Okay.</p> <p>22 Q. You disagree with the statement that,</p> <p>23 "The most appropriate and scientifically based</p> <p>24 evaluation of the cancers reported in humans and</p> <p>25 laboratory animals as well as supportive</p> | <p>1 there are a number of things that I could point</p> <p>2 to that I do disagree with, even in terms of</p> <p>3 their interpretation of the epidemiologic</p> <p>4 evidence on glyphosate and NHL.</p> <p>5 BY MR. MILLER:</p> <p>6 Q. And that -- I understand that to be</p> <p>7 true, and I'm asking more broadly.</p> <p>8 In the summary where they say that the</p> <p>9 most appropriate scientific valuation is that</p> <p>10 glyphosate is a probable human carcinogen, I</p> <p>11 think you disagree with that. But if you agree,</p> <p>12 that's fine, too. Just let me know.</p> <p>13 A. Again, I can't really tell you whether</p> <p>14 I agree or disagree with that statement without</p> <p>15 reading the entire commentary.</p> <p>16 Q. It's fairly short, so, yeah, go ahead.</p> <p>17 MR. MILLER: Somebody else join the</p> <p>18 call?</p> <p>19 (Witness reviewing document.)</p> <p>20 A. Okay. So after reading this, it isn't</p> <p>21 completely clear to me, but I think that what</p> <p>22 the authors are referring to in that statement</p> <p>23 is by saying that "the most appropriate and</p> <p>24 scientifically based evaluation of the cancers</p> <p>25 reported in humans and laboratory animals as</p>   |
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| <p>1 mechanistic data is that glyphosate is a</p> <p>2 probable human carcinogen"?</p> <p>3 You'd disagree with that statement?</p> <p>4 A. I can't tell you whether I agree or</p> <p>5 disagree, because I've only read this one</p> <p>6 sentence of this entire several-page commentary.</p> <p>7 So I can't -- I can't tell you whether I</p> <p>8 disagree or agree with that statement.</p> <p>9 Q. You agree or disagree that glyphosate</p> <p>10 is a probable human carcinogen?</p> <p>11 A. As I mentioned, I disagree with IARC's</p> <p>12 conclusions based on the epidemiologic</p> <p>13 literature that glyphosate is a probable human</p> <p>14 carcinogen.</p> <p>15 Q. Take all the time you need to review</p> <p>16 23-22. But it's fair to say, then, you disagree</p> <p>17 with these authors?</p> <p>18 MR. COPLE: Objection. Argumentative.</p> <p>19 A. I couldn't say that without reading</p> <p>20 the entire commentary.</p> <p>21 BY MR. MILLER:</p> <p>22 Q. Sure. Go ahead.</p> <p>23 (Witness reviewing document.)</p> <p>24 A. So I've only gotten through the first</p> <p>25 page. I'm a slow reader. I apologize. But</p>   | <p>1 well as supportive mechanistic data," I believe</p> <p>2 that they are referring to the IARC review, and</p> <p>3 I would disagree that the IARC review is the</p> <p>4 most appropriate and scientifically based</p> <p>5 evaluation of the cancers, well, at least NHL</p> <p>6 reported in humans and laboratory animals, as</p> <p>7 well as supportive mechanistic data.</p> <p>8 BY MR. MILLER:</p> <p>9 Q. These people who signed this letter,</p> <p>10 including Dr. Clapp, go on in the next sentence</p> <p>11 to say, "On the basis of this conclusion and in</p> <p>12 the absence of evidence to the contrary, it is</p> <p>13 reasonable to conclude that glyphosate</p> <p>14 formulations should also be considered likely</p> <p>15 human carcinogens."</p> <p>16 Do you disagree with them on that</p> <p>17 statement?</p> <p>18 A. I do disagree with them on that</p> <p>19 statement. Again, I think that if you -- if you</p> <p>20 read this entire commentary, they refer to, you</p> <p>21 know, the case control studies as high quality.</p> <p>22 They point to a number of limitations in the</p> <p>23 cohort study which I think are inaccurate,</p> <p>24 including a short latency period in the HS which</p> <p>25 is incorrect. So I do disagree with the</p> |

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1 conclusions of this particular commentary.  
 2 Q. Have -- you gave a list of materials  
 3 reviewed and considered attached to your report.  
 4 Do you remember that?  
 5 A. Attached to my -- yes, that's correct.  
 6 Q. Were all of those provided by the  
 7 Hollingsworth firm?  
 8 A. No, they were not. So many of them  
 9 were provided by attorneys at Hollingsworth, but  
 10 I also did my own review of the literature as  
 11 well.  
 12 Q. Are you able to tell me which articles  
 13 you found and which were provided?  
 14 A. I'm not offhand, no.  
 15 Q. Okay. Did you read Dr. Portier's  
 16 report in this case?  
 17 A. I do not believe that I reviewed  
 18 Dr. Portier's report, no.  
 19 Q. And you did not -- or did you review  
 20 Dr. Weisenburger's report in this case?  
 21 A. I did not, no. I may have had access  
 22 to it. I can't recall. But I did not read  
 23 those.  
 24 Q. Okay. Did you read Dr. Nabhan's  
 25 report in this case?

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1 A. No.  
 2 Q. Did you read Dr. Neugut's report in  
 3 this case?  
 4 A. Yes, I reviewed both Dr. Neugut's and  
 5 Dr. Ritz's reports and depositions, yes.  
 6 Q. Did you review Dr. Ritz's supplemental  
 7 report?  
 8 A. Her sort of rebuttal report, I think  
 9 it was?  
 10 Q. Yes.  
 11 A. Yes, correct.  
 12 Q. Anything about that that you disagree  
 13 with?  
 14 MR. COPLE: Objection. Vague.  
 15 A. I would have to look at it. I don't  
 16 remember exactly what she raised in her rebuttal  
 17 report.  
 18 BY MR. MILLER:  
 19 Q. Since you became involved as an expert  
 20 for Monsanto, or for that matter even before  
 21 then, were you aware of the publications that  
 22 surrounded IARC after they concluded that  
 23 glyphosate was a 2A probably carcinogenic?  
 24 MR. COPLE: Objection. Vague, lacks  
 25 foundation.

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1 BY MR. MILLER:  
 2 Q. You can answer.  
 3 A. Yeah, so I'm not exactly clear on your  
 4 question, but I just want to point out that I  
 5 was retained by Hollingsworth, not Monsanto. I  
 6 have not had any communications with Monsanto.  
 7 Q. Yeah, I understand that. I appreciate  
 8 that distinction. But you know they work for  
 9 Monsanto, the Hollingsworth firm; right?  
 10 A. Yes. I am aware of that, yes.  
 11 Q. And I -- it was a poorly formed  
 12 question. I'm just trying to ask this.  
 13 There's been some defense of IARC in  
 14 the face of what IARC perceived as criticism  
 15 from Monsanto. Have you read anything in that  
 16 regards?  
 17 A. You would need to be a bit more  
 18 specific. I'm not sure.  
 19 Q. Okay. I will.  
 20 MR. MILLER: What's our next exhibit  
 21 number?  
 22 MS. MILLER: 23-23.  
 23 (Whereupon, Rider Exhibit 23-23, IARC  
 24 Monograph: 40 Years of Evaluating  
 25 Carcinogenic Hazards to Humans, was

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1 marked for identification.)  
 2 BY MR. MILLER:  
 3 Q. 23-23. And this is our next exhibit.  
 4 This is a publication Environmental Health  
 5 Perspectives, June, 2015, "IARC Monographs:  
 6 40 Years of Evaluating Carcinogenic Hazards to  
 7 Humans"; right?  
 8 A. Yes. That is the title. Correct.  
 9 Q. And one of the first things I'd like  
 10 to ask you about, there are -- one, two, three,  
 11 four -- five authors that are from Harvard in  
 12 this report or commentary, Dr. Christiani,  
 13 Dr. Baccarelli, Dr. Laden, Dr. Monson, and  
 14 Dr. Schernhammer. Do you know any of them?  
 15 A. I know a couple of those people just  
 16 because we were at the same institution, but I  
 17 don't believe I've ever worked directly with any  
 18 of them, no.  
 19 Q. Okay.  
 20 A. Maybe Dr. Schernhammer and I have  
 21 co-authored a publication, but I can't recall  
 22 for sure.  
 23 Q. Let's look at what these and other  
 24 physicians had to say about IARC. This is about  
 25 two, three months after IARC concluded that

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| <p style="text-align: right;">Page 186</p> <p>1 glyphosate was a probable human carcinogen.<br/>                 2 Let's go to the Page 2, "Objectives." "The<br/>                 3 authors of this Commentary are scientists from<br/>                 4 various disciplines relevant to the<br/>                 5 identification and hazard evaluation of human<br/>                 6 carcinogens. We examined criticisms of the IARC<br/>                 7 classification process to determine the validity<br/>                 8 of these concerns. Here, we present the results<br/>                 9 of that examination, review the history of IARC<br/>                 10 evaluations, and describe how the IARC<br/>                 11 evaluations are performed."<br/>                 12 Did I read that correctly?<br/>                 13 MR. COPLÉ: Objection. The document<br/>                 14 speaks for itself.<br/>                 15 A. Yes, I see that there.<br/>                 16 BY MR. MILLER:<br/>                 17 Q. Did the attorneys from Hollingsworth<br/>                 18 provide you this document?<br/>                 19 A. I don't recall this being one of the<br/>                 20 materials that I was provided. I was provided<br/>                 21 with a lot of materials, though, so I could not<br/>                 22 be sure.<br/>                 23 Q. The first sentence in their Discussion<br/>                 24 is, "We concluded that these recent criticisms<br/>                 25 are unconvincing."</p> | <p style="text-align: right;">Page 188</p> <p>1 Do you agree with that?<br/>                 2 A. Again, it's a very broad general<br/>                 3 statement. I don't follow -- actively follow<br/>                 4 all of the IARC decisions, and so I couldn't<br/>                 5 really comment on that.<br/>                 6 Q. Are you aware that the IARC members<br/>                 7 don't receive any fee for their work?<br/>                 8 MR. COPLÉ: Objection. Lacks<br/>                 9 foundation.<br/>                 10 A. I'm not aware of how the panels<br/>                 11 operate, or if there's compensation provided,<br/>                 12 no.<br/>                 13 BY MR. MILLER:<br/>                 14 Q. Let's go to Page 512.<br/>                 15 A. Okay.<br/>                 16 Q. And I'm looking at the top right where<br/>                 17 it says, "Working Group members do not receive<br/>                 18 any fee for their work, but they are paid travel<br/>                 19 expenses, and there is some prestige associated<br/>                 20 with service on an IARC Monograph."<br/>                 21 You have no reason to challenge that<br/>                 22 statement?<br/>                 23 MR. COPLÉ: Objection. Argumentative.<br/>                 24 A. I have no reason to challenge it, no.<br/>                 25 But, again, this is the first time that I'm ever</p>                                 |
| <p style="text-align: right;">Page 187</p> <p>1 Do you see that?<br/>                 2 A. I do.<br/>                 3 Q. Okay. They go on to say in the<br/>                 4 Introduction -- I'm now in the written portion,<br/>                 5 not the abstract -- "The IARC Monographs on the<br/>                 6 Evaluation of Carcinogenic Risks to Humans of<br/>                 7 the International Agency for Research on Cancer<br/>                 8 are a prominent example of such an expert review<br/>                 9 process."<br/>                 10 My question to you is, do you agree<br/>                 11 that IARC is a prominent example of an expert<br/>                 12 review process for causes of carcinogens?<br/>                 13 A. I think it's certainly an agency for<br/>                 14 which many people are aware that they do reviews<br/>                 15 of potential carcinogens, yes.<br/>                 16 Q. Okay. And I apologize for bouncing<br/>                 17 around, but back to the abstract, it's on<br/>                 18 Page 2 --<br/>                 19 A. I'm sorry.<br/>                 20 Q. I'm sorry.<br/>                 21 Yeah, the conclusion is, "The IARC<br/>                 22 Monographs have made, and continue to make,<br/>                 23 major contributions to the scientific<br/>                 24 underpinning for social actions to improve the<br/>                 25 public's health."</p>  | <p style="text-align: right;">Page 189</p> <p>1 reviewing this particular document.<br/>                 2 BY MR. MILLER:<br/>                 3 Q. I understand. Last point and then<br/>                 4 we'll move on. The last sentence in this<br/>                 5 article on Page 513.<br/>                 6 A. Okay.<br/>                 7 Q. And this, again, quote from these<br/>                 8 scientists on the front page, including five<br/>                 9 from Harvard, that they say, "However, as a<br/>                 10 group of international scientists, we have<br/>                 11 looked carefully at the recent charges of flaws<br/>                 12 and bias in the hazard evaluations by IARC<br/>                 13 Working Groups, and have concluded that the<br/>                 14 recent criticisms are unfair and<br/>                 15 unconstructive."<br/>                 16 Any reason to challenge that<br/>                 17 statement?<br/>                 18 A. Again, I'm only looking at this for<br/>                 19 the first time, I -- so I would have no reason<br/>                 20 to challenge it.<br/>                 21 Q. Okay. We can move on.<br/>                 22 If I wanted to study how quickly<br/>                 23 someone had to get out of a burning building, a<br/>                 24 residential building, would I want to study<br/>                 25 people who are wearing pajamas and T-shirts, or</p> |

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| Page 190  | Page 192  |
| <p>1 people that are wearing fire-retardant outfits<br/>                 2 provided by a fire department?<br/>                 3 MR. COPLE: Objection. Vague,<br/>                 4 incomplete hypothetical.<br/>                 5 BY MR. MILLER:<br/>                 6 Q. Do you see my point?<br/>                 7 MR. COPLE: Same objection.<br/>                 8 A. I'm not sure that I do see your point,<br/>                 9 I'm sorry.<br/>                 10 BY MR. MILLER:<br/>                 11 Q. Well, can you and I agree just as a<br/>                 12 common sense observation that someone in shorts<br/>                 13 or pajamas is going to be more susceptible to<br/>                 14 injury from a fire than someone wearing<br/>                 15 fire-retardant clothes from the fire department?<br/>                 16 MR. COPLE: Objection. Argumentative.<br/>                 17 BY MR. MILLER:<br/>                 18 Q. Just asking.<br/>                 19 A. Again, this is outside of my area of<br/>                 20 expertise in cancer epidemiology.<br/>                 21 Q. So you're unable to answer it, or<br/>                 22 because it's outside your expertise you won't<br/>                 23 answer it?<br/>                 24 MR. COPLE: Objection. Asked and<br/>                 25 answered, argumentative.</p> | <p>1 A. Can you ask the question one more<br/>                 2 time, please?<br/>                 3 BY MR. MILLER:<br/>                 4 Q. The cases and the controls in the<br/>                 5 Agricultural Health Study, were they laypeople,<br/>                 6 home users, gardeners, untrained farmers? What<br/>                 7 kind of people were they?<br/>                 8 MR. COPLE: Objection. Compound<br/>                 9 questions.<br/>                 10 A. So I think you asked about cases and<br/>                 11 controls, but that's not really how we would<br/>                 12 talk about a cohort study. But if you're<br/>                 13 talking about just the people who were enrolled<br/>                 14 in the Agricultural Health Study, the<br/>                 15 participants were farmers and oftentimes<br/>                 16 commercial applicators of pesticides.<br/>                 17 BY MR. MILLER:<br/>                 18 Q. When you say "oftentimes," are they<br/>                 19 always that, or no?<br/>                 20 A. I would have to go back and look at<br/>                 21 the methods to be sure, certain.<br/>                 22 Q. Would that be important to know what<br/>                 23 percentage of them were commercial applicators?<br/>                 24 A. Well, I think the striking thing about<br/>                 25 the Agricultural Health Study is that they were</p> |
| Page 191  | Page 193  |
| <p>1 A. Because it's outside of my area of<br/>                 2 expertise, I'm sort of not comfortable talking<br/>                 3 about such a hypothetical study.<br/>                 4 BY MR. MILLER:<br/>                 5 Q. Why?<br/>                 6 MR. COPLE: Objection. Asked and<br/>                 7 answered.<br/>                 8 BY MR. MILLER:<br/>                 9 Q. Well, you know where I'm going. You<br/>                 10 know full good and well the Agricultural Health<br/>                 11 Study was not done of people in the normal<br/>                 12 setting, was it?<br/>                 13 MR. COPLE: Objection. Vague,<br/>                 14 argumentative, lacks foundation.<br/>                 15 A. Can you explain what you mean by "the<br/>                 16 normal setting"?<br/>                 17 BY MR. MILLER:<br/>                 18 Q. Well, what, if anything, did someone<br/>                 19 have to learn in order to be a participant in<br/>                 20 the Agricultural Health Study?<br/>                 21 MR. COPLE: Objection. Vague.<br/>                 22 BY MR. MILLER:<br/>                 23 Q. Do you know?<br/>                 24 MR. COPLE: Objection. Vague,<br/>                 25 argumentative.</p>   | <p>1 able to look at levels of exposure that were<br/>                 2 many times higher than what had previously been<br/>                 3 investigated in the case control studies not<br/>                 4 done among farmers.<br/>                 5 Q. Nothing to do with my question,<br/>                 6 though.<br/>                 7 Were they licensed pesticide<br/>                 8 applicators?<br/>                 9 MR. COPLE: Objection. Argumentative.<br/>                 10 A. When they were enrolled, it was --<br/>                 11 they were being enrolled as part of the<br/>                 12 licensing process. I mean, that interview, the<br/>                 13 enrollment happened when they were applying for<br/>                 14 their license.<br/>                 15 BY MR. MILLER:<br/>                 16 Q. What does one have to do to become a<br/>                 17 licensed pesticide applicator?<br/>                 18 A. I'm not sure.<br/>                 19 Q. How long does it take to become a<br/>                 20 licensed pesticide applicator?<br/>                 21 A. I am not sure of all of the<br/>                 22 requirements of becoming a licensed pesticide<br/>                 23 applicator.<br/>                 24 Q. Is there an exam for being a licensed<br/>                 25 pesticide applicator?</p>   |

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| <p style="text-align: center;">Page 194</p> <p>1 A. I'm not sure of the requirements for<br/>2 becoming a licensed pesticide applicator.<br/>3 Q. What is the training involved with<br/>4 explaining to an applicant for the licensed<br/>5 pesticide applicator in terms of what to wear<br/>6 and how to handle herbicides and pesticides?<br/>7 A. I am not aware. I'm not sure.<br/>8 Q. Not important?<br/>9 MR. COPLE: Objection. Argumentative.<br/>10 A. I think that what is important is that<br/>11 the Agricultural Health Study was able to<br/>12 evaluate levels of exposure that were higher and<br/>13 probably more likely to be associated with an<br/>14 increased risk of cancer if such an increased<br/>15 risk existed.<br/>16 MR. MILLER: Move to strike as<br/>17 non-responsive.<br/>18 MR. COPLE: The witness's answer will<br/>19 stand.<br/>20 MR. MILLER: Let's move on.<br/>21 BY MR. MILLER:<br/>22 Q. What percentage of the cohort was<br/>23 licensed pesticide applicators in the HS?<br/>24 A. Again, I think I mentioned previously,<br/>25 to tell you I would need to look at the actual</p> | <p style="text-align: center;">Page 196</p> <p>1 included in the unadjusted results. I referred<br/>2 to it, I call that -- sometimes we refer to that<br/>3 as letting the sample size float. That's how I<br/>4 refer it to in my report.<br/>5 BY MR. MILLER:<br/>6 Q. Is that -- are there other criticisms,<br/>7 or is that the only one?<br/>8 A. I felt like that was the major<br/>9 limitation of the study.<br/>10 Q. So are there any minor limitations of<br/>11 the study?<br/>12 MR. COPLE: Objection. Vague.<br/>13 A. Yeah, I mean, of course, all studies<br/>14 have -- epidemiologic studies have limitations<br/>15 to varying degrees. In this particular study,<br/>16 they, you know, as in the case control studies,<br/>17 they were relying on self-reported exposure<br/>18 information, and so you might expect for some of<br/>19 that exposure to be misclassified, but I think<br/>20 the quality would be stronger than in the case<br/>21 control studies where that would also vary based<br/>22 on whether or not someone had developed the<br/>23 disease.<br/>24 BY MR. MILLER:<br/>25 Q. Do -- are licensed pesticide</p> |
| <p style="text-align: center;">Page 195</p> <p>1 paper.<br/>2 Q. Are there any weaknesses in the<br/>3 Agricultural Health Study?<br/>4 MR. COPLE: Objection. Vague.<br/>5 A. Certainly I talk about some of those<br/>6 limitations of the study in my report.<br/>7 BY MR. MILLER:<br/>8 Q. And what are they?<br/>9 A. If we could -- if I could see my<br/>10 report, we could go through those.<br/>11 Q. Feel free (handing).<br/>12 MR. COPLE: Are you marking it for the<br/>13 deposition?<br/>14 MR. MILLER: No.<br/>15 A. Okay. So I reviewed the 2005 study,<br/>16 starting at the bottom of Page 22 of my report.<br/>17 BY MR. MILLER:<br/>18 Q. And the question is, what are the<br/>19 weaknesses that you believe exist in the<br/>20 Agricultural Health Study as published in 2005?<br/>21 MR. COPLE: Objection. Vague.<br/>22 A. So as I stated in my report, the major<br/>23 limitation of the study relates to how they<br/>24 included in their multivariable analysis a<br/>25 different sample of participants than who was</p>  | <p style="text-align: center;">Page 197</p> <p>1 applicators trained to wear a personal<br/>2 protection equipment at a higher rate than<br/>3 people who are not licensed pesticide<br/>4 applicators, or do you know?<br/>5 MR. COPLE: Objection. Asked and<br/>6 answered.<br/>7 A. Yeah, I told you previously I don't<br/>8 know about all of the requirements for pesticide<br/>9 licensing.<br/>10 BY MR. MILLER:<br/>11 Q. Have you been provided, or in your own<br/>12 research reviewed the Bolognesi study of 2016?<br/>13 MR. COPLE: Objection. Lacks<br/>14 foundation.<br/>15 A. I don't recall reviewing that study,<br/>16 no.<br/>17 BY MR. MILLER:<br/>18 Q. Let's take a look at it. Doctor, I'm<br/>19 going to hand you what's been marked as 23-24,<br/>20 Bolognesi study of lymphocyte cytokinesis and<br/>21 micronucleus assay for the monitoring of<br/>22 pesticide-exposed populations.<br/>23<br/>24<br/>25</p>   |



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| <p>1 (Whereupon, Rider Exhibit 23-24,<br/> 2 Bolognesi and Holland article titled<br/> 3 The use of lymphocyte<br/> 4 cytokinesis-block micronucleus assay<br/> 5 for monitoring pesticide-exposed<br/> 6 populations, was marked for<br/> 7 identification.)<br/> 8 BY MR. MILLER:<br/> 9 Q. Did you see the study before?<br/> 10 A. I do not recall reviewing the study,<br/> 11 no.<br/> 12 Q. The good news is we're not going to go<br/> 13 through the whole study. That's number one.<br/> 14 Number two, I'm just going to ask you<br/> 15 whether you have an opinion or not on one<br/> 16 particular point Dr. Bolognesi makes in his<br/> 17 study. And it can be found in the abstract.<br/> 18 It's the third to last sentence. He says that<br/> 19 there is, "A decreased level of<br/> 20 pesticide-induced genotoxicity was associated<br/> 21 with the proper use of personal protection."<br/> 22 And my question to you is, do you have<br/> 23 an opinion about that issue or not?<br/> 24 MR. COPLER: Objection. Vague.<br/> 25 BY MR. MILLER:</p>  | <p>1 Q. Retrospectively?<br/> 2 A. Or prospectively, for that matter.<br/> 3 Q. But you couldn't randomize people to<br/> 4 it?<br/> 5 A. But observational studies, cohort<br/> 6 studies are also prospective studies.<br/> 7 Q. Sure, sure.<br/> 8 But we couldn't do a randomized study<br/> 9 for that purpose now. We agree on that?<br/> 10 A. I agree, that would not be --<br/> 11 Q. So the Agricultural Health Study is<br/> 12 telling us what -- whether there's a risk to<br/> 13 licensed pesticide applicators; right? That's<br/> 14 what it's telling us?<br/> 15 A. The studied population included people<br/> 16 who were applying for their pesticide license,<br/> 17 yes.<br/> 18 Q. And, in fact, got their pesticide<br/> 19 license; right?<br/> 20 A. Again, I don't recall from the details<br/> 21 of the study whether people had to actually get<br/> 22 the license to be included. I would have to<br/> 23 look at the methods.<br/> 24 Q. All right. We'll mark as 23-25, I<br/> 25 believe this is the 2005 Agricultural Health</p>                 |
| Page 199  | Page 201  |
| <p>1 Q. Whether or not -- and just to be<br/> 2 precise, whether or not someone who wears proper<br/> 3 use of her personal protection has a decreased<br/> 4 level of pesticide-induced genotoxicity.<br/> 5 A. I do not have an opinion about that,<br/> 6 no.<br/> 7 Q. But if it was true, if that statement<br/> 8 was true, then that would mean people who wear<br/> 9 the proper use of personal protection would have<br/> 10 a lower risk of the problem that would be caused<br/> 11 by exposure as to people who don't wear personal<br/> 12 protection; right?<br/> 13 MR. COPLER: Objection. Vague, lacks<br/> 14 foundation.<br/> 15 A. The only way I would be comfortable in<br/> 16 coming to that conclusion would be if there had<br/> 17 been a human study that had actually looked at<br/> 18 that on the population level.<br/> 19 BY MR. MILLER:<br/> 20 Q. And that would be unethical to do now,<br/> 21 wouldn't it?<br/> 22 A. Well, it would certainly be unethical<br/> 23 to, you know, randomize people to exposure or<br/> 24 not to exposure, but that doesn't mean that it<br/> 25 couldn't be studied.</p> | <p>1 Study.<br/> 2 (Whereupon, Rider Exhibit 23-25, De<br/> 3 Roos, et al article, Cancer Incidence<br/> 4 among Glyphosate-Exposed Pesticide<br/> 5 Applicators in the Agricultural Health<br/> 6 Study, was marked for identification.)<br/> 7 BY MR. MILLER:<br/> 8 Q. This is the Agricultural Health Study<br/> 9 that you've been referring to; right?<br/> 10 A. That is correct, yes.<br/> 11 Q. Do you see the Materials and Methods<br/> 12 section?<br/> 13 A. I do.<br/> 14 Q. Okay. It says, "The AHS is a<br/> 15 prospective cohort study in Iowa and North<br/> 16 Carolina, which includes 57,000 private and<br/> 17 commercial applicators who were licensed to<br/> 18 apply restricted-use pesticides at the time of<br/> 19 their enrollment." Right?<br/> 20 A. That is correct, yes.<br/> 21 Q. And wouldn't it be important to know<br/> 22 what the education and training is of a licensed<br/> 23 restricted-use pesticide applicator in<br/> 24 specifically Iowa and North Carolina to reach<br/> 25 any conclusions on this study as to how it would</p> |

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| <p>1 or would not apply to people who were not<br/>2 licensed restricted-use pesticide applicators?<br/>3 MR. COPLE: Objection. Asked and<br/>4 answered, vague.<br/>5 A. So I believe what you're asking about<br/>6 is the generalizability of the study, so<br/>7 whether or not we can take the results from the<br/>8 Agricultural Health Study and apply them to<br/>9 groups of people who are in some way different,<br/>10 in this case not licensed applicators. And as I<br/>11 talk about in my expert report, you know, the<br/>12 sort of first step in evaluating a study is<br/>13 looking at the internal validity, then you can<br/>14 go ahead and look at the precision of those<br/>15 estimates, and then after -- only after those<br/>16 things have sort of been satisfied do you talk<br/>17 about generalizability.<br/>18 So I think that the Agricultural<br/>19 Health Study has not demonstrated any<br/>20 association between glyphosate use and NHL.<br/>21 But, you know, so for all intents and purposes<br/>22 we would assume that those results apply to<br/>23 other participants. It's a little bit like, you<br/>24 know, do studies of exercise and cardiovascular<br/>25 disease in men apply to women. Unless we</p> | <p>1 generalizable. If you're talking about whether,<br/>2 you know, protective equipment could be on the<br/>3 causal pathway between glyphosate exposure and<br/>4 NHL, I would say that, you know, again, in this<br/>5 study we have levels of glyphosate exposure in<br/>6 the highest category, they're -- you know, that<br/>7 are five times what was, at minimum, what was<br/>8 done in previous case control studies. And so<br/>9 if we were going to see an association between<br/>10 glyphosate and NHL, we would likely see that at<br/>11 these higher levels of exposure.<br/>12 Q. Well, here's my question. Either you<br/>13 are or you aren't saying that results of the AHS<br/>14 study where we have licensed commercial<br/>15 applicators wearing personal protective<br/>16 clothing, and you're saying those results are<br/>17 generalizable to people who aren't wearing<br/>18 personal protective clothing. Is that what I<br/>19 should understand?<br/>20 MR. COPLE: Objection. Asked and<br/>21 answered.<br/>22 A. So I mean, in this publication the<br/>23 issue of personal protective equipment isn't<br/>24 directly addressed, so I think that would<br/>25 require some assumptions about these</p> |
| Page 203  | Page 205  |
| <p>1 believe that there's some reason where there<br/>2 would be a biological interaction and those<br/>3 results would no longer apply, we assume that<br/>4 the results are generalizable.<br/>5 BY MR. MILLER:<br/>6 Q. You assume the results are<br/>7 generalizable to people who don't wear<br/>8 protective clothing when the study is done on<br/>9 people who wear protective clothing. Do I<br/>10 understand that correctly?<br/>11 A. So, you know, if you're referring to<br/>12 protective clothing as being something that's<br/>13 sort of on the pathway between glyphosate and<br/>14 NHL on the causal pathway, so, you know, if, you<br/>15 know, you use glyphosate, you may or may not<br/>16 wear protective equipment and then that would<br/>17 influence your -- the risk that you have of NHL.<br/>18 Q. Are you asking me a question now?<br/>19 A. I'm trying to clarify what the<br/>20 question is. So I think that if you're talking<br/>21 about generalizability, unless we have no reason<br/>22 to believe -- unless we have a reason to believe<br/>23 that the biological relationship between the<br/>24 exposure and the outcome is different in two<br/>25 groups of people, we assume that the results are</p>         | <p>1 applicators. It also wasn't addressed in many<br/>2 of the case control studies. So we also don't<br/>3 know how often that was used in many of the case<br/>4 control studies that were conducted.<br/>5 BY MR. MILLER:<br/>6 Q. Well, how many of the case control<br/>7 studies that we talked about today required<br/>8 participants to be licensed commercial<br/>9 applicators?<br/>10 A. I am not certain if any of them<br/>11 required participants to be licensed commercial<br/>12 applicators.<br/>13 Q. So this study, the AHS cohort study,<br/>14 is different from the case control studies in<br/>15 that way, that it requires licensed commercial<br/>16 applicators; right?<br/>17 A. Yes. And oftentimes cohort studies<br/>18 are conducted in special populations because<br/>19 those populations allow for a better study of an<br/>20 exposure and an outcome.<br/>21 For instance, in the health<br/>22 professional study that I publish in, you could<br/>23 -- I suppose you could argue that those health<br/>24 professionals are different from the US general<br/>25 population, but the reason that that population</p>  |

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| <p>1 was selected was because it was believed that we<br/>                 2 could get higher quality exposure and outcome<br/>                 3 data from those participants than for people in<br/>                 4 the general population.<br/>                 5 And unless you believe that there is a<br/>                 6 biological difference in the relationship<br/>                 7 between exposure and disease in that population<br/>                 8 from another population, you can still<br/>                 9 generalize those results and your study has<br/>                 10 better internal validity.<br/>                 11 Q. And that's why we showed you<br/>                 12 Exhibit 23-24, the Bolognesi study, because it,<br/>                 13 in fact, indicates there is a biological<br/>                 14 difference. Remember it says, "A decreased<br/>                 15 level of pesticide-induced genotoxicity was<br/>                 16 associated with the proper use of personal<br/>                 17 protection." That is a biological difference<br/>                 18 if, in fact, Dr. Bolognesi is correct?<br/>                 19 MR. COPLÉ: Objection. Argumentative.<br/>                 20 A. So, again, I haven't reviewed this<br/>                 21 paper, and I can't tell you whether that is<br/>                 22 correct. But I do know that because something<br/>                 23 is demonstrated in a genotoxicity study does not<br/>                 24 mean that's what we'd see in a population-based<br/>                 25 study of humans.</p> | <p>1 Do you see that table?<br/>                 2 A. I do.<br/>                 3 Q. Okay. So for these licensed<br/>                 4 commercial applicators, they show non-Hodgkin's<br/>                 5 lymphoma, a total of 92 cancers; right?<br/>                 6 A. That's correct.<br/>                 7 Q. And if they've ever used glyphosate,<br/>                 8 they have a 20 percent increased risk?<br/>                 9 A. They did identify a relative risk of<br/>                 10 1.2; correct.<br/>                 11 Q. And adjusted for age, demographic, and<br/>                 12 lifestyle factors and other pesticide use, they<br/>                 13 had a 10 percent increased risk; right?<br/>                 14 A. Well, again, I think that, you know,<br/>                 15 in this particular study I think the internal<br/>                 16 validity is sufficient where you would look at<br/>                 17 that confidence interval, and you would -- you<br/>                 18 would see that it is -- it does include the null<br/>                 19 value of 1. So it's consistent with there being<br/>                 20 no association between glyphosate and NHL.<br/>                 21 Q. Let's go to Page 53, if you would,<br/>                 22 please. The authors point out limitations of<br/>                 23 their study, and I want to go over some of them.<br/>                 24 Okay?<br/>                 25 A. Okay.</p>   |
| Page 207  | Page 209   |
| <p>1 BY MR. MILLER:<br/>                 2 Q. Going to the AHS study of 2005, you<br/>                 3 see Dr. Blair is one of the authors; right?<br/>                 4 A. Yes.<br/>                 5 Q. And to be clear, you have not read his<br/>                 6 deposition, right?<br/>                 7 A. Again, I believe that I had access to<br/>                 8 Dr. Blair's deposition, but that I have not<br/>                 9 reviewed it, no.<br/>                 10 Q. Would it matter to you if Dr. Alavanja<br/>                 11 has said that he'd like to say it's positively<br/>                 12 associated with non-Hodgkin's lymphoma?<br/>                 13 MR. COPLÉ: Objection. Lacks<br/>                 14 foundation.<br/>                 15 A. Again, I don't know Dr. Alavanja, and<br/>                 16 I couldn't comment on whether that would be<br/>                 17 important to me.<br/>                 18 BY MR. MILLER:<br/>                 19 Q. Go, if you would, to the Agricultural<br/>                 20 Health Study, Page 51.<br/>                 21 A. Okay.<br/>                 22 Q. And it has a table here for<br/>                 23 associa- -- or the association of glyphosate<br/>                 24 exposure ever versus never use with common<br/>                 25 cancers among AHS applicators.</p>  | <p>1 Q. "Certain limitations of our data<br/>                 2 hinder the inferences we can make regarding<br/>                 3 glyphosate and its association with specific<br/>                 4 cancer subtypes."<br/>                 5 Do you agree with that?<br/>                 6 A. Do I agree that certain limitations of<br/>                 7 the data hinder the inferences they can make?<br/>                 8 Q. Yes.<br/>                 9 A. Yes, I think that, as I stated, all<br/>                 10 studies have limitations, and you need to<br/>                 11 interpret the results in light of those<br/>                 12 limitations.<br/>                 13 Q. And the authors caution that, "The AHS<br/>                 14 cohort is large, and there are many participants<br/>                 15 reporting glyphosate use. The small numbers of<br/>                 16 specific cancers occurring during the follow-up<br/>                 17 period hindered precise effect estimations."<br/>                 18 That's true, isn't it?<br/>                 19 A. So, I mean, it's interesting that the<br/>                 20 authors say that, because while they, I think,<br/>                 21 are very conservative in saying that their<br/>                 22 confidence intervals are not precise, they're at<br/>                 23 least as precise as anything that was in the<br/>                 24 reported literature up to this point.<br/>                 25 Q. These authors say that their study</p> |

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1 shows an "association between glyphosate and the  
 2 risk of multiple myeloma"; right?  
 3 A. Sorry, I lost you in there.  
 4 Q. Second-to-the-last sentence, "a  
 5 suggested association between glyphosate and the  
 6 risk of multiple myeloma."  
 7 Do you see that?  
 8 A. I don't. Sorry.  
 9 Q. Yes, ma'am. Right down here, right  
 10 above (indicating).  
 11 A. Okay. Yes, I do see that. Thank you.  
 12 Q. And you and I agree multiple myeloma  
 13 is a form of non-Hodgkin's lymphoma?  
 14 A. It was not included in the definition  
 15 at the time of this publication, but in the  
 16 subsequent AHS follow-up study, it then was  
 17 included in that definition.  
 18 Q. Do you know whether Monsanto considers  
 19 applicators in high-volume sprayers or  
 20 low-volume sprayers to actually experience more  
 21 exposure?  
 22 MR. COPLÉ: Objection. Lacks  
 23 foundation, vague.  
 24 A. As I've said, I've never had any  
 25 communications with Monsanto. So I don't -- I

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1 don't know what they think about that.  
 2 BY MR. MILLER:  
 3 Q. Would that be important?  
 4 MR. COPLÉ: Objection. Vague.  
 5 A. Could you ask the question again,  
 6 please?  
 7 BY MR. MILLER:  
 8 Q. Would it be important to know whether  
 9 high-volume sprayers actually experience less  
 10 exposure than low-volume sprayers?  
 11 MR. COPLÉ: Objection. Vague.  
 12 BY MR. MILLER:  
 13 Q. You can answer.  
 14 A. I think that you can measure exposure  
 15 in a way that gets at the intensity and duration  
 16 of exposure.  
 17 Q. You haven't done that, and this study  
 18 didn't do that, right?  
 19 A. Oh, this study did look at  
 20 intensity-weighted exposure. That's the second  
 21 column of their results in Table 3.  
 22 Q. Where are you?  
 23 A. Table 3 on Page 52.  
 24 Q. That's the intensity-weighted exposure  
 25 days?

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1 A. That's correct.  
 2 Q. Do you know if IARC has reviewed  
 3 whether the herbicide 2,4-D is classified as a  
 4 possible carcinogenic to humans, group 2B?  
 5 MR. COPLÉ: Objection. Asked and  
 6 answered.  
 7 A. I don't -- I don't follow all the IARC  
 8 decisions, and I haven't read anything about  
 9 that one, no.  
 10 BY MR. MILLER:  
 11 Q. Would it be important to you -- you  
 12 talked about confounding by other herbicides.  
 13 Would it be important to you whether or not  
 14 another herbicide was a possible carcinogen or  
 15 not?  
 16 A. So it certainly was important to me in  
 17 evaluating the results of these studies. And,  
 18 in fact, when 2,4-D and another chemical was  
 19 associated with NHL in the pooling project  
 20 analysis, I felt like those analyses should be  
 21 adjusted for those chemicals to be  
 22 interpretable.  
 23 Q. And 2,4-D IARC found was not a  
 24 probable carcinogen. Are you aware of that?  
 25 MR. COPLÉ: Objection. Lacks

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1 foundation, asked and answered.  
 2 A. As I just said, I have not followed  
 3 the IARC decisions on other chemicals.  
 4 MR. MILLER: Here it is,  
 5 Exhibit 23-26, IARC monograph evaluating 2,4-D.  
 6 (Whereupon, Rider Exhibit 23-26,  
 7 6/23/15, WHO Press Release, IARC  
 8 Monographs evaluate DDT, lindane, and  
 9 2,4-D, was marked for identification.)  
 10 BY MR. MILLER:  
 11 Q. And fourth paragraph down, the  
 12 herbicide 2,4-D was classified as a possible  
 13 carcinogenic to humans, which is a lower  
 14 classification than glyphosate; right?  
 15 MR. COPLÉ: Objection. The document  
 16 speaks for itself, asked and answered.  
 17 A. So this is the first time I'm seeing  
 18 this document. As I've said, I -- in my own  
 19 work I rely on sort of the primary studies in  
 20 order to, you know, synthesize the evidence and  
 21 come to my own expert opinions on them. So I  
 22 couldn't really comment on the evidence for  
 23 2,4-D.  
 24 BY MR. MILLER:  
 25 Q. So in your primary studies and your

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| Page 214   | Page 216   |
| <p>1 work, did you conclude that 2,4-D was as<br/>                 2 carcinogenic -- as potentially carcinogenic as<br/>                 3 glyphosate, or less carcinogenic potentially<br/>                 4 than glyphosate?<br/>                 5 MR. COPLE: Objection. Asked and<br/>                 6 answered.<br/>                 7 A. I -- as I've said, I have not reviewed<br/>                 8 all of the primary literature for 2,4-D. But I<br/>                 9 do know that in the analyses where both<br/>                 10 glyphosate and 2,4-D were considered, 2,4-D<br/>                 11 appeared to be a confounder of the association<br/>                 12 between glyphosate and NHL.<br/>                 13 BY MR. MILLER:<br/>                 14 Q. And how would you define to a<br/>                 15 layperson what it means to be a confounder in<br/>                 16 that setting?<br/>                 17 A. It's an exposure that's -- or a<br/>                 18 variable that's associated with your exposure,<br/>                 19 and also a risk factor for -- an independent<br/>                 20 risk factor for the disease.<br/>                 21 Q. That's fair.<br/>                 22 So 2,4-D is an independent risk factor<br/>                 23 for non-Hodgkin's lymphoma, and then it has to<br/>                 24 be factored in when you look at these studies?<br/>                 25 A. So I would say that if you have a</p> | <p>1 have a variable that's associated with your<br/>                 2 exposure, and also risk factor for the disease,<br/>                 3 even just within that particular study<br/>                 4 population you need a control for that variable<br/>                 5 in order to have interpretable findings."<br/>                 6 And I'm just asking, that applies to<br/>                 7 2,4-D and glyphosate, that's what you had to do;<br/>                 8 right?<br/>                 9 A. I'm sorry, that's what I had to do?<br/>                 10 Q. Did you -- are you an expert?<br/>                 11 MR. COPLE: Objection. Argumentative.<br/>                 12 BY MR. MILLER:<br/>                 13 Q. Did you look at this as an expert?<br/>                 14 I'm just trying --<br/>                 15 MR. COPLE: Objection. Argumentative.<br/>                 16 BY MR. MILLER:<br/>                 17 Q. Back up.<br/>                 18 I mean, is that what you had to do as<br/>                 19 expert? Did you look at 2,4-D as a confounder?<br/>                 20 MR. COPLE: Objection.<br/>                 21 A. As I've said, in the studies where --<br/>                 22 in many of the studies, especially many of the<br/>                 23 case control studies, these other chemicals<br/>                 24 weren't even evaluated, so you couldn't look at<br/>                 25 2,4-D as a potential confounder.</p>  |
| Page 215   | Page 217   |
| <p>1 variable that's associated with your exposure,<br/>                 2 and also a risk factor for the disease, even<br/>                 3 just within that particular study population,<br/>                 4 it's -- you need to control for that variable in<br/>                 5 order to have interpretable findings.<br/>                 6 Q. And that's what we're talking about<br/>                 7 with 2,4-D; right?<br/>                 8 MR. COPLE: Objection. Asked and<br/>                 9 answered.<br/>                 10 A. Sorry, what is the question?<br/>                 11 BY MR. MILLER:<br/>                 12 Q. That's what we're talking about with<br/>                 13 2,4-D, that applies to your last answer is all<br/>                 14 I'm asking; right?<br/>                 15 MR. COPLE: Objection. Vague, asked<br/>                 16 and answered.<br/>                 17 A. Sorry, if you would ask me a question,<br/>                 18 I'll do my best to answer it, but I don't<br/>                 19 understand what the question is.<br/>                 20 BY MR. MILLER:<br/>                 21 Q. I did, and I'll ask it again.<br/>                 22 "Question: That's fair. So 2,4-D is<br/>                 23 an independent risk factor for non-Hodgkin's you<br/>                 24 look at with these studies?<br/>                 25 "Answer: So I would say that if you</p>  | <p>1 But in the studies where data was<br/>                 2 collected on 2,4-D, there is evidence that it<br/>                 3 was acting as a confounder, and you can see that<br/>                 4 in the pooling project analyses that I mentioned<br/>                 5 in my expert report.<br/>                 6 BY MR. MILLER:<br/>                 7 Q. So in the AHS study, how did the<br/>                 8 investigators get the information from the<br/>                 9 people in the cohort about the issues that were<br/>                 10 studied? How did that happen?<br/>                 11 MR. COPLE: Objection. Vague.<br/>                 12 A. So there's a paragraph here in the<br/>                 13 paper on Page 49 about exposure assessment, and<br/>                 14 the authors talk about how they used a<br/>                 15 self-administered enrollment questionnaire to<br/>                 16 collect comprehensive use data on 22 pesticides<br/>                 17 and ever/never use information for an additional<br/>                 18 28 pesticides.<br/>                 19 And then in terms of outcome, there<br/>                 20 was linkage to cancer registry data.<br/>                 21 BY MR. MILLER:<br/>                 22 Q. So between 1993 and 1997 they<br/>                 23 collected questionnaires from people who were<br/>                 24 commercial applicators who were attempting to<br/>                 25 get a license to apply restricted-use</p> |



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|---|---|
| Page 218  | Page 220  |
| <p>1 pesticides. Right?</p> <p>2 A. That is correct.</p> <p>3 Q. Okay. And so on that application they</p> <p>4 would be -- put down either ever or never use</p> <p>5 for chemicals, including glyphosate; right?</p> <p>6 A. No, that's not exactly how it was.</p> <p>7 They collected much more detailed use on 22</p> <p>8 pesticides, and then only ever/never use on an</p> <p>9 additional 28 pesticides.</p> <p>10 Q. Was glyphosate -- was in the more</p> <p>11 detailed use?</p> <p>12 A. That is correct.</p> <p>13 Q. But it was a one-time collection in</p> <p>14 '93, '94, '95, '96 to '97?</p> <p>15 A. It was one questionnaire as of this</p> <p>16 publication.</p> <p>17 Q. And then there was a second</p> <p>18 publication following that we'll talk about in a</p> <p>19 bit.</p> <p>20 A. Okay.</p> <p>21 Q. That's AHS, can we call that</p> <p>22 unpublished?</p> <p>23 A. Or the draft manuscript.</p> <p>24 Q. Draft manuscript. But -- so this --</p> <p>25 the original AHS article was written in 2005;</p>  | <p>1 A. Well, certainly if what you're -- you</p> <p>2 know, misclassification refers to the exposure</p> <p>3 that you're attempting to measure. In the case</p> <p>4 of this publication, they were concerned with</p> <p>5 baseline levels of exposure, again much higher</p> <p>6 levels of exposure than were investigated</p> <p>7 previously.</p> <p>8 And while it's true that in your</p> <p>9 example that that NHL that was -- that was</p> <p>10 diagnosed would be attributed to someone who was</p> <p>11 unexposed, the latency period for that exposure</p> <p>12 would have likely been too short to be</p> <p>13 attributable to glyphosate anyway. So I think</p> <p>14 that was part of the motivation for</p> <p>15 characterizing their exposures in the way they</p> <p>16 did.</p> <p>17 Q. Misclassification bias can drive the</p> <p>18 findings to the null; right? That's fair?</p> <p>19 A. That's fair. But it's also important</p> <p>20 to recognize that when you're looking at</p> <p>21 exposures in multiple categories, it can also</p> <p>22 drive them away from the null.</p> <p>23 MR. MILLER: Excuse me one second.</p> <p>24 Take a short break.</p> <p>25 THE WITNESS: Okay.</p> |
| Page 219  | Page 221  |
| <p>1 right?</p> <p>2 A. It was published in 2005, yes.</p> <p>3 Q. And I guess my point is, so if</p> <p>4 somebody comes in in '93 and they say I've never</p> <p>5 used glyphosate, right --</p> <p>6 A. Mm-hmm.</p> <p>7 Q. -- and then in year '98 they applied</p> <p>8 glyphosate, which category are they going to be</p> <p>9 in, the I used glyphosate or I never used</p> <p>10 glyphosate?</p> <p>11 A. Their baseline exposure assessment</p> <p>12 would be never use.</p> <p>13 Q. Okay. And then in 2002 if that person</p> <p>14 gets non-Hodgkin's lymphoma, they'll be put down</p> <p>15 as the never use glyphosate; right?</p> <p>16 A. That's right. Their baseline exposure</p> <p>17 would have been never use; correct.</p> <p>18 Q. And that's even if they sprayed</p> <p>19 glyphosate in '98, '99, 2000, 2001, because they</p> <p>20 hadn't sprayed it by the time they did that</p> <p>21 questionnaire, and it wouldn't show up?</p> <p>22 A. That is correct. It was a baseline</p> <p>23 exposure measurement.</p> <p>24 Q. So that leaves us vulnerable to</p> <p>25 misclassification bias?</p> | <p>1 MR. MILLER: I want to get some water</p> <p>2 and --</p> <p>3 THE WITNESS: Great.</p> <p>4 THE VIDEOGRAPHER: Going off the</p> <p>5 record. The time is 2:32.</p> <p>6 (Whereupon, a recess was taken.)</p> <p>7 THE VIDEOGRAPHER: Back on the record.</p> <p>8 The time is 2:50.</p> <p>9 BY MR. MILLER:</p> <p>10 Q. All right, Doctor, back to work.</p> <p>11 A. Okay.</p> <p>12 MR. COPLER: Let's just check who is on</p> <p>13 the line.</p> <p>14 MR. MILLER: Jeff Traverse, you still</p> <p>15 there?</p> <p>16 MR. TRAVERSE: I'm still here.</p> <p>17 MR. MILLER: Okay. Anybody else?</p> <p>18 Let's go.</p> <p>19 A. Okay.</p> <p>20 BY MR. MILLER:</p> <p>21 Q. We've talked about the Agricultural</p> <p>22 Health Study, and we talked about who some of</p> <p>23 the authors are.</p> <p>24 Dr. Alavanja, one of the authors, do</p> <p>25 you remember his name?</p>  |

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| Page 222 | <p>1 A. I do, yes.</p> <p>2 Q. Let's look at Exhibit 23-27.</p> <p>3 (Whereupon, Rider Exhibit 23-27,</p> <p>4 Alavanja, et al article, Increased</p> <p>5 Cancer Burden Among Pesticide</p> <p>6 Applicators and Others Due to</p> <p>7 Pesticide Exposure, was marked for</p> <p>8 identification.)</p> <p>9 BY MR. MILLER:</p> <p>10 Q. And this is an article he wrote,</p> <p>11 follow-up article with a Dr. Ross and others.</p> <p>12 Were you provided this by the</p> <p>13 Hollingsworth firm, or have you seen it from</p> <p>14 another source?</p> <p>15 A. I don't recall reviewing this, but</p> <p>16 it's possible that it was in my list of</p> <p>17 materials, yes.</p> <p>18 Q. Let's just look real quick. And I</p> <p>19 only bring it up because he's an author of this</p> <p>20 study that you rely upon to say that there is</p> <p>21 not causality between Roundup and non-Hodgkin's</p> <p>22 lymphoma.</p> <p>23 And if you would with me, please, go</p> <p>24 to tab 1, and that is at page -- Table 5. I'm</p> <p>25 not sure what page that is. Table 5.</p> | Page 224 | <p>1 Exposure Source, it says "Occupational"; right?</p> <p>2 A. Yes.</p> <p>3 Q. "Epidemiological Evidence," and here</p> <p>4 the author of the HS study says, "Positively</p> <p>5 associated with non-Hodgkin's lymphoma."</p> <p>6 Do you see that?</p> <p>7 A. I see that that's what it says in the</p> <p>8 table, yes.</p> <p>9 Q. You disagree with that, right?</p> <p>10 A. Well, again, I have not reviewed this</p> <p>11 paper prior to now. It's a pretty thick paper.</p> <p>12 It seems that they're doing their own review of</p> <p>13 the literature, but I really don't know the</p> <p>14 basis for that review, so I couldn't tell you</p> <p>15 whether I agree or disagree.</p> <p>16 Q. Putting this paper aside, if someone</p> <p>17 were to tell you that glyphosate is positively</p> <p>18 associated with non-Hodgkin's lymphoma, would</p> <p>19 you agree with him or disagree with them?</p> <p>20 A. In the main conclusion of my expert</p> <p>21 report, I disagree. I believe that there is not</p> <p>22 sufficient evidence to identify glyphosate as a</p> <p>23 causal factor in NHL.</p> <p>24 Q. We can put that exhibit aside.</p> <p>25 Before the break we were talking about</p> |
| Page 223 | <p>1 A. Okay.</p> <p>2 Q. And to be fair, let's go to the start</p> <p>3 of the table, which is, I believe -- yes.</p> <p>4 A. Okay. I'm there.</p> <p>5 Q. First page of that table, it says what</p> <p>6 the table is about, and that is about</p> <p>7 "Epidemiological and Toxicological Evidence of</p> <p>8 Carcinogenicity for Selected Cancer Sites and</p> <p>9 Pesticides"; right?</p> <p>10 A. Yes.</p> <p>11 MR. COPLE: Objection. Document</p> <p>12 speaks for itself.</p> <p>13 BY MR. MILLER:</p> <p>14 Q. If we go to the second page of Table</p> <p>15 5, it says for the pesticide glyphosate about</p> <p>16 halfway down.</p> <p>17 Do you see that?</p> <p>18 A. Yes, I do.</p> <p>19 Q. Okay. And this is in 2013, before</p> <p>20 IARC found glyphosate 2A, so the IARC</p> <p>21 classification is not evaluated; right? Do you</p> <p>22 see the columns I'm talking about?</p> <p>23 A. Oh, I see, "not evaluated under IARC</p> <p>24 classification." Yes, I do see that.</p> <p>25 Q. And</p>  | Page 225 | <p>1 misclassification. Do you remember generally</p> <p>2 that line of questioning?</p> <p>3 A. Yes, I do.</p> <p>4 Q. And Dr. Alavanja, one of the authors</p> <p>5 of the original AHS study, went on in 2014 to</p> <p>6 write a paper about the AHS study, a second</p> <p>7 paper about insecticides and fungicides. Have</p> <p>8 you been provided that paper?</p> <p>9 A. The 2014 AHS cohort study, is that the</p> <p>10 one you're referring to?</p> <p>11 Q. Yes.</p> <p>12 A. Yes, yes, I do have that paper.</p> <p>13 Q. Let's take a look at it.</p> <p>14 A. Okay.</p> <p>15 Q. And that is 23-28.</p> <p>16 (Whereupon, Rider Exhibit 23-28,</p> <p>17 Alavanja, et al paper, Non-Hodgkin</p> <p>18 Lymphoma Risk and Insecticide,</p> <p>19 Fungicide and Fumigant Use in the</p> <p>20 Agricultural Health Study, was marked</p> <p>21 for identification.)</p> <p>22 BY MR. MILLER:</p> <p>23 Q. In that study the AHS authors decided</p> <p>24 not to include glyphosate; right?</p> <p>25 A. Well, I know that the results for</p>  |

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| <p>1 glyphosate aren't included in that publication.<br/>                 2 That's the only information I have.<br/>                 3 Q. So for whatever reason, the authors<br/>                 4 decided to not publish the glyphosate<br/>                 5 information?<br/>                 6 A. The authors decided not to include the<br/>                 7 glyphosate information and results in this<br/>                 8 particular publication.<br/>                 9 Q. Okay. If you could please turn to<br/>                 10 Page 15 of that report.<br/>                 11 A. Okay.<br/>                 12 Q. What these authors caution is, and I<br/>                 13 want to look at the last sentence before<br/>                 14 Conclusion, these are the authors of AHS,<br/>                 15 "Despite the generally high quality of the<br/>                 16 information on pesticide use provided by AHS<br/>                 17 participants, misclassification of pesticide<br/>                 18 exposures can occur and can have sizable impact<br/>                 19 on estimates of relative risk, which in a<br/>                 20 prospective cohort design would tend to produce<br/>                 21 false negative results."<br/>                 22 That's true, isn't it?<br/>                 23 A. Well, that is what the authors say<br/>                 24 here.<br/>                 25 Q. And to be clear, AHS is a prospective</p> | <p>1 BY MR. MILLER:<br/>                 2 Q. Have you done a research and decided<br/>                 3 not to publish it?<br/>                 4 A. I think I have definitely been<br/>                 5 involved in studies where we have not included<br/>                 6 every result that we found in a manuscript, but<br/>                 7 I don't think I've been involved in work where<br/>                 8 I've consciously decided not to publish, no.<br/>                 9 Q. What was the loss to follow-up on this<br/>                 10 study?<br/>                 11 A. So could you -- could you clarify a<br/>                 12 little bit what you meant? Because, for<br/>                 13 instance, in terms of cancer outcomes, there was<br/>                 14 virtually no loss to follow-up.<br/>                 15 Q. Concerning cancer outcomes, there was<br/>                 16 virtually no loss to follow-up?<br/>                 17 A. Well, they use linkage with<br/>                 18 registries, so that way they're really able to<br/>                 19 capture virtually all of the cancers that would<br/>                 20 occur in the cohort.<br/>                 21 Q. And if people don't fill out the<br/>                 22 second questionnaire -- let's back up.<br/>                 23 There was a second questionnaire;<br/>                 24 right?<br/>                 25 A. That's right. A strength of this</p> |
| Page 227   | Page 229   |
| <p>1 cohort design; right?<br/>                 2 A. AHS is a prospective cohort study,<br/>                 3 yes.<br/>                 4 Q. We can move off that exhibit.<br/>                 5 Let's look at the draft AHS study<br/>                 6 which I believe you rely on in part for your<br/>                 7 opinions; right?<br/>                 8 A. I did. I reached my conclusions prior<br/>                 9 to seeing that publication, but it did sort of<br/>                 10 confirm and strengthen some of the evidence, I<br/>                 11 believe.<br/>                 12 Q. We'll mark it as 23-29.<br/>                 13 (Whereupon, Rider Exhibit 23-29, Draft<br/>                 14 Lymphoma risk and pesticide use in the<br/>                 15 Agricultural Health Study, was marked<br/>                 16 for identification.)<br/>                 17 BY MR. MILLER:<br/>                 18 Q. Here's a copy (handing). Have you<br/>                 19 found out why the authors decided not to publish<br/>                 20 this?<br/>                 21 MR. COPLE: Objection. Asked and<br/>                 22 answered.<br/>                 23 A. I have had no communication with any<br/>                 24 of the authors, so I would have no way of<br/>                 25 knowing that.</p>  | <p>1 updated draft is that they incorporate<br/>                 2 information on exposure after baseline. So in<br/>                 3 the example that you gave earlier, now that<br/>                 4 person who was originally classified as<br/>                 5 unexposed would have an opportunity to provide<br/>                 6 information, updated information on exposure.<br/>                 7 Q. And I guess the good news is<br/>                 8 100 percent of these people filled out this<br/>                 9 questionnaire so we're able to see whether or<br/>                 10 not they were exposed after the first<br/>                 11 questionnaire to glyphosate; is that true?<br/>                 12 MR. COPLE: Objection. Lacks<br/>                 13 foundation.<br/>                 14 A. It is not true that 100 percent of<br/>                 15 people responded to the follow-up questionnaire,<br/>                 16 no.<br/>                 17 BY MR. MILLER:<br/>                 18 Q. 95 percent?<br/>                 19 A. I could tell you if I looked in<br/>                 20 the paper. It was completed by 36,342 people,<br/>                 21 which was 63 percent of the original<br/>                 22 participants.<br/>                 23 Q. Okay. I am not real good at math, but<br/>                 24 if 63 percent completed a questionnaire,<br/>                 25 37 percent did not?</p>                 |

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| <p>1 A. Yes, that is correct.</p> <p>2 Q. So 37 percent of the people could have</p> <p>3 been exposed to glyphosate at any time after</p> <p>4 they filled out the first questionnaire, which</p> <p>5 was sometime between '93 and '97; right?</p> <p>6 A. The first questionnaire, the baseline</p> <p>7 questionnaire, correct, was given between 1993</p> <p>8 and 1997.</p> <p>9 Q. So 37 percent of the people did not</p> <p>10 fill out the second questionnaire.</p> <p>11 And when was the second questionnaire</p> <p>12 given out?</p> <p>13 A. It says administered about five years</p> <p>14 after enrollment, so that would have been</p> <p>15 between 1998 and 2003.</p> <p>16 Q. And so in my prior example, someone</p> <p>17 could have filled out a questionnaire in -- for</p> <p>18 the first time in '97 even, used Roundup from</p> <p>19 '98 through 2003, died of non-Hodgkin's lymphoma</p> <p>20 in, say, 2006, and it will be listed as a</p> <p>21 non-user or never user of glyphosate; right?</p> <p>22 A. I actually don't think that's correct,</p> <p>23 because in their analysis, even for the</p> <p>24 participants that didn't respond to the</p> <p>25 follow-up questionnaire, they used information</p>                     | <p>1 my license, pesticide applicator form, and I say</p> <p>2 I've never used glyphosate, what rich</p> <p>3 information is going to tell the epidemiologist</p> <p>4 whether I used glyphosate in the next ten years?</p> <p>5 A. Sure. So fortunately for them,</p> <p>6 36,342 people did fill out that questionnaire,</p> <p>7 and those people answered questions about a</p> <p>8 variety of different exposures, to glyphosate,</p> <p>9 to other chemicals. There was information on,</p> <p>10 you know, age and sex and race and all of these</p> <p>11 other factors that were encompassed in their</p> <p>12 questionnaire. And they can use all of that</p> <p>13 information to create models to predict whether</p> <p>14 or not someone was exposed or at what level they</p> <p>15 were exposed.</p> <p>16 Q. So we were going to use the</p> <p>17 information by the 36,000 people that filled out</p> <p>18 two questionnaires to figure out what the</p> <p>19 20,000 people who only figured out -- who only</p> <p>20 completed one questionnaire, what they would</p> <p>21 have answered had they filled out the second</p> <p>22 questionnaire?</p> <p>23 A. Yes. That is the basic idea, yes.</p> <p>24 Q. Why not just get 100 questionnaires</p> <p>25 filled out and figure it out from there?</p> |
| Page 231  | Page 233  |
| <p>1 on their exposure at baseline in the baseline</p> <p>2 questionnaire and an approach for handling</p> <p>3 missing data called multiple imputation to</p> <p>4 incorporate that exposure, that follow-up</p> <p>5 exposure information.</p> <p>6 Q. They guessed?</p> <p>7 MR. COPLE: Objection. Argumentative.</p> <p>8 A. Multiple imputation isn't guessing.</p> <p>9 It's an established epidemiologic method for</p> <p>10 handling missing data.</p> <p>11 BY MR. MILLER:</p> <p>12 Q. Tell me how this established</p> <p>13 epidemiologic method works in lay terms.</p> <p>14 A. So the idea is that you use all of the</p> <p>15 information that you have on these participants.</p> <p>16 And, of course, in a cohort study like this, you</p> <p>17 have very rich information on a variety of</p> <p>18 different covariates and factors about</p> <p>19 demographics and lifestyle. You use all of that</p> <p>20 information together with the information that</p> <p>21 is available on exposure in this case from</p> <p>22 baseline to come up with a model that predicts</p> <p>23 whether or not someone is likely -- or how</p> <p>24 likely someone is to have a particular exposure.</p> <p>25 Q. So if I fill out a form in '93 to get</p> | <p>1 MR. COPLE: Objection.</p> <p>2 BY MR. MILLER:</p> <p>3 Q. Why bother --</p> <p>4 MR. COPLE: Objection --</p> <p>5 BY MR. MILLER:</p> <p>6 Q. -- with 36,000 questionnaires filled</p> <p>7 out?</p> <p>8 MR. COPLE: Objection. Argumentative.</p> <p>9 A. Because the idea is the more data that</p> <p>10 you have, the better your models will be in</p> <p>11 terms of predicting exposure status.</p> <p>12 BY MR. MILLER:</p> <p>13 Q. Because the more loss of follow-up</p> <p>14 there is, the less accurate the study is.</p> <p>15 That's true, isn't it?</p> <p>16 A. No, I think that's too general. I</p> <p>17 mean, the accuracy of multiple imputation relies</p> <p>18 more on our assumptions about what -- this is</p> <p>19 going to sound very epi speak -- but the</p> <p>20 mechanisms of missingness.</p> <p>21 So in other words, what factors are</p> <p>22 associated with both not having that exposure</p> <p>23 information and -- yeah, so that would be the</p> <p>24 missing mechanism. And so multiple imputation</p> <p>25 relies on the data being missing at random.</p>  |

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| Page 234  | Page 236   |
|---|--|
| <p>1 In other words, it's okay if the data<br/>2 is missing based on other factors that we<br/>3 measure. For instance, if more older people<br/>4 were non-responders than younger people, that's<br/>5 okay, as long as we've measured information on<br/>6 age.</p> <p>7 So it's not just an issue of how many<br/>8 people completed the follow-up questionnaire.<br/>9 It's the mechanism of the missingness that's<br/>10 important.</p> <p>11 Q. The mechanism of the missingness --<br/>12 A. Yes.<br/>13 Q. -- that's important?<br/>14 A. Yeah.<br/>15 Q. Okay. So using the mechanism of the<br/>16 missingness formula, could we have only had 5<br/>17 percent fill out, or 10 percent, and still have<br/>18 good data?<br/>19 A. Again, I couldn't tell you that<br/>20 hypothetically. I'm not -- I'm not sure.<br/>21 Q. But it's the more data you have<br/>22 missing, the less reliable the study is; isn't<br/>23 that a fair statement?<br/>24 A. I don't think that's true. Again,<br/>25 what I was just saying is it actually depends</p>  | <p>1 Q. Turn to Page 8, please.<br/>2 A. Okay.<br/>3 Q. The authors right here in the middle<br/>4 of the page on the study that you rely upon,<br/>5 "Not sure what to do but the whole thing just<br/>6 seems messy." How does it strike you to rely<br/>7 upon data not published where the authors think<br/>8 the whole thing is messy?<br/>9 A. Well, this sentence isn't referring to<br/>10 the whole paper. It's referring to the issue of<br/>11 how they deal with the fact that the definition<br/>12 of NHL has changed in the interim between their<br/>13 2005 publication and this publication. So they<br/>14 have to make sort of decisions, analytic<br/>15 decisions, and decisions in terms of how they<br/>16 present their data so that the results are both<br/>17 consistent with the current definition, but also<br/>18 can be readily compared to the previous results.<br/>19 So that comment about it being messy,<br/>20 it's dealing with one very specific issue in<br/>21 this manuscript.<br/>22 Q. They also don't include multiple<br/>23 myeloma; right?<br/>24 A. Oh, they do. They look at multiple<br/>25 myeloma both included in the overall definition</p> |
| Page 235  | Page 237   |
| <p>1 much more on why the data is missing than how<br/>2 much data is missing.<br/>3 Q. Well, why is data missing on<br/>4 20,000 people?<br/>5 A. It's very common in follow-up<br/>6 questionnaires in cohort studies for not -- for<br/>7 everyone to not answer subsequent<br/>8 questionnaires. You know, people get busy, they<br/>9 have other things going on. But as long as<br/>10 those -- the factors that are associated with<br/>11 why those people didn't fill out the<br/>12 questionnaire are somehow captured in the data<br/>13 that was collected by the cohort, that's not a<br/>14 problem.<br/>15 Q. So they asked 36,000 people why the<br/>16 other 20,000 weren't responding?<br/>17 A. No, that's not what I said.<br/>18 Q. Okay.<br/>19 A. I said that you -- the reasons for why<br/>20 someone doesn't respond. So, again, in my<br/>21 example from before, if it happens to be that<br/>22 older people don't respond to the questionnaire<br/>23 for whatever reason, that's not a problem, as<br/>24 long as we can take into our imputation modeling<br/>25 the effective age.</p> | <p>1 of NHL consistent with the new definition, but<br/>2 then they also look at it as a separate outcome.<br/>3 Q. AB, I believe Aaron Blair, it's on<br/>4 Page 8 writes, "I wonder if the decision not to<br/>5 include myeloma might seem inconsistent with our<br/>6 decision to go with a new definition of NHL."<br/>7 Do you understand what he's referring<br/>8 to there?<br/>9 A. Yeah, I think -- I think, again, he's<br/>10 talking -- commenting on the analyses where they<br/>11 look specifically at the subtypes of NHL and<br/>12 sort of questioning what category it's best to<br/>13 include multiple myeloma in.<br/>14 But, again, this really has to do with<br/>15 trying to address a situation that was beyond<br/>16 the investigators' control. It's just the<br/>17 definition changed, and so you have to make sort<br/>18 of editorial decisions and decisions about how<br/>19 to present that data in light of, you know,<br/>20 other things that have changed in the field.<br/>21 Q. Go to Page 71, if you please, ma'am.<br/>22 A. Okay.<br/>23 Q. Do you see the asterisk at the bottom<br/>24 of the page there?<br/>25 A. Sorry, 71 you said?</p>           |



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|---|--|
| Page 238<br>1 Q. Yes, ma'am.<br>2 A. No, I don't see an asterisk. Sorry.<br>3 Q. I'm sorry, a footnote 2. Excuse me.<br>4 Page 71.<br>5 A. My Page 71 doesn't have any footnote.<br>6 Q. May I see it?<br>7 A. Sure (handing).<br>8 Q. Thank you. That could be a problem,<br>9 couldn't it?<br>10 Yes, ma'am, here you go?<br>11 A. Okay.<br>12 MS. MILLER: That's the problem with<br>13 using drafts.<br>14 BY MR. MILLER:<br>15 Q. Well, look at your Page 71. I--<br>16 there's something different between that and my<br>17 work draft. I don't know what.<br>18 MR. COPLER: What draft are you<br>19 referring to?<br>20 MR. HOLLINGSWORTH: Was the cover page<br>21 there?<br>22 MR. MILLER: Mine is March --<br>23 September 1st, 2017, yeah.<br>24 MR. HOLLINGSWORTH: September 1st,<br>25 2017.   | Page 240<br>1 Q. You just don't know?<br>2 A. -- be certain, but in my own working<br>3 on publications, it's not unusual for the<br>4 publication to be circulated throughout the<br>5 co-authors a number of times for comments.<br>6 At the same time, it's very clear in<br>7 reading the publication that, you know, while<br>8 there's still some comments in the margins and<br>9 some things in the -- some additional comments<br>10 in the narrative part of the publication, that<br>11 this is a publication that if sent out for peer<br>12 review to me is a publishable paper.<br>13 Q. I have a few questions off that.<br>14 Number one, you called it a<br>15 publication, but it's never been published.<br>16 A. A manuscript. Excuse me.<br>17 Q. A draft manuscript?<br>18 A. It is a draft of a manuscript, yes.<br>19 Q. It is a fourth or fifth draft of this<br>20 manuscript apparently; right?<br>21 A. It's difficult to tell.<br>22 Q. And we don't know if it's been<br>23 rejected for publication or submitted for<br>24 publication; it's just too early in the process,<br>25 isn't it?   |
| Page 239<br>1 MR. MILLER: September 1 at the bottom<br>2 right there.<br>3 MS. MILLER: And hers is September<br>4 something else.<br>5 A. 9/19.<br>6 MR. MILLER: That's a problem. Do you<br>7 have a clean one that she can work off?<br>8 MR. HOLLINGSWORTH: Are you going to<br>9 mark both of them?<br>10 MS. MILLER: I don't have it.<br>11 MR. MILLER: I don't have it.<br>12 BY MR. MILLER:<br>13 Q. I guess -- here's my question, ma'am.<br>14 It just looks like there's March through --<br>15 there's a lot of them. It appears to be<br>16 March 18th, 2013, then March 21st, 2013, then<br>17 October 24th, 2016. Then my copy goes as far as<br>18 September 1, 2017. Apparently you have one that<br>19 goes even farther than that?<br>20 A. The last date is 9/19/2017.<br>21 Q. 9/19/2017.<br>22 So do you understand this to be<br>23 various drafts of this document? Is that what<br>24 we're to understand, or what?<br>25 A. Again, I can't be -- | Page 241<br>1 A. Oh, I don't -- I don't know that it's<br>2 too early in the process. We're just not aware<br>3 of the status of the manuscript without talking<br>4 to the authors, I suppose. But, again, I don't<br>5 think I need to speak to the authors to know<br>6 that this manuscript, if cleaned up in terms of<br>7 the formatting, is certainly publishable.<br>8 Q. If the authors felt it was appropriate<br>9 enough to submit for publication?<br>10 A. Well, of course the authors get to<br>11 decide, you know, when to submit their<br>12 publication. But I think it's a shame that this<br>13 has not been submitted for publication and isn't<br>14 widely available.<br>15 Q. Not only do the authors get to decide<br>16 when to submit, but if to submit, if it's worthy<br>17 enough in their view to submit for publication?<br>18 A. I suppose that, you know, it is -- no<br>19 one can submit a manuscript on behalf of other<br>20 authors. That's not the process that we've set<br>21 up. But as I've said before, it would be a<br>22 shame if the scientific community was not given<br>23 access to this manuscript.<br>24 Q. Are you aware of the International<br>25 Community of Medical Journal Editors? |

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| <p>1 A. I have heard of that, but I really<br/>2 have limited familiarity with them.<br/>3 Q. Let's take a look at what they have to<br/>4 say on this issue.<br/>5 MR. COPLER: Before we move on, are you<br/>6 going to mark for the record the copy you were<br/>7 working off?<br/>8 MR. MILLER: It's got my work notes on<br/>9 it. So the answer is no, I'm not going to mark<br/>10 something with my personal impressions on it.<br/>11 MR. COPLER: We're going to object to<br/>12 that, subject to discussion later. You were<br/>13 asking a whole series of questions. We can mark<br/>14 it in the record, if need be, about a manuscript<br/>15 that the witness did not have access to.<br/>16 MR. MILLER: We don't agree on that<br/>17 representation. The record speaks for itself,<br/>18 Counselor.<br/>19 BY MR. MILLER:<br/>20 Q. I'm going to show you what's been<br/>21 marked as Exhibit 23-30, International Committee<br/>22 of Journal Editors, "Uniform requirements for<br/>23 manuscripts submitted to biomedical journals.<br/>24<br/>25</p> | <p>1 Editors. That's what it's from.<br/>2 Now, do you agree with the statement I<br/>3 read, or no?<br/>4 A. The statement, "Moreover, media<br/>5 reports of scientific research before the work<br/>6 has been peer-reviewed and fully vetted may lead<br/>7 to dissemination of inaccurate or premature<br/>8 conclusions." As a general statement, I do<br/>9 disagree with that. I think that that's often,<br/>10 and maybe more often, not the case.<br/>11 And, in fact, just to add to that, I<br/>12 think it's sort of a dated view of how the<br/>13 publication process works now. For instance, if<br/>14 you were to present results at a scientific<br/>15 conference, those results would typically be<br/>16 available publicly on Google or on the website,<br/>17 and that does not then prevent the accurate<br/>18 dissemination of scientific findings in a<br/>19 peer-reviewed journal.<br/>20 Q. Turn, if you would, please, ma'am, to<br/>21 Page 19.<br/>22 A. Okay.<br/>23 Q. This is Roman Number IV, Section A.9,<br/>24 References. And I'm reading the last sentence.<br/>25 "Information from manuscripts submitted but not</p>  |
| Page 243  | Page 245  |
| <p>1 (Whereupon, Rider Exhibit 23-30,<br/>2 International Committee of Medical<br/>3 Journal Editors, Uniform requirements<br/>4 for manuscripts submitted to<br/>5 biomedical journals, was marked for<br/>6 identification.)<br/>7 BY MR. MILLER:<br/>8 Q. I have a few questions for you.<br/>9 A. Okay.<br/>10 Q. If you turn with me, please, to<br/>11 Page 15 of 24.<br/>12 A. Okay.<br/>13 Q. Look at the first paragraph. It says,<br/>14 "Moreover, media reports of scientific research<br/>15 before the work has been peer-reviewed and fully<br/>16 vetted may lead to dissemination of inaccurate<br/>17 or premature conclusions."<br/>18 That's true, isn't it?<br/>19 A. I have never seen this document<br/>20 before. I don't really even know what it's<br/>21 from.<br/>22 Q. Well, I'll tell you what it's from.<br/>23 It's from the -- published in the Journal of<br/>24 Pharmacology and Pharmacotherapeutics, it's the<br/>25 International Committee for Medical Journal</p>   | <p>1 accepted should be cited in the text as<br/>2 'unpublished observations' with written<br/>3 permission from the source."<br/>4 That's basically what this is; right?<br/>5 This draft that you're looking at is an<br/>6 unpublished observation?<br/>7 A. It's true that this manuscript has not<br/>8 been published in a journal, and so if I was<br/>9 going to cite it in my own work, I wouldn't<br/>10 really have any other choice but to say that it<br/>11 was an unpublished manuscript. But that doesn't<br/>12 say anything about the quality or its<br/>13 suitability for publication.<br/>14 Q. You're supposed to obtain written<br/>15 permission from the source before citing<br/>16 unpublished observations; right?<br/>17 A. I mean, again, this is recommendations<br/>18 from some kind of committee that I have no<br/>19 familiarity with. I'm reading this for the<br/>20 first time. But if it was my own unpublished<br/>21 data, meaning I had presented some data at a<br/>22 conference and now someone wants to cite it, I<br/>23 think it is sort of the -- the polite thing to<br/>24 do in the scientific community would be to ask<br/>25 the author if they're okay with you citing their</p> |

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1 work in their paper, given that it's  
 2 unpublished.  
 3 Q. And did you make any effort to ask any  
 4 of the authors of the unpublished draft of AHS  
 5 whether you could use their materials here in  
 6 this exercise?  
 7 A. As I mentioned before, I've had no  
 8 contact with any of the authors.  
 9 Q. We're going to switch subjects here.  
 10 It would be fair to say you don't  
 11 consider yourself an expert on non-Hodgkin's  
 12 lymphoma?  
 13 A. No, I don't think that's true. I'm a  
 14 cancer epidemiologist. And while my own  
 15 research focus hasn't been NHL, I am -- my  
 16 training and experience makes me very  
 17 well-equipped to evaluate the epidemiologic  
 18 literature on glyphosate and NHL. And, in fact,  
 19 in terms of peer review, I'm very frequently  
 20 asked to peer review papers that aren't related  
 21 to prostate cancer or the exposures that I've  
 22 studied in the past.  
 23 Q. Would it be fair to say as a general  
 24 observation as a person who has studied cancer  
 25 that solid tumors take longer to develop than

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1 blood tumors?  
 2 MR. COPLE: Objection. Lacks  
 3 foundation, vague.  
 4 A. Again, I wouldn't be willing to make  
 5 that sort of gross generalization, no.  
 6 BY MR. MILLER:  
 7 Q. Does that mean you don't know?  
 8 MR. COPLE: Objection. Asked and  
 9 answered.  
 10 A. No, it just doesn't -- but I mean,  
 11 cancer is an extremely heterogeneous disease  
 12 and, in fact, even within particular cancer  
 13 types there is a tremendous amount of  
 14 variability in terms of their natural history.  
 15 So I wouldn't be willing to say that blood  
 16 cancers are quicker growing than solid tumors,  
 17 or vice-versa.  
 18 BY MR. MILLER:  
 19 Q. You're, of course, not an oncologist;  
 20 correct?  
 21 A. I am not trained as an oncologist, no.  
 22 Q. You're not a medical doctor?  
 23 A. I have a doctorate in epidemiology,  
 24 not in medicine.  
 25 Q. So you've not done clinical treatment?

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1 A. I do not treat patients, that is  
 2 correct.  
 3 Q. Have you heard of the 9/11 Fund?  
 4 MR. COPLE: Objection. Lacks  
 5 foundation.  
 6 A. I don't believe so. I'm not sure.  
 7 BY MR. MILLER:  
 8 Q. September 11th, 2001, we all know as  
 9 Americans had that tragedy, and there is a fund  
 10 set up in New York for injuries which may or may  
 11 not have been caused by the damage from the  
 12 World Trade Center. And I'm going to show you a  
 13 latency document from the 9/11 Fund. Okay?  
 14 A. Okay.  
 15 (Whereupon, Rider Exhibit 23-31, World  
 16 Trade Center Health Program, Minimum  
 17 Latency & Types or Categories of  
 18 Cancer, was marked for  
 19 identification.)  
 20 BY MR. MILLER:  
 21 Q. If you look with me on the Executive  
 22 Summary, number 3, it lists leukemias,  
 23 lymphomas, hematopoietic cancers, and it has  
 24 .4 years for latency for hematopoietic cancers.  
 25 Let me back up and ask you first, can

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1 we agree that non-Hodgkin's lymphoma is a  
 2 hematopoietic cancer?  
 3 A. Yes.  
 4 Q. And you do not have any expertise to  
 5 dispute that the minimum latency period for  
 6 non-Hodgkin's lymphoma is .4 years?  
 7 MR. COPLE: Objection. Asked and  
 8 answered, lacks foundation.  
 9 A. I discuss latency periods for cancers  
 10 in my expert report, and again, this is for  
 11 every cancer. This is always an estimate. You  
 12 know, of course, in an individual there is a  
 13 range, but I have no idea where these authors  
 14 got the information leading to them to list  
 15 .4 years as a minimum latency, so I really  
 16 couldn't comment on that.  
 17 BY MR. MILLER:  
 18 Q. So it's fair to say you don't have an  
 19 opinion, to a reasonable degree of medical  
 20 certainty, about a different minimum latency  
 21 period?  
 22 A. Again, talking about the minimum  
 23 median latency period, I don't think, you know,  
 24 we could ever know that on the individual level,  
 25 so I'm not sure that that's useful.

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| <p style="text-align: right;">Page 250</p> <p>1 Q. I want to show you a study on<br/>                 2 hematopoietic cancers from Harvard University,<br/>                 3 the Residual "Exposure to Pesticide During<br/>                 4 Childhood and Childhood Cancers: A<br/>                 5 Meta-Analysis." We'll mark this one as<br/>                 6 Exhibit 32.<br/>                 7 (Whereupon, Rider Exhibit 23-32, Chen,<br/>                 8 et al article, Residential Exposure to<br/>                 9 Pesticide During Childhood and<br/>                 10 Childhood Cancers: A Meta-Analysis,<br/>                 11 was marked for identification.)<br/>                 12 BY MR. MILLER:<br/>                 13 Q. Do you know any of these authors?<br/>                 14 A. I do not, no.<br/>                 15 Q. Department of environmental health,<br/>                 16 Harvard T Chan School of Public Health, the year<br/>                 17 is 2015.<br/>                 18 You don't know Dr. Lu, I guess?<br/>                 19 MR. COPLER: Objection. Asked and<br/>                 20 answered.<br/>                 21 A. No, I don't know any of these authors.<br/>                 22 BY MR. MILLER:<br/>                 23 Q. Okay. The context of this, the first<br/>                 24 sentence says, "There is increasing concern<br/>                 25 about chronic low-level pesticide exposure</p>   | <p style="text-align: right;">Page 252</p> <p>1 topic that I haven't reviewed with respect to<br/>                 2 glyphosate exposure. I think I've been fairly<br/>                 3 clear about my feelings about meta-analyses, is<br/>                 4 that I think it's necessary to go to the primary<br/>                 5 studies that are included in those<br/>                 6 meta-analyses, because all of the shortcomings<br/>                 7 and issues with internal validity in those<br/>                 8 studies carry forward to a meta-analysis. So I<br/>                 9 would definitely want to be able to see the<br/>                 10 primary studies.<br/>                 11 And then in terms of that statement,<br/>                 12 "Children greatly increase their chances of<br/>                 13 pesticide exposure when they play on<br/>                 14 pesticide-treated surfaces such as a floor or<br/>                 15 lawn and then put their hands in their mouths,"<br/>                 16 I would also want to see where the evidence<br/>                 17 comes from for that particular statement.<br/>                 18 Q. Sure.<br/>                 19 Children can get leukemia as young as<br/>                 20 two, sadly, isn't that true?<br/>                 21 MR. COPLER: Objection. Vague, lacks<br/>                 22 foundation.<br/>                 23 A. I know that very young children can be<br/>                 24 affected with leukemia, yes.<br/>                 25 BY MR. MILLER:</p> |
| <p style="text-align: right;">Page 251</p> <p>1 during childhood and its influence on childhood<br/>                 2 cancers."<br/>                 3 And they report, if you would look,<br/>                 4 please, at the Data Extraction section,<br/>                 5 childhood lymphomas, an odds ratio of 1.34. And<br/>                 6 here's my question.<br/>                 7 Have you ever commented on this study<br/>                 8 and the article that you've read or written? I<br/>                 9 apologize, bad question, let's try again. That<br/>                 10 was really a bad question. Made no sense at all<br/>                 11 to me. Let's start again.<br/>                 12 In this article, if we could please go<br/>                 13 to Page 2, second full sentence, it says,<br/>                 14 "Children greatly increase their chance of<br/>                 15 pesticide exposure when they play on<br/>                 16 pesticide-treated surfaces such as a floor or<br/>                 17 lawn and then put their hands in their mouths."<br/>                 18 My question is, would this add to the<br/>                 19 body of literature for those of us that believe<br/>                 20 there's an association between glyphosate and<br/>                 21 non-Hodgkin's lymphoma, or would the answer be<br/>                 22 no, it does not?<br/>                 23 MR. COPLER: Objection. Vague.<br/>                 24 A. So this is a meta-analysis I've never<br/>                 25 seen before on childhood cancers, which is a</p> | <p style="text-align: right;">Page 253</p> <p>1 Q. So it certainly would be true if<br/>                 2 someone got leukemia at the age of two, the<br/>                 3 latency period for that individual could not<br/>                 4 have been any more than two years; that's the<br/>                 5 extent of their life at that point in time?<br/>                 6 MR. COPLER: Objection. Lacks<br/>                 7 foundation.<br/>                 8 A. Well, I actually -- I think that's<br/>                 9 incorrect, because many people investigate<br/>                 10 in utero exposures with respect to cancer risk.<br/>                 11 But certainly there is a limit on the latency<br/>                 12 period.<br/>                 13 I also think we know that, in general,<br/>                 14 the causes of childhood cancers are typically<br/>                 15 very, very different than the causes of adult<br/>                 16 cancers.<br/>                 17 BY MR. MILLER:<br/>                 18 Q. What are the other causes of childhood<br/>                 19 cancer versus causes of adult cancer?<br/>                 20 MR. COPLER: Objection. Vague.<br/>                 21 A. So for many cancers we think of the<br/>                 22 cancers that occur at young age and old age as<br/>                 23 being sort of etiologically distinct diseases,<br/>                 24 so diseases for which different risk factors<br/>                 25 would exist.</p>                                    |

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| <p>1 BY MR. MILLER:<br/>                 2 Q. Here's a pesticide exposure in<br/>                 3 children of non-Hodgkin's lymphoma exposure<br/>                 4 study from Harvard I'd like to ask you just one<br/>                 5 or two questions about.<br/>                 6 First off, do you know any of these<br/>                 7 authors?<br/>                 8 (Whereupon, Rider Exhibit 23-33,<br/>                 9 Buckley, et al article, Pesticide<br/>                 10 Exposures in Children with Non-Hodgkin<br/>                 11 Lymphoma, was marked for<br/>                 12 identification.)<br/>                 13 BY MR. MILLER:<br/>                 14 Q. 23-33, and this is Dr. Buckley and<br/>                 15 others article.<br/>                 16 A. I recognize Dr. Robison's name, but we<br/>                 17 have never collaborated, I don't know that we've<br/>                 18 ever met in person. But otherwise, no.<br/>                 19 Q. This article written in year 2000, the<br/>                 20 conclusion says, "The results of the current<br/>                 21 study provide further evidence linking pesticide<br/>                 22 exposure to the risk of non-Hodgkin's lymphoma,<br/>                 23 but the authors were unable to implicate any<br/>                 24 specific agent."<br/>                 25 Do you see that?</p>  | <p>1 The first issue is whether you believe the point<br/>                 2 estimate that's identified in a study to be<br/>                 3 reflective of the truth in terms of the true<br/>                 4 causal association between the exposure and the<br/>                 5 outcome. And as I've said before, if you don't<br/>                 6 believe and have faith in that point estimate,<br/>                 7 there's really no point in determining how<br/>                 8 precise that estimate is, or how likely it is to<br/>                 9 be due to chance if it's wrong.<br/>                 10 Only after you've established the<br/>                 11 internal validity of the study would then you go<br/>                 12 on to say, okay, well, now how likely are the<br/>                 13 results that I found due to chance, and that's<br/>                 14 where statistical significance plays a role.<br/>                 15 BY MR. MILLER:<br/>                 16 Q. I'm going to show you what we've<br/>                 17 marked as Exhibit 34. And I'm showing my age<br/>                 18 here, it's a tweet, whatever that means.<br/>                 19 (Whereupon, Rider Exhibit 23-34, Copy<br/>                 20 of Tweet of Jennifer Rider, was marked<br/>                 21 for identification.)<br/>                 22 BY MR. MILLER:<br/>                 23 Q. I think that's you in part of that<br/>                 24 tweet; is that right?<br/>                 25 A. Yes, this is from my Twitter page.</p>   |
| Page 255  | Page 257  |
| <p>1 A. I do.<br/>                 2 Q. Okay. So let me back up and ask you,<br/>                 3 is farming generally considered a risk for<br/>                 4 non-Hodgkin's lymphoma?<br/>                 5 MR. COPLE: Objection. Vague.<br/>                 6 A. Well, I think that a number of studies<br/>                 7 have indicated increased risks of NHL in farmers<br/>                 8 even prior to the -- to glyphosate being<br/>                 9 available on the market, yes.<br/>                 10 BY MR. MILLER:<br/>                 11 Q. So we can comfortably say that farming<br/>                 12 increases the risk of non-Hodgkin's lymphoma?<br/>                 13 A. I believe farming does appear to<br/>                 14 increase the risk of non-Hodgkin's lymphoma,<br/>                 15 yes.<br/>                 16 Q. And how many studies showed that<br/>                 17 before glyphosate was on the market?<br/>                 18 A. I would have to look at my expert<br/>                 19 report, but I do cite some of them there.<br/>                 20 Q. Statistical significance, you believe,<br/>                 21 is not necessary to have a valid scientific<br/>                 22 finding; true?<br/>                 23 MR. COPLE: Objection. Vague, lacks<br/>                 24 foundation, misstates prior testimony.<br/>                 25 A. Well, there are two separate issues.</p> | <p>1 Q. Okay. I apologize for -- my paralegal<br/>                 2 was looking at your Twitter page, but I didn't<br/>                 3 know how to do it, so -- but we only ask about<br/>                 4 it because you apparently look pretty<br/>                 5 enthusiastic about -- just correct me if I'm<br/>                 6 wrong, but apparently the issue in this tweet is<br/>                 7 that you don't think p-values are that important<br/>                 8 for scientific conclusions; is that fair?<br/>                 9 A. I think p-values, and more<br/>                 10 specifically hypothesis testing, has a place,<br/>                 11 but a very small or very statistically<br/>                 12 significant p-value doesn't tell you anything<br/>                 13 about the quality of the study or the validity<br/>                 14 of your point estimate.<br/>                 15 Q. On the flip side of that, even if the<br/>                 16 p-value does not give you a confidence interval<br/>                 17 of 95 percent, you can still find important<br/>                 18 scientific information if the study has good<br/>                 19 internal validity?<br/>                 20 A. Yeah. So in this particular example<br/>                 21 that I'm tweeting about is a little bit<br/>                 22 different because it's a randomized trial, not<br/>                 23 an observational study. And, you know, one<br/>                 24 might argue that hypothesis testing and p-values<br/>                 25 have a somewhat different role in those</p> |



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| <p>1 randomized trials. But nonetheless, the results<br/>2 of this study found a p-value of .06, and I sort<br/>3 of disagreed with the interpretation of the<br/>4 finding of that study.<br/>5 Q. You thought that the study should be<br/>6 given significance in that it had important<br/>7 implications, even though it was a .6?<br/>8 MR. COPLE: Objection. Asked and<br/>9 answered.<br/>10 BY MR. MILLER:<br/>11 Q. Is that right? I'm just trying to --<br/>12 A. Yeah, it was -- again, it wasn't an<br/>13 observational study. It was a randomized<br/>14 controlled trial.<br/>15 So many of the biases that we worry<br/>16 about that are inherent in observational studies<br/>17 did not apply to this particular study, and so I<br/>18 felt that the study provided some information<br/>19 that could be interpreted, despite the fact that<br/>20 the p-value wasn't statistically significant at<br/>21 the .05 threshold.<br/>22 Q. Yes. Last question, and we'll walk<br/>23 away from this one.<br/>24 This is the same Kenneth Rodman here<br/>25 that wrote the textbook that we were talking</p> | <p>1 studying this issue, and you found a relative<br/>2 risk of 1.1, a 10 percent increased risk, in<br/>3 prostate cancer if a person had a vasectomy;<br/>4 right?<br/>5 A. That was the relative risk for overall<br/>6 prostate cancer, that's correct.<br/>7 Q. Okay. And your conclusion was, "Our<br/>8 data support the hypothesis that vasectomy is<br/>9 associated with a modest increased" risk -- I'm<br/>10 sorry -- "a modest increased incidence of lethal<br/>11 prostate cancer"; right?<br/>12 A. So there we're referring to the result<br/>13 for lethal cancer, which is in the next sentence<br/>14 of the result, and there that's a relative risk<br/>15 of 1.19.<br/>16 Q. That's fair. I appreciate that.<br/>17 So you would describe a 19 percent<br/>18 increased risk as a modest risk?<br/>19 A. So as -- again, I said it's very<br/>20 context-specific. And for lethal prostate<br/>21 cancer, which is a pretty rare event and one for<br/>22 which we have very few established risk factors,<br/>23 I think that our conclusion that that's a modest<br/>24 increased incidence is accurate, yes.<br/>25 Q. Sure.</p> |
| Page 259   | Page 261   |
| <p>1 about earlier; right?<br/>2 A. That's correct, he's -- yes, he wrote<br/>3 that book.<br/>4 Q. A 10 percent increased risk you would<br/>5 describe as a modest risk; right?<br/>6 A. A 10 percent relative risk?<br/>7 Q. Yes.<br/>8 A. So, again, it's very difficult to make<br/>9 generalizations like that. It would depend a<br/>10 lot about the specific exposure and the outcome.<br/>11 Q. Let's take a look at a study that you<br/>12 did with Kathryn Wilson, the same Kathryn Wilson<br/>13 that was on that IARC panel; right?<br/>14 A. That's correct.<br/>15 Q. All right. This is a study on<br/>16 "Vasectomy and Risk of Aggressive Prostate<br/>17 Cancer: A 24-year Follow-Up Study."<br/>18 A. Mm-hmm.<br/>19 (Whereupon, Rider Exhibit 23-35,<br/>20 Wilson, et al study, Vasectomy and<br/>21 Risk of Aggressive Prostate Cancer: A<br/>22 24-Year Follow-Up Study, was marked<br/>23 for identification.)<br/>24 BY MR. MILLER:<br/>25 Q. And here you and Dr. Wilson are</p>  | <p>1 And you agree that non-Hodgkin's<br/>2 lymphoma can be fatal?<br/>3 A. Yes, I agree with that.<br/>4 MR. COPLE: We've been going for an<br/>5 hour and a half since the lunch break.<br/>6 MR. MILLER: Another break, sure.<br/>7 Easy to live with. Have a nice break.<br/>8 THE VIDEOGRAPHER: Going off the<br/>9 record. The time is 3:41.<br/>10 (Whereupon, a recess was taken.)<br/>11 THE VIDEOGRAPHER: Back on the record.<br/>12 The time is 4:04.<br/>13 MR. MILLER: Who is on that<br/>14 speakerphone? No one, apparently.<br/>15 Mr. Traverse, are you still with us?<br/>16 MR. TRAVERSE: Yeah, I'm here.<br/>17 MR. MILLER: You're hiding out or<br/>18 something, what's going on there?<br/>19 Anybody else? Negative. All right.<br/>20 BY MR. MILLER:<br/>21 Q. I believe my last question -- you<br/>22 know, we're moving on, making progress. So we<br/>23 were talking about the vasectomy article, and<br/>24 that's marked as what exhibit? I'm sorry, you<br/>25 have it there in front of you.</p>   |

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| <p>1 A. 23-35.</p> <p>2 Q. Thank you.</p> <p>3 All right. So I'll just ask a few</p> <p>4 more questions on it, and then we'll move on.</p> <p>5 And it's important, so I wanted to</p> <p>6 point out, correct me if I'm wrong, it's on</p> <p>7 Page 3035, you found this modest association</p> <p>8 even though it was not statistically</p> <p>9 significant; right?</p> <p>10 MR. COPLE: Objection. Misstates the</p> <p>11 prior testimony.</p> <p>12 A. So the relative risk for lethal</p> <p>13 disease was 1.19, and the confidence interval</p> <p>14 was from 1-to-1.43, so it did just barely</p> <p>15 include the null value, yes.</p> <p>16 BY MR. MILLER:</p> <p>17 Q. But still holds important information?</p> <p>18 A. Again, we are not making any claims in</p> <p>19 this paper about evidence of causality, but we</p> <p>20 certainly thought that this information was</p> <p>21 worth publishing and sharing with the scientific</p> <p>22 community, yes.</p> <p>23 Q. On Page 3036, if you would, please,</p> <p>24 the first sentence in the typed portion there,</p> <p>25 it says, "Three previous cohort studies have</p>   | <p>1 not sure.</p> <p>2 Q. Let's take a look. We're on 23-26 --</p> <p>3 I'm sorry, 23-36.</p> <p>4 (Whereupon, Rider Exhibit 23-36,</p> <p>5 Sigurdardottir, et al manuscript,</p> <p>6 Sleep Disruption Among Older Men and</p> <p>7 Risk of Prostate Cancer, was marked</p> <p>8 for identification.)</p> <p>9 BY MR. MILLER:</p> <p>10 Q. Here's an article you wrote with</p> <p>11 Dr. Mucci and others, "Sleep Disruption Among</p> <p>12 Older Men and Risk of Prostate Cancer," 2013, I</p> <p>13 believe.</p> <p>14 Do you remember this one?</p> <p>15 A. I do, yes.</p> <p>16 Q. The first point I'd like to ask you</p> <p>17 about is, you considered a hazard ratio of 2.1</p> <p>18 as a strong risk -- or strong association; would</p> <p>19 that be true? And I'm looking at the Results</p> <p>20 section in the abstract.</p> <p>21 A. I agree that our sort of main finding</p> <p>22 was that men with sleep disruption, meaning</p> <p>23 those who had problems falling and staying</p> <p>24 asleep, had a 1.7 -- a hazard ratio of 1.7 and</p> <p>25 2.1 when you consider sort of our version of a</p>                                   |
| <p>Page 263</p> <p>1 examined the association of vasectomy with</p> <p>2 advanced stage disease, with all finding</p> <p>3 increased but not statistically significant</p> <p>4 relative risks ranging from 1.4 to 2.1." My</p> <p>5 only point -- unquote.</p> <p>6 My only point for asking about that is</p> <p>7 they were all important enough to mention here,</p> <p>8 even though they were not statistically</p> <p>9 significant. Am I reading that right?</p> <p>10 A. I think here we were just trying to</p> <p>11 provide a summary of the previous research that</p> <p>12 had been done in the field, so regardless of</p> <p>13 statistical significance, we felt like we needed</p> <p>14 to mention the prior studies that had looked at</p> <p>15 this question.</p> <p>16 Q. And just the last page, if we could,</p> <p>17 3038. You state, "Thus, these relative risks</p> <p>18 translate to small increases in absolute risk.</p> <p>19 The decision to opt for a vasectomy remains a</p> <p>20 highly personal one in which the potential risks</p> <p>21 and benefits must be considered." Right?</p> <p>22 A. Mm-hmm.</p> <p>23 Q. Okay. You found IARC important enough</p> <p>24 to cite in your own articles; right?</p> <p>25 A. I can't recall. I may have, but I'm</p> | <p>Page 265</p> <p>1 dose-response analysis.</p> <p>2 Q. And I'm reading down here, quote, in</p> <p>3 the Results section, "When restricted to</p> <p>4 advanced prostate cancer, these associations</p> <p>5 became even stronger [hazard ratio 2.1]."</p> <p>6 Do you see that?</p> <p>7 A. I do.</p> <p>8 Q. So it would be fair to call a hazard</p> <p>9 ratio of 2.1 a strong association?</p> <p>10 A. That's not what it says here. It just</p> <p>11 says that the hazard ratio of 2.1 and 3.2 were</p> <p>12 stronger than the ones where we're looking at</p> <p>13 overall prostate cancer, but I don't think it's</p> <p>14 making a general statement about what we feel is</p> <p>15 strong or not strong.</p> <p>16 Q. Let's take a look at Page 5. I'm</p> <p>17 sorry, I'm in the wrong spot. Page 2, I</p> <p>18 apologize.</p> <p>19 In your Introduction, the first thing</p> <p>20 you point out is that "IARC designated shift</p> <p>21 work involving circadian disruption as a</p> <p>22 probable human carcinogen in humans (Group 2A)."</p> <p>23 Do you see that?</p> <p>24 A. I do.</p> <p>25 Q. So certainly in 2013 you thought</p> |

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| <p>1 IARC's conclusions were important enough to be<br/>2 mentioned in your peer-reviewed studies?<br/>3 A. I think we felt like the fact that<br/>4 IARC had looked at this question, provided some<br/>5 context for as to why we would want to<br/>6 investigate sleep disruption with respect to<br/>7 prostate cancer.<br/>8 Q. And when you did your paper as to the<br/>9 issues that you looked at, you came to a<br/>10 conclusion consistent with IARC's conclusion?<br/>11 A. I wouldn't really say that, because I<br/>12 don't think we were looking at this in terms of<br/>13 it being a probable human carcinogen. I think<br/>14 we're evaluating the results more qualitatively,<br/>15 especially given some of the limitations in the<br/>16 study that we're quite up front about<br/>17 acknowledging.<br/>18 Q. 23-37 is Exhibit B to your report, and<br/>19 it is your list of materials considered. And<br/>20 what I'd ask you to do is to let me know which<br/>21 of these you developed yourself as compared to<br/>22 getting from Hollingsworth firm, okay?<br/>23 MR. COPLER: Objection. Asked and<br/>24 answered.<br/>25</p> | <p>1 memory. I started reviewing these papers now a<br/>2 year and a half ago. So I can't tell you for<br/>3 sure, but I can certainly tell you the ones that<br/>4 I know that I read.<br/>5 I have read both of the papers by<br/>6 Acquavella, number 1 and 2.<br/>7 I have read the number 5, the Alavanja<br/>8 2014 study.<br/>9 I have definitely read at least one of<br/>10 these draft manuscripts by Alavanja. There has<br/>11 been some confusion about that, but one of those<br/>12 drafts I have access to.<br/>13 I read the American Cancer Society<br/>14 summary of non-Hodgkin's lymphoma.<br/>15 The Berkson study, number 17.<br/>16 I have read several of these Blair<br/>17 studies, 21, 22, 23, 24.<br/>18 I read the Blettner study on<br/>19 meta-analyses and pooled analyses.<br/>20 I read the study by Bosch, and the<br/>21 Bradford-Hill study, although it's been some<br/>22 time.<br/>23 The Bravata study.<br/>24 The Cancer Research UK web<br/>25 publication.</p> |
| Page 267  | Page 269  |
| <p>1 (Whereupon, Rider Exhibit 23-37,<br/>2 Exhibit B to expert report, Materials<br/>3 Considered List, was marked for<br/>4 identification.)<br/>5 A. Yeah, I really couldn't do that. I<br/>6 don't recall which ones I found and which ones<br/>7 were given to me.<br/>8 BY MR. MILLER:<br/>9 Q. Okay. Can you recall any that you<br/>10 found?<br/>11 MR. COPLER: Objection. Asked and<br/>12 answered.<br/>13 A. Again, it was -- my literature search<br/>14 was a very long time ago, and I couldn't say<br/>15 with certainty which of these I found.<br/>16 BY MR. MILLER:<br/>17 Q. Can you tell me, we've talked about<br/>18 it, but which of those you've actually read on<br/>19 that list?<br/>20 A. So you're asking me to go through the<br/>21 entire list and tell you all the ones that I've<br/>22 read?<br/>23 Q. I know that sounds cumbersome, but<br/>24 it's pretty important.<br/>25 A. Okay. Again, I'm going based on</p>   | <p>1 The -- I believe I read all three of<br/>2 the Cantor studies.<br/>3 The Chang and Delzell 2013<br/>4 meta-analysis.<br/>5 The 2016 Chang and Delzell systematic<br/>6 review and meta-analysis.<br/>7 The Cocco paper.<br/>8 I believe I've read all three of those<br/>9 De Roos papers that have been listed.<br/>10 The Dreiherr paper.<br/>11 The Dubrow paper.<br/>12 The Engel paper.<br/>13 I read at least one of these EPA<br/>14 reports to try and determine the dates that<br/>15 glyphosate was available, but I don't recall<br/>16 which one.<br/>17 The Eriksson paper.<br/>18 The expert report of Drs. Neugut and<br/>19 Ritz, as I mentioned.<br/>20 The Fasal study.<br/>21 These papers by Gelman about<br/>22 statistical significance.<br/>23 The Greenland paper.<br/>24 The Hardell and Eriksson case control<br/>25 study.</p>  |

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| <p>1 The Hardell, et al study. I'm sorry,<br/>2 number 90.<br/>3 The Hernan paper.<br/>4 The Hohenadel paper.<br/>5 The Hoppin paper.<br/>6 The IARC Monograph 112.<br/>7 The Lash paper.<br/>8 The Lee paper.<br/>9 The McDuffie paper.<br/>10 The National Cancer Institute facts on<br/>11 non-Hodgkin's lymphoma.<br/>12 The Nordstrom paper.<br/>13 I believe 129 refers to a presentation<br/>14 at a conference, and I have reviewed. I believe<br/>15 that was the version that I reviewed. There<br/>16 were a few.<br/>17 The Orsi paper.<br/>18 The Pahwa publications.<br/>19 Again, I can't recall which ones I<br/>20 have and have not reviewed, but I have reviewed<br/>21 several presentations and a draft manuscript<br/>22 from the North American Pooling Project.<br/>23 Just a moment ago we reviewed this<br/>24 Pearce study.<br/>25 I have read the Charlie Poole paper.</p>      | <p>1 questions. Thank you for your time.<br/>2 A. Thank you.<br/>3 MR. COPLE: Are you passing the<br/>4 witness?<br/>5 MR. MILLER: I would imagine.<br/>6 MR. COPLE: All right. Let's go off<br/>7 the record. Take a short break.<br/>8 THE VIDEOGRAPHER: Going off the<br/>9 record. The time is 4:25.<br/>10 (Whereupon, a recess was taken.)<br/>11 THE VIDEOGRAPHER: Back on the record.<br/>12 The time is 4:42.<br/>13 EXAMINATION<br/>14 BY MR. COPLE:<br/>15 Q. Good afternoon, Dr. Rider.<br/>16 A. Hello.<br/>17 Q. I'm not going to prolong this, but<br/>18 we've got a couple of things that we need to ask<br/>19 you to clear up what we hope is not confusion,<br/>20 but just to clarify.<br/>21 A. Okay.<br/>22 Q. You were asked many questions today by<br/>23 plaintiffs' counsel, Mr. Miller, and in many<br/>24 instances Mr. Miller did not give you the<br/>25 opportunity to look at your expert report, but</p> |
| Page 271  | Page 273  |
| <p>1 The Rinsky paper.<br/>2 The Samuels paper.<br/>3 The Schinasi and Leon paper.<br/>4 The Schumacher paper.<br/>5 The SEER statistics for non-Hodgkin's<br/>6 lymphoma.<br/>7 The Sorahan paper.<br/>8 My own paper on toll-like receptor<br/>9 signaling.<br/>10 The -- I'm not sure how you pronounce<br/>11 his name, but Szklo and Nieto textbook.<br/>12 The list of participants at the IARC<br/>13 Monograph 112 meeting.<br/>14 The Walker paper on meta-analysis.<br/>15 The World Health Organization<br/>16 definition of epidemiology.<br/>17 And those are all the ones that I<br/>18 immediately recognize.<br/>19 Q. Thank you.<br/>20 Did you ask to review anything that<br/>21 you were not provided?<br/>22 A. Well, there are materials that I both<br/>23 obtained and cited in my expert report that were<br/>24 not provided to me, yes.<br/>25 MR. MILLER: I have no further</p> | <p>1 he did hand it to you. It has not been marked<br/>2 as an exhibit, so right now let's mark that as<br/>3 an exhibit to the deposition.<br/>4 Which one are we up to? 38?<br/>5 (Whereupon, Rider Exhibit 23-38,<br/>6 Expert Report of Jennifer R. Rider,<br/>7 ScD, 7/31/17, was marked for<br/>8 identification.)<br/>9 MR. MILLER: Object to the form of the<br/>10 question. Object to the statement.<br/>11 MR. COPLE: No question, it was just a<br/>12 statement.<br/>13 MR. MILLER: Object to the statement.<br/>14 BY MR. COPLE:<br/>15 Q. And is that your expert report in this<br/>16 case?<br/>17 A. Yes, it is.<br/>18 Q. It contains the opinions that you<br/>19 arrived at?<br/>20 A. Yes, it does.<br/>21 Q. And have you had occasion to change<br/>22 any of those opinions in the course of<br/>23 questioning today?<br/>24 A. No, I have not.<br/>25 Q. And do you hold all the opinions</p>                    |

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1 reflected in your report to a reasonable degree  
 2 of scientific certainty?  
 3 A. Yes, I do.  
 4 Q. And is that the same about any  
 5 opinions you had today about the relationship  
 6 between glyphosate exposure and non-Hodgkin's  
 7 lymphoma?  
 8 MR. MILLER: Object to the form of the  
 9 question.  
 10 A. That is correct.  
 11 BY MR. COPLE:  
 12 Q. There was also a moment today when you  
 13 were being asked in reference to unpublished  
 14 work whether it's necessary to reach out to the  
 15 authors who are the proponents of the drafters  
 16 of that work, and you mentioned that there might  
 17 be a courtesy involved in contacting those  
 18 authors.  
 19 Do you remember that?  
 20 A. I do, so I was shown a document where  
 21 those authors had said that unpublished data  
 22 should only be cited with permission of the  
 23 authors.  
 24 Q. And that was the courtesy that you  
 25 were talking about?

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1 A. Yeah. I was saying that it would be a  
 2 courtesy to ask the author's permission before  
 3 you cited their work in a public forum, so  
 4 either in a published manuscript or at, say, a  
 5 conference where those results were going to be  
 6 presented.  
 7 Q. What about the Exhibit 38 which you've  
 8 identified as your expert report in this case,  
 9 is there any reason that you would have had to  
 10 reach out to any of the co-authors of what's  
 11 been called the 2013 AHS draft manuscript?  
 12 A. No. My expert report is not going to  
 13 be published, and so I did not think it was  
 14 necessary to reach out for the authors and ask  
 15 for permission to cite their data.  
 16 Q. Okay. You also were asked to go  
 17 through the list of materials considered, MCL,  
 18 materials considered list.  
 19 A. Mm-hmm.  
 20 Q. You had initially testified, as I  
 21 recall, that you had reviewed it some time ago,  
 22 and over a period of time, you could not  
 23 specifically identify all the materials that you  
 24 did review; is that correct?  
 25 MR. MILLER: Object to the form of the

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1 question.  
 2 A. That is correct. The list of  
 3 materials is very long, and I received many of  
 4 those materials now over a year ago.  
 5 BY MR. COPLE:  
 6 Q. And you went through that list at the  
 7 request of Mr. Miller, and you identified  
 8 materials that you specifically recall  
 9 reviewing; is that correct?  
 10 A. That is correct.  
 11 Q. Does that mean from your testimony  
 12 today that anything you did not so identify you  
 13 did not review?  
 14 MR. MILLER: Object to the form of the  
 15 question.  
 16 A. No, it does not.  
 17 BY MR. COPLE:  
 18 Q. You just don't remember it, sitting  
 19 here today?  
 20 MR. MILLER: If we can, and I  
 21 understand we all want to go home, but you need  
 22 to get my objections in before you answer,  
 23 please. Thank you.  
 24 THE WITNESS: Sorry.  
 25 MR. MILLER: Thank you very much.

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1 MR. COPLE: I don't know if we got my  
 2 question and answer. Why don't you just read  
 3 that last one back.  
 4 (Whereupon, the reporter read back the  
 5 pending question.)  
 6 A. So that is correct, I don't recall all  
 7 of the materials that I might have read, sitting  
 8 here today.  
 9 BY MR. COPLE:  
 10 Q. And, in fact, there was a supplemental  
 11 list of materials that you considered in regard  
 12 to your expert opinion; is that correct?  
 13 A. That is correct.  
 14 MR. COPLE: Let's mark as Exhibit 39  
 15 for this deposition --  
 16 (Whereupon, Rider Exhibit 23-39,  
 17 Supplemental Materials Considered  
 18 List, was marked for identification.)  
 19 BY MR. COPLE:  
 20 Q. -- a document, and ask you to identify  
 21 it for us.  
 22 A. This is a Supplemental Materials  
 23 Considered List.  
 24 Q. And does that reflect all the  
 25 materials that you've now reviewed through today



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| Page 278 | <p>1 for purposes of preparing and evaluating and</p> <p>2 reaching your conclusions, your expert</p> <p>3 conclusions in this case?</p> <p>4 MR. MILLER: Object to the form of the</p> <p>5 question.</p> <p>6 A. Yes, it is.</p> <p>7 BY MR. COPLE:</p> <p>8 Q. Are there additional materials on that</p> <p>9 list?</p> <p>10 A. There are materials on this list, yes,</p> <p>11 that were not included on the first materials</p> <p>12 considered list, that's correct.</p> <p>13 Q. Now, since the date that that</p> <p>14 supplemental list was reviewed, have you</p> <p>15 reviewed any additional materials, for example</p> <p>16 depositions, since that list?</p> <p>17 A. No. Not since this list, no.</p> <p>18 Q. You testified earlier you reviewed the</p> <p>19 depositions of Dr. Neugut and Dr. Ritz?</p> <p>20 A. Yeah. They're actually included on</p> <p>21 this -- oh, I'm sorry, these are the expert</p> <p>22 reports. I apologize.</p> <p>23 I've also reviewed their depositions,</p> <p>24 which are not listed here.</p> <p>25 Q. Those occurred after that supplemental</p>  | Page 280 | <p>1 there are three bullets towards the bottom half</p> <p>2 of the first page. It all follows the Roman</p> <p>3 Numeral Guyton.</p> <p>4 Now, was this a study that was done of</p> <p>5 any sort by this doctoral student?</p> <p>6 A. No. From what I can gather in my</p> <p>7 quick read of this, this is just a summary of</p> <p>8 the Lancet oncology findings, report.</p> <p>9 Q. It was not a review by the doctoral</p> <p>10 student; is that right?</p> <p>11 MR. MILLER: Object to the form of the</p> <p>12 question.</p> <p>13 A. It just says here "A summary of the</p> <p>14 final evaluation was published in Lancet</p> <p>15 Oncology," and then this doctoral student</p> <p>16 provides a few bullet points.</p> <p>17 BY MR. COPLE:</p> <p>18 Q. So it would not even constitute a</p> <p>19 complete review, in your view?</p> <p>20 MR. MILLER: Object to the form of the</p> <p>21 question.</p> <p>22 A. Yeah, I would classify it as a</p> <p>23 bulleted summary of the report.</p> <p>24 BY MR. COPLE:</p> <p>25 Q. Okay. Do you have at hand amongst</p>                                      |
| Page 279 | <p>1 list?</p> <p>2 A. Exactly. Exactly.</p> <p>3 Q. Before I overlook it, there was an</p> <p>4 exhibit, and I don't recall the number, frankly,</p> <p>5 if you can put your hand on it right away we can</p> <p>6 talk about it, if not I can refresh your memory</p> <p>7 about it. It was one of the pieces that counsel</p> <p>8 asked you about that was posted on the website</p> <p>9 for the Harvard School of Public Health.</p> <p>10 A. I think that would have been towards</p> <p>11 the bottom of the pile. Yes, here it is.</p> <p>12 Q. "Nutrition Source. Research Roundup";</p> <p>13 is that correct?</p> <p>14 A. That is correct.</p> <p>15 Q. And who is this written by?</p> <p>16 A. According to the last paragraph here,</p> <p>17 it was written by -- I'm sorry about the</p> <p>18 pronunciation, Yu-Han Chu, a third year doctoral</p> <p>19 student who has been researching dietary factors</p> <p>20 in relation to semen quality and other</p> <p>21 reproductive outcomes.</p> <p>22 Q. And on the first page of that</p> <p>23 exhibit -- can you tell us what exhibit that is?</p> <p>24 A. 23-15.</p> <p>25 Q. And on the first page of that exhibit,</p> | Page 281 | <p>1 those exhibits De Roos 2005?</p> <p>2 A. Here we are.</p> <p>3 Q. Okay. You were asked a number of</p> <p>4 questions about this particular study</p> <p>5 publication; correct?</p> <p>6 A. That is correct.</p> <p>7 Q. Now, this was -- as I recall your</p> <p>8 testimony, and in your expert report, this is</p> <p>9 the baseline study publication by Dr. De Roos</p> <p>10 and his co-authors; correct?</p> <p>11 A. This is the prospective evaluation,</p> <p>12 yes, that looked at glyphosate and some --</p> <p>13 glyphosate exposure at baseline in the cohort.</p> <p>14 Q. And you were asked a number of</p> <p>15 different questions about personal protective</p> <p>16 equipment and various other factors for</p> <p>17 pesticide applicators.</p> <p>18 Do you remember that?</p> <p>19 A. I do.</p> <p>20 Q. Now, in this particular study, at</p> <p>21 baseline in 2005, did the study co-authors take</p> <p>22 into account the use of personal protective</p> <p>23 equipment in terms of the weighted intensity of</p> <p>24 exposure?</p> <p>25 A. Yes. So they looked at exposure both</p> |

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| Page 282   | Page 284  |
| <p>1 in terms of cumulative exposure days, and then</p> <p>2 in terms of intensity weighted exposure days.</p> <p>3 And the intensity weighted exposure days does</p> <p>4 consider personal protective equipment in their</p> <p>5 determination of intensity.</p> <p>6 Q. Now, if you go to Page 50 on the</p> <p>7 De Roos document, and you go straight up the</p> <p>8 middle of the page, you'll see a subheading</p> <p>9 "Data Analysis."</p> <p>10 Do you see that?</p> <p>11 A. I do.</p> <p>12 Q. And if you go right above that,</p> <p>13 there's a sentence starting with "Intensity</p> <p>14 levels."</p> <p>15 Do you see that?</p> <p>16 A. I do.</p> <p>17 Q. Would you read that sentence for the</p> <p>18 record?</p> <p>19 A. Sure. "Intensity levels were</p> <p>20 estimated using questionnaire data from</p> <p>21 enrollment and measurement data from the</p> <p>22 published pesticide exposure literature as</p> <p>23 follows. Intensity level equals mixing status</p> <p>24 plus application method plus equipment repair</p> <p>25 status, all of those things combined, times</p>  | <p>1 A. I do, yes. That's correct.</p> <p>2 Q. Now, that imputation approach, as I</p> <p>3 recall, you said is a well established</p> <p>4 methodology in epidemiology. Is that what you</p> <p>5 said?</p> <p>6 A. Yes.</p> <p>7 MR. MILLER: Object to the form of the</p> <p>8 question.</p> <p>9 BY MR. COPLE:</p> <p>10 Q. Now, the imputation methodology that</p> <p>11 you were asked about and you described, has that</p> <p>12 methodology been validated anywhere?</p> <p>13 A. Yes, it's been used in a number of</p> <p>14 papers within -- published papers within the</p> <p>15 Agricultural Health Study. But there's one</p> <p>16 specific published paper, that the purpose of</p> <p>17 that paper was to describe in more detail the</p> <p>18 imputation methods that were used, and also to</p> <p>19 validate the method by using what they call a</p> <p>20 holdout sample of respondents who they were then</p> <p>21 able to test their models in.</p> <p>22 Q. What is the one particular paper</p> <p>23 you're talking about?</p> <p>24 A. That would be Heltshe, et al.</p> <p>25 Q. Did you take Heltshe, et al into</p> |
| Page 283   | Page 285  |
| <p>1 personal protective equipment use."</p> <p>2 Q. What does that mean, Doctor?</p> <p>3 A. That means that when they were</p> <p>4 determining how intense a person's exposure</p> <p>5 level was, they considered a variety of factors</p> <p>6 about how specifically that person was exposed,</p> <p>7 including whether or not that person used</p> <p>8 personal protective equipment.</p> <p>9 Q. So at baseline, the De Roos study</p> <p>10 report published here with his co-authors took</p> <p>11 into account personal protective equipment?</p> <p>12 A. That is correct.</p> <p>13 Q. Now, there were a number of questions</p> <p>14 that were asked by counsel having to do, as I</p> <p>15 recall, with the number of follow-up respondents</p> <p>16 that there were to fill in the blanks since the</p> <p>17 original baseline collection on the AHS study.</p> <p>18 Do you remember being asked that?</p> <p>19 A. I do.</p> <p>20 Q. And when you were testifying about</p> <p>21 that, you had mentioned that for those, let's</p> <p>22 say, 33 percent or so of the respondents that</p> <p>23 did not respond in one way or another, that an</p> <p>24 imputation approach was used.</p> <p>25 Do you remember that?</p> | <p>1 consideration in coming up with your expert</p> <p>2 opinions?</p> <p>3 A. Yes, I did.</p> <p>4 Q. And is that reflected on your</p> <p>5 supplemental materials considered list?</p> <p>6 A. Yes. It's listed as number 93.</p> <p>7 Q. Okay. Also, there was a question</p> <p>8 about Alavanja and a follow-up paper that he and</p> <p>9 his colleagues had prepared in 2014, which, as I</p> <p>10 recall, was published. Do you remember being</p> <p>11 asked about that?</p> <p>12 A. I do, yes.</p> <p>13 Q. Has that been marked as an exhibit?</p> <p>14 Do you have that with you?</p> <p>15 A. I can't recall whether that one is</p> <p>16 here.</p> <p>17 Q. Well, let me ask you, and maybe we</p> <p>18 don't even need to find it.</p> <p>19 A. It is.</p> <p>20 Q. It has been. What's the number,</p> <p>21 please?</p> <p>22 A. This is 23-28.</p> <p>23 Q. And this is the study in the published</p> <p>24 study manuscript that you had indicated did not</p> <p>25 include glyphosate, even though that was part of</p>   |

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| Page 286  | Page 288   |
|---|--|
| <p>1 the original De Roos baseline study; correct?</p> <p>2 A. That's correct. It's one of the</p> <p>3 chemicals that was not included in this</p> <p>4 subsequent published follow-up study.</p> <p>5 Q. And as I recall, you also said you</p> <p>6 don't know why the authors chose to exclude it;</p> <p>7 right?</p> <p>8 A. That is correct.</p> <p>9 Q. Okay. Now, with respect to Alavanja,</p> <p>10 did Alavanja and colleagues, with respect to</p> <p>11 that 2014 published study, use the same</p> <p>12 imputation design that you had just referenced</p> <p>13 from Heltshe?</p> <p>14 A. That is correct. It's the same method</p> <p>15 that is referenced in the draft 2013 manuscript,</p> <p>16 and the same method that's described in the</p> <p>17 Heltshe paper.</p> <p>18 Q. Let me mark as Exhibit 40 a document,</p> <p>19 and have you identify it for us.</p> <p>20 (Whereupon, Rider Exhibit 23-40,</p> <p>21 Draft, Lymphoma risk and pesticide use</p> <p>22 in the Agricultural Health Study,</p> <p>23 12/5/16, was marked for</p> <p>24 identification.)</p> <p>25 A. This is the draft manuscript that</p>   | <p>1 draft? That's the one that was marked earlier</p> <p>2 in the deposition.</p> <p>3 A. So there are a number of dates here</p> <p>4 that are sort of crossed out and track changes.</p> <p>5 Q. What's the date that was not crossed</p> <p>6 out?</p> <p>7 A. That would be September 19th, 2017.</p> <p>8 Q. And you had not previously seen a</p> <p>9 document purporting to be the draft manuscript</p> <p>10 of that date; is that correct?</p> <p>11 A. That is correct.</p> <p>12 Q. And what about the earlier dates that</p> <p>13 are stricken out in some fashion, had you seen</p> <p>14 those versions?</p> <p>15 A. No, I do not recognize any of those</p> <p>16 dates to be the date of the version that I've</p> <p>17 seen.</p> <p>18 Q. And you have not been able to have the</p> <p>19 opportunity to go through page by -- what were</p> <p>20 the dates of the ones that you had not seen?</p> <p>21 A. Sorry, it's a bit difficult to read.</p> <p>22 So 9/19/2017 was crossed out once, and</p> <p>23 then there's 10/24/2016, then 3/21/2013, and</p> <p>24 then 3-18 -- but I can't see -- oh, 2013. That</p> <p>25 was the last date.</p>                   |
| Page 287  | Page 289   |
| <p>1 includes the updated results from the</p> <p>2 Agricultural Health Study that I used and cited</p> <p>3 in my own expert report.</p> <p>4 BY MR. COPLE:</p> <p>5 Q. You earlier today were shown a</p> <p>6 document marked as an exhibit which also says</p> <p>7 that it's a draft manuscript from the AHS 2013</p> <p>8 follow-up study. Are these documents different</p> <p>9 from each other?</p> <p>10 A. Yeah, it became apparent that there is</p> <p>11 at least two differences in the -- in these</p> <p>12 drafts, just from a quick look at them.</p> <p>13 Q. And what was the two differences</p> <p>14 quickly in your quick look?</p> <p>15 A. Well, the one that I was shown</p> <p>16 earlier, Exhibit 29, has a number of dates on</p> <p>17 the bottom of the title page, whereas the one</p> <p>18 that I had seen -- the only one that I had seen</p> <p>19 prior to today has this date of December 5th,</p> <p>20 2016. So that's the first difference.</p> <p>21 And then, of course, we were alerted</p> <p>22 to the differences between the manuscripts</p> <p>23 because there was a footnote on a table that was</p> <p>24 not in the version that I was looking at.</p> <p>25 Q. What's the exact date of the new</p> | <p>1 Q. Now, you have not had an opportunity,</p> <p>2 since you've been in this deposition all day, to</p> <p>3 carefully go through page by page whether there</p> <p>4 are differences in writing or data or</p> <p>5 interpretation or comments or content; is that</p> <p>6 correct?</p> <p>7 A. That is correct.</p> <p>8 Q. Okay. With respect to the exhibit</p> <p>9 that we just marked, which is Exhibit 40, as I</p> <p>10 recall.</p> <p>11 A. Correct.</p> <p>12 Q. Exhibit 40 is the draft manuscript</p> <p>13 version that you were provided; correct?</p> <p>14 A. That is correct.</p> <p>15 Q. And in that version, I believe you</p> <p>16 testified that it's ready to be published, as</p> <p>17 far as you're concerned; is that right?</p> <p>18 MR. MILLER: Objection. Form.</p> <p>19 A. Yeah, I stated earlier that if I was</p> <p>20 to receive this manuscript, perhaps without the</p> <p>21 comments in the margins, but I'd just edit --</p> <p>22 visually cleaned-up version of this manuscript,</p> <p>23 if I was to receive it for peer review, I might</p> <p>24 have some minor comments, but I would determine</p> <p>25 it to be publishable.</p> |

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|   |  |
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| <p>1 BY MR. COPLE:</p> <p>2 Q. Is a study design or an epidemiology</p> <p>3 study not scientifically valid because it hasn't</p> <p>4 been published?</p> <p>5 A. No, I don't think that whether or</p> <p>6 not -- you know, there are a number of reasons</p> <p>7 for why something may not have been published,</p> <p>8 and so I don't think that having an unpublished</p> <p>9 draft says anything about the quality of the</p> <p>10 publication or its suitability for publication.</p> <p>11 Q. And you reviewed this publication,</p> <p>12 correct, this draft of this manuscript; correct?</p> <p>13 A. That is correct, I reviewed all of the</p> <p>14 results, all of the tables. I -- and I reviewed</p> <p>15 the methods, just as I would do if I was peer</p> <p>16 reviewing a manuscript.</p> <p>17 Q. So, in effect, the manuscript has been</p> <p>18 peer reviewed by you?</p> <p>19 A. That is correct.</p> <p>20 Q. Okay. Now, you also said earlier that</p> <p>21 based on all the evidence that you had seen and</p> <p>22 reviewed in doing your literature search,</p> <p>23 considered materials that were provided in</p> <p>24 coming up with your expert opinions</p> <p>25 independently in this case, that the draft</p> | <p>1 in that Monograph 112 considered this draft</p> <p>2 manuscript?</p> <p>3 A. It was not one of the materials that</p> <p>4 they considered in their review, no.</p> <p>5 Q. Based on your review of the monograph</p> <p>6 112, does that mean that you considered that</p> <p>7 they did not see this or did not review this as</p> <p>8 part of their materials?</p> <p>9 A. That is correct.</p> <p>10 Q. Okay. So your testimony, to a</p> <p>11 reasonable degree of scientific certainty, is,</p> <p>12 based upon your literature review and</p> <p>13 independent evaluation, is that you do not see</p> <p>14 scientifically reliable evidence showing that</p> <p>15 glyphosate exposure has a causal association</p> <p>16 with non-Hodgkin's lymphoma; is that right?</p> <p>17 MR. MILLER: Object to the form of the</p> <p>18 question.</p> <p>19 A. That is correct.</p> <p>20 MR. COPLE: I have nothing further.</p> <p>21 MR. MILLER: I have no further</p> <p>22 follow-up. I think we are done now.</p> <p>23 THE WITNESS: Thank you.</p> <p>24 THE VIDEOGRAPHER: This concludes the</p> <p>25 September 21, 2017 deposition of Dr. Jennifer</p> |
| Page 291  | Page 293   |
| <p>1 manuscript that you had worked with and had been</p> <p>2 provided was the strongest evidence to date.</p> <p>3 Do you remember that?</p> <p>4 MR. MILLER: Object to form.</p> <p>5 BY MR. COPLE:</p> <p>6 Q. Do you remember saying that?</p> <p>7 A. I have to admit I don't recall saying</p> <p>8 exactly that, but I certainly said that I</p> <p>9 thought that it would be a shame if this</p> <p>10 publication wasn't published and that people</p> <p>11 weren't aware of this -- these updated results,</p> <p>12 because it provides such strong evidence on the</p> <p>13 evidence of glyphosate and NHL.</p> <p>14 Q. What does it -- well, what does the</p> <p>15 evidence tell you based on that draft</p> <p>16 manuscript?</p> <p>17 A. It certainly confirms the previous</p> <p>18 findings in the AHS that there are -- is no</p> <p>19 evidence of an association, either ever/never</p> <p>20 use or, more importantly, in dose-response</p> <p>21 analyses, between glyphosate and NHL. And in</p> <p>22 light of -- especially of the IARC decision, I</p> <p>23 think it's important for the scientific</p> <p>24 community to have access to these results.</p> <p>25 Q. Are you aware of whether IARC itself</p>              | <p>1 Rider. Going off the record. The time is 5:03.</p> <p>2 (Whereupon, the deposition was</p> <p>3 concluded.)</p> <p>4</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>   |

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1 COMMONWEALTH OF MASSACHUSETTS )  
 2 SUFFOLK, SS. )  
 3 I, MAUREEN O'CONNOR POLLARD, RMR, CLR,  
 4 and Notary Public in and for the Commonwealth of  
 5 Massachusetts, do certify that on the 21st day  
 6 of September, 2017, at 9:01 o'clock, the person  
 7 above-named was duly sworn to testify to the  
 8 truth of their knowledge, and examined, and such  
 9 examination reduced to typewriting under my  
 10 direction, and is a true record of the testimony  
 11 given by the witness. I further certify that I  
 12 am neither attorney, related or employed by any  
 13 of the parties to this action, and that I am not  
 14 a relative or employee of any attorney employed  
 15 by the parties hereto, or financially interested  
 16 in the action.  
 17 In witness whereof, I have hereunto  
 18 set my hand this 21st day of September, 2017.  
 19  
 20 \_\_\_\_\_  
 21 MAUREEN O'CONNOR POLLARD, NOTARY PUBLIC  
 22 Realtime Systems Administrator  
 23 CSR #149108  
 24  
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1 INSTRUCTIONS TO WITNESS  
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 3 Please read your deposition over  
 4 carefully and make any necessary corrections.  
 5 You should state the reason in the appropriate  
 6 space on the errata sheet for any corrections  
 7 that are made.  
 8 After doing so, please sign the  
 9 errata sheet and date it. It will be attached  
 10 to your deposition.  
 11 It is imperative that you return  
 12 the original errata sheet to the deposing  
 13 attorney within thirty (30) days of receipt of  
 14 the deposition transcript by you. If you fail  
 15 to do so, the deposition transcript may be  
 16 deemed to be accurate and may be used in court.  
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1 ACKNOWLEDGMENT OF DEPONENT  
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 3  
 4 I, \_\_\_\_\_, do  
 5 Hereby certify that I have read the foregoing  
 6 pages, and that the same is a correct  
 7 transcription of the answers given by me to the  
 8 questions therein propounded, except for the  
 9 corrections or changes in form or substance, if  
 10 any, noted in the attached Errata Sheet.  
 11  
 12 \_\_\_\_\_  
 13 JENNIFER R. RIDER, ScD DATE  
 14  
 15  
 16 Subscribed and sworn  
 17 To before me this  
 18 \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.  
 19 My commission expires: \_\_\_\_\_  
 20  
 21 \_\_\_\_\_  
 22 Notary Public  
 23  
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