

Heydens, William 2017-01-23(24) Final Played in Court

Heydens, William 01-23-2017
Heydens, William 01-24-2017

[REDACTED]

Total Time 03:19:47



Page/Line	Source	ID
9:3 - 9:7	Heydens, William 01-23-2017 (00:00:06) 9:3 Q. Please state your full name. 9:4 A. My name is William Francis 9:5 Heydens. 9:6 Q. Heyden? 9:7 A. Heydens.	Heydens.1
10:3 - 10:21	Heydens, William 01-23-2017 (00:00:30) 10:3 You're an employee of the 10:4 Monsanto Corporation? 10:5 A. That is correct. 10:6 Q. How long have you been an 10:7 employee of the Monsanto Corporation? 10:8 A. I've been at Monsanto 10:9 approximately 33 years. 10:10 Q. All right. And you're a 10:11 full-time employee of the Monsanto 10:12 Corporation? 10:13 A. That is correct. 10:14 Q. Yes, sir. 10:15 And you have been continuously 10:16 a full-time employee of Monsanto for the last 10:17 33 years? 10:18 A. Almost 33, yes. I was actually 10:19 a part-time employee when I was in graduate 10:20 school and then came back, and I have been a 10:21 full-time employee the remainder of the time.	Heydens.2
10:22 - 11:5	Heydens, William 01-23-2017 (00:00:13) 10:22 Q. Yes, sir. 10:23 And we are going to refer to 10:24 you today as Dr. Heydens because you, in 10:25 fact, are a doctor, right, sir? 11:1 A. I am a doctor, yes. 11:2 Q. You're a doctor of would it be 11:3 fair to say toxicology? 11:4 A. Yes, I have a Ph.D. in 11:5 toxicology.	Heydens.3
11:15 - 11:19	Heydens, William 01-23-2017 (00:00:05) 11:15 There are things called medical 11:16 doctors, right, and you're not a medical 11:17 doctor?	Heydens.4

Page/Line

Source

ID

12:20 - 12:23	<p>11:18 A. I am not a medical doctor, that 11:19 is correct.</p> <p>Heydens, William 01-23-2017 (00:00:06)</p> <p>12:20 And, Dr. Heydens, so the jury 12:21 understands, you're not an epidemiologist? 12:22 A. That is correct, I am not an 12:23 epidemiologist.</p>	Heydens.5
13:13 - 14:11	<p>Heydens, William 01-23-2017 (00:00:57)</p> <p>13:13 Q. How would you describe what 13:14 your position has been the last five years at 13:15 Monsanto? 13:16 A. Well, the last few years I have 13:17 been leading our -- I'm a product safety 13:18 strategy lead, has been my title. 13:19 Q. Product safety? 13:20 A. Product safety assessment 13:21 strategy lead. 13:22 Q. Product safety assessment 13:23 strategy lead? 13:24 A. Assessment strategy lead. 13:25 Q. How would you describe that to 14:1 lay people? 14:2 What does that mean? 14:3 A. What that means is, what I have 14:4 been doing is I would -- as we get new 14:5 products that we're interested in marketing, 14:6 I would be leading a team of scientists who 14:7 would look at the product, look at what it 14:8 is, how it's used, and then work to develop a 14:9 set of studies and assessments that we think 14:10 should be done to assess the safety of that 14:11 product.</p>	Heydens.6
14:12 - 14:19	<p>Heydens, William 01-23-2017 (00:00:20)</p> <p>14:12 Q. All right, sir. And I want to 14:13 look at a document that I think summarizes 14:14 some of the things that you've done in the 14:15 field with Roundup, or glyphosate, in the 14:16 last several years, and I want to show you a 14:17 copy. It's produced from your file, your 14:18 custodial file, by Monsanto, and it's</p>	Heydens.7

Page/Line

Source

ID

16:13 Low level of presence of NNG,
 16:14 N-Nitroso-Glyphosate, in Roundup. Many
 16:15 N-Nitroso compounds are carcinogenic.
 16:16 That was one of the issues that
 16:17 you dealt with, right, sir?
 16:18 A. That is another one, yes.
 16:19 Q. Okay. And by "carcinogenic,"
 16:20 we mean cancer-causing; is that what the word
 16:21 means?
 16:22 A. That is correct.
 16:23 Q. The other issue, or the third
 16:24 issue, here is: Many toxic studies for
 16:25 glyphosate had been done at a lab, IBT,
 17:1 Industrial Biotest, that FDA/EPA found to
 17:2 generate fraudulent data -- excuse me,
 17:3 fraudulent data back in the 1970s.
 17:4 You dealt with that issue as
 17:5 well, right, sir?
 17:6 A. Monsanto did. I did not
 17:7 personally.
 17:8 Q. All right, sir. The next issue
 17:9 is: EPA seriously questioned if glyphosate
 17:10 produced tumors in chronic mouse study -
 17:11 glyphosate was put in Category D for
 17:12 carcinogenicity for several years - our
 17:13 detractors falsely spread the word that the
 17:14 EPA considered glyphosate to have
 17:15 carcinogenic potential; was generally an
 17:16 issue that you personally dealt with as well
 17:17 as Monsanto, right?
 17:18 A. I was involved in that issue,
 17:19 yes.
 17:20 Q. All right, sir.
 17:21 And the next issue that you
 17:22 were involved in here was: It was falsely
 17:23 said that glyphosate is organophosphate, OP,
 17:24 molecule, and OPs produce neurotoxicity;
 17:25 thus, glyphosate is a neurotoxin.
 18:1 Generally an issue that you
 18:2 dealt with, right, sir?

HW1.1.5

HW1.1.6

HW1.1.7

Page/Line	Source	ID
18:7 - 18:11	<p>18:3 A. I personally didn't spend a lot 18:4 of time, but that was something that did come 18:5 up.</p> <p>Heydens, William 01-23-2017 (00:00:15)</p> <p>18:7 One of your main jobs at 18:8 Monsanto is to defend glyphosate, right? 18:9 A. My main job at Monsanto is to 18:10 ensure that glyphosate is reviewed using 18:11 sound science.</p>	Heydens.12 clear
26:2 - 26:6	<p>Heydens, William 01-23-2017 (00:00:11)</p> <p>26:2 Q. Sir, let's take a look at 26:3 Exhibit 3:3, but before we do, you've heard 26:4 the phrase "ghostwriting" before, haven't 26:5 you? 26:6 A. Yes, I've heard that term.</p>	Heydens.13
26:7 - 26:11	<p>Heydens, William 01-23-2017 (00:00:12)</p> <p>26:7 Q. And ghostwriting is considered 26:8 unethical by scientists, isn't it, sir? 26:9 A. I think you'd have to define 26:10 what ghostwriting is first before you could 26:11 decide whether it's unethical or not.</p>	Heydens.14
27:1 - 27:6	<p>Heydens, William 01-23-2017 (00:00:14)</p> <p>27:1 the integrity of the published record of 27:2 scientific research depends not only on the 27:3 validity of the science but also on honesty 27:4 and authorship. 27:5 You agree with that, don't you, 27:6 sir?</p>	Heydens.15
27:10 - 27:10	<p>Heydens, William 01-23-2017 (00:00:01)</p> <p>27:10 Yes, I would agree with that.</p>	Heydens.16
27:12 - 27:12	<p>Heydens, William 01-23-2017 (00:00:01)</p> <p>27:12 "the scientific record," same paragraph, "is</p>	Heydens.17
27:12 - 27:19	<p>Heydens, William 01-23-2017 (00:00:17)</p> <p>27:12 is 27:13 distorted if the primary purpose of an 27:14 article is to persuade readers in favor of a 27:15 special interest rather than to inform and 27:16 educate and this purpose is concealed." 27:17 You agree with that, don't you, 27:18 sir?</p>	Heydens.18

Page/Line	Source	ID
27:21 - 28:1	<p>27:19 A. Yes, I would agree with that.</p> <p>Heydens, William 01-23-2017 (00:00:16)</p> <p>27:21 "Ghost authorship exists when someone has 27:22 made substantial contributions to writing a 27:23 manuscript and this role is not mentioned in 27:24 the manuscript itself." 27:25 That is an accurate definition 28:1 of ghost authorship, isn't it, sir?</p>	Heydens.19
28:4 - 28:8	<p>Heydens, William 01-23-2017 (00:00:10)</p> <p>28:4 THE WITNESS: I would have a 28:5 slightly different definition of that. 28:6 I would say making a significant 28:7 intellectual contribution without 28:8 being recognized.</p>	Heydens.20
28:18 - 28:20	<p>Heydens, William 01-23-2017 (00:00:07)</p> <p>28:18 You agree that it's dishonest 28:19 and unacceptable to ghost-author? 28:20 A. Given my definition, yes.</p>	Heydens.21
28:23 - 29:8	<p>Heydens, William 01-23-2017 (00:00:23)</p> <p>28:23 "Ghost authors generally work on behalf of 28:24 companies, or agents acting for those 28:25 companies, with a commercial interest in the 29:1 topic, and this compounds the problem." 29:2 That has been an issue in the 29:3 scientific community for some time, hasn't 29:4 it, Dr. Heydens? 29:5 A. I really am not aware the 29:6 degree to which that has been an issue. 29:7 That's just not an area I pay much attention 29:8 to.</p>	Heydens.22
29:9 - 29:23	<p>Heydens, William 01-23-2017 (00:00:46)</p> <p>29:9 Q. And they give an example, and I 29:10 want to see if you agree with this example. 29:11 "For example, a writer employed by a 29:12 commercial company may prepare an article, 29:13 then invite an expert in the field to submit 29:14 the work, perhaps with minor revisions, under 29:15 his or her own name." 29:16 That's what ghost authorship 29:17 is, isn't it, Doctor?</p>	Heydens.23

Page/Line	Source	ID
29:24 - 30:4	<p>29:18 A. Well, I told you before what I 29:19 believe ghost authorship is, and that is, 29:20 again, someone who has contributed 29:21 significant intellectual information to a 29:22 particular document which is not recognized 29:23 or not acknowledged in the publication. Heydens, William 01-23-2017 (00:00:20)</p>	Heydens.24
30:5 - 30:7	<p>29:24 Q. Now, you're aware, sir, that 29:25 Monsanto funded the Intertek panel reports on 30:1 whether Roundup was carcinogenic, right, sir? 30:2 A. We funded that project to 30:3 determine if glyphosate was carcinogenic. It 30:4 was not a study of Roundup. Heydens, William 01-23-2017 (00:00:07)</p>	Heydens.25
30:20 - 30:23	<p>30:5 Q. And the truth, Dr. Heydens, is 30:6 you ghostwrote that report, isn't it? 30:7 A. That is not correct. Heydens, William 01-23-2017 (00:00:12) 30:20 Q. And this 3:4 is the Intertek 30:21 report that was published by these authors 30:22 and the one that we talked about with 30:23 Intertek, right?</p>	Heydens.26 HW4.1 HW4.1.1
31:3 - 31:4	<p>Heydens, William 01-23-2017 (00:00:04) 31:3 A. This is one of actually five 31:4 articles that were written.</p>	Heydens.27
31:5 - 31:9	<p>Heydens, William 01-23-2017 (00:00:08) 31:5 Q. Yes, sir, and let's look at the 31:6 authors. 31:7 Are you, William Heydens, 31:8 listed as an author on this report? 31:9 A. No, I am not.</p>	Heydens.28
31:10 - 31:24	<p>Heydens, William 01-23-2017 (00:00:46) 31:10 Q. Did you write any parts of this 31:11 report? 31:12 A. I provided a little bit of 31:13 historical information that -- when I say 31:14 "historical information," I mean historical 31:15 information relative to things about Monsanto 31:16 and registrations going way back to the '70s 31:17 that none of the authors would have known</p>	Heydens.29 clear

Page/Line

Source

ID

31:18 anything about. So that is some information
 31:19 that I did provide.
 31:20 I also provided a minimal set
 31:21 of -- a few comments at one point in the
 31:22 process, well after the paper had been
 31:23 written and was well on the way to being
 31:24 finalized.

31:25 - 32:6

Heydens, William 01-23-2017 (00:00:19)

Heydens.30

31:25 Q. So to be clear, you wrote some
 32:1 portions of it from a historical perspective?

clear

32:2 A. I provided information to
 32:3 Ashley Roberts at Intertek, and then he took
 32:4 that information -- who Ashley is one of the
 32:5 authors. He took that information, and he
 32:6 used it as he saw fit.

32:7 - 32:14

Heydens, William 01-23-2017 (00:00:18)

Heydens.31

32:7 Q. Did you communicate directly
 32:8 with the authors of this paper about this
 32:9 paper?

32:10 A. I was not in communication with
 32:11 the authors when they were doing their
 32:12 conclusions and -- doing their evaluations or
 32:13 conclusions. That was -- that was their
 32:14 paper to write, and they did that.

32:15 - 32:23

Heydens, William 01-23-2017 (00:00:24)

Heydens.32

32:15 Q. You did, in fact, review the
 32:16 article before it was published, true?
 32:17 A. I received -- there was times I
 32:18 remember that I received them, but I never
 32:19 provided comments and asked for changes of
 32:20 any content. Basically never responded. I
 32:21 received them and just filed them off because
 32:22 I did not want to be part of influencing this
 32:23 project at all.

32:24 - 33:17

Heydens, William 01-23-2017 (00:00:47)

Heydens.33

32:24 Q. Dr. Heydens, you wrote 28
 32:25 proposed edits to this paper before it was
 33:1 published. That's the truth, isn't it, sir?
 33:2 A. I don't know if that number is
 33:3 correct or not. My recollection was the only

Page/Line

Source

ID

33:4 information that I -- there was at one point
 33:5 in time when the different scientists
 33:6 actually started reviewing each other's work
 33:7 and they were commenting on each other's
 33:8 work. And there was at one point in time
 33:9 that I recall that I made some comments on
 33:10 some of their comments, provided that
 33:11 information back to Ashley Roberts.
 33:12 And really what he did with my
 33:13 comments is -- I'm not even sure, because I
 33:14 never bothered to go back and see what he did
 33:15 with them. It was his decision to use them
 33:16 or not use them, as he saw fit, and that's
 33:17 what he did.

33:18 - 33:22

Heydens, William 01-23-2017 (00:00:14)

Heydens.34

HW4.15

33:18 Q. Let's take a look at page 16 of
 33:19 this article that was published in Critical
 33:20 Reviews in Toxicology. And go to the
 33:21 Declaration of Interests section, if you
 33:22 would, sir.

HW4.15.1

33:23 - 34:4

Heydens, William 01-23-2017 (00:00:16)

Heydens.35

33:23 The Declaration of Interest
 33:24 section, and that's where scientists are
 33:25 supposed to declare who was involved and how
 34:1 they were involved in creating the article,
 34:2 right, sir?
 34:3 A. That is a main purpose of that,
 34:4 yes.

34:5 - 34:15

Heydens, William 01-23-2017 (00:00:21)

Heydens.36

HW4.15.2

34:5 Q. And it says, "The expert
 34:6 panelists" --
 34:7 These are the people that are
 34:8 the named authors, right?
 34:9 A. The expert panelists would be
 34:10 the authors, yes.
 34:11 Q. -- "were engaged by and acted
 34:12 as consultants to Intertek and were not
 34:13 directly contacted by the Monsanto Company."
 34:14 Do you see that, sir?
 34:15 A. Yes, I do see that.

Page/Line	Source	ID
38:10 - 38:13	<p>38:4 wanted to initiate not to explain our view of 38:5 science. It's something that we wanted to 38:6 explain the best sound science way to look at 38:7 the data, which is exactly the way these 38:8 panels approached it, these scientists 38:9 approached it.</p> <p>Heydens, William 01-23-2017 (00:00:11)</p> <p>38:10 Q. All right. Here's Exhibit 3:5, 38:11 a series of e-mails between you and others in 38:12 May of 2015 concerning post-IARC activities 38:13 to support glyphosate.</p>	<p>Heydens.46 HW5.1</p>
38:23 - 39:3	<p>Heydens, William 01-23-2017 (00:00:08)</p> <p>38:23 This is -- one of the e-mails 38:24 here is from you. That's William Heydens, 38:25 right, sir?</p> <p>39:1 A. That is correct. 39:2 Q. In May of 2015, right? 39:3 A. That is correct.</p>	<p>Heydens.47 HW5.1.1</p>
39:4 - 39:9	<p>Heydens, William 01-23-2017 (00:00:15)</p> <p>39:4 Q. Sent it to Donna Farmer and 39:5 others, right, sir? 39:6 A. That is correct. 39:7 Q. And it's concerning a meeting 39:8 that you folks had had that day, right? 39:9 A. That is correct.</p>	<p>Heydens.48 HW5.1.2</p>
39:10 - 39:19	<p>Heydens, William 01-23-2017 (00:00:31)</p> <p>39:10 Q. And some things that you were 39:11 going to do is publish on animal data cited 39:12 by IARC, right, sir? 39:13 A. Really what this is, these 39:14 are -- these were ideas that we had at that 39:15 point in time. We hadn't established 39:16 which -- exactly which ones. This was more 39:17 the things that rose to the top as 39:18 possibilities as part of our overall 39:19 brainstorming on the topic.</p>	<p>Heydens.49 HW5.1.3</p>
39:20 - 40:4	<p>Heydens, William 01-23-2017 (00:00:28)</p> <p>39:20 Q. And you wrote, sir, on the 39:21 publication on animal data cited by IARC, 39:22 there would be a manuscript to be initiated</p>	<p>Heydens.50 HW5.1.4</p>

Page/Line

Source

ID

39:23 by Monsanto as ghostwriters, right, sir?
 39:24 A. That is written there, that's
 39:25 true, but that's not -- but again, as I said,
 40:1 this was just thinking early on in the
 40:2 process, and that's not what happened.
 40:3 Ultimately, a totally different paradigm was
 40:4 used.

40:5 - 40:7

Heydens, William 01-23-2017 (00:00:05)

Heydens.51

40:5 Q. And you knew that it would be
 40:6 more powerful if it looked like it had been
 40:7 written by outside authors, right?

40:10 - 40:11

Heydens, William 01-23-2017 (00:00:00)

Heydens.52

40:10 THE WITNESS: No, that's not
 40:11 correct.

40:13 - 41:9

Heydens, William 01-23-2017 (00:01:07)

Heydens.53

40:13 Q. Let's see what it says here.
 40:14 You say, "It was noted this would be more
 40:15 powerful if authored by non-Monsanto
 40:16 scientists, that is, Kirkland, Kier,
 40:17 Williams, Greim and maybe Keith Solomon."
 40:18 Do you see that?

HW5.1.5

40:19 A. Oh, yeah, I see that. So
 40:20 I sort of misunderstood your question.
 40:21 The idea here really is -- I
 40:22 mean, you know, obviously it would be real
 40:23 easy for Monsanto to write a scientific
 40:24 paper, but really it would hold more weight
 40:25 if we selected or, you know, if the panel was
 41:1 put together by independent experts who are
 41:2 experts in the field, people that have done
 41:3 these evaluations for 30 or 40 years and have
 41:4 reputations in the international scientific
 41:5 community.

clear

41:6 And so that was what the --
 41:7 thought that the best -- the best way for the
 41:8 oncogenic potential to be evaluated is by
 41:9 individuals like that.

41:10 - 41:17

Heydens, William 01-23-2017 (00:00:19)

Heydens.54

41:10 Q. In fact, you wanted to keep the
 41:11 costs down and use outside authors so you'd

Page/Line

Source

ID

41:12 have something to support your litigation
 41:13 defense to the people that had non-Hodgkin's
 41:14 lymphoma, right, Doctor?
 41:15 A. As I said, it was just a
 41:16 thought at this point in time, and that's not
 41:17 ultimately how it was done.

42:4 - 42:10

Heydens, William 01-23-2017 (00:00:14)

Heydens.55

42:4 Yes, sir. And this is a
 42:5 PowerPoint that you prepared, right, about
 42:6 that same time, right, sir?
 42:7 A. Yeah, I was -- there was
 42:8 contributions from other individuals, but,
 42:9 yes, I believe I did put this PowerPoint
 42:10 together.

HW6.2

44:8 - 44:15

Heydens, William 01-23-2017 (00:00:25)

Heydens.56

44:8 Q. Let's look at page 5, Doctor.
 44:9 On page 5, you lay out some
 44:10 points about possibly, quote, "Publication on
 44:11 animal carcinogenicity data," right, sir?
 44:12 A. That is correct.
 44:13 Q. And what you say is, "Cost:
 44:14 Majority of writing can be done by Monsanto,
 44:15 keeping the costs down."

HW6.6

HW6.6.1

HW6.6.2

44:16 - 44:19

Heydens, William 01-23-2017 (00:00:05)

Heydens.57

44:16 That's what happened, right?
 44:17 The majority of the writing was done by
 44:18 Monsanto?
 44:19 A. That is not correct.

44:20 - 45:7

Heydens, William 01-23-2017 (00:00:26)

Heydens.58

44:20 Q. You also wanted to do, if we
 44:21 could turn to page 7, an overall weight of
 44:22 evidence --
 44:23 Is that what WOE stands for,
 44:24 sir?
 44:25 A. That is correct.
 45:1 Q. -- overall weight of evidence
 45:2 plausibility publication possibly via expert
 45:3 panel concept.
 45:4 Right, sir?
 45:5 A. That is one of the

HW6.8 - HW6.8.1

Page/Line	Source	ID
45:8 - 45:25	45:6 possibilities that we were thinking about at 45:7 that time. Heydens, William 01-23-2017 (00:00:45)	Heydens.59 HW6.8.2
	45:8 Q. And you -- possible authors, 45:9 panelists, authors, you named a bunch of 45:10 folks, right, some of whom went on to be 45:11 authors in the Intertek report, right?	
	45:12 A. Yes. These are individuals, as 45:13 I said before, who are considered experts, 45:14 top of their field. And it was important 45:15 that if we were going to go ahead and do 45:16 something like this, we wanted top-notch 45:17 people in the field, and these are some 45:18 examples of individuals that would fall in 45:19 that category.	
	45:20 Q. And you were going to pay 45:21 around 200, \$250,000 to have these top-notch 45:22 people involved, right?	HW6.8.3
	45:23 A. That was a real high-level 45:24 guesstimate that I put on the slide. I have 45:25 really no idea what ultimately it cost.	clear
46:1 - 46:6	Heydens, William 01-23-2017 (00:00:14)	Heydens.60
	46:1 Q. But you knew that by Monsanto 46:2 writing the article, you could keep the cost 46:3 down, right?	
	46:4 A. Well, yes, I think I stated 46:5 that, but, again, I stated that ultimately 46:6 that was not the model that we went with.	
46:7 - 46:22	Heydens, William 01-23-2017 (00:00:46)	Heydens.61 HW6.9
	46:7 Q. And on page 8, you make it 46:8 clear what Monsanto's purpose is on the 46:9 genotox -- MOA means mechanism of action, 46:10 right, Doctor?	
	46:11 A. That is correct.	
	46:12 Q. Okay. You wanted to counter 46:13 IARC's claim of strong evidence of DNA 46:14 damage/oxidative stress, right, sir?	HW6.9.1 - HW6.9.2
	46:15 A. What we wanted to do is we 46:16 definitely wanted -- I mean, you know, when 46:17 you look at IARC, IARC did not do a solid	

Page/Line	Source	ID
46:23 - 46:25	<p>46:18 weight of evidence and did not use accepted 46:19 scientific principles. So we were interested 46:20 in making sure that that data did get 46:21 evaluated using accepted scientific 46:22 principles.</p> <p>Heydens, William 01-23-2017 (00:00:05)</p> <p>46:23 Q. You were actually interested in 46:24 litigation support, right? 46:25 A. That is not correct.</p>	<p>Heydens.62 HW6.9.3</p>
47:1 - 47:7	<p>Heydens, William 01-23-2017 (00:00:17)</p> <p>47:1 Q. You wrote that. 47:2 A. I think I stated at least a 47:3 couple of times so far that my job and my 47:4 interest is to make sure that when glyphosate 47:5 is evaluated, that its evaluated using the 47:6 best scientific principles in a weight of 47:7 evidence evaluation.</p>	Heydens.63
47:8 - 47:9	<p>Heydens, William 01-23-2017 (00:00:01)</p> <p>47:8 Q. Let's go to what you wrote on 47:9 page 2, sir.</p>	<p>Heydens.64 HW6.3</p>
47:14 - 47:18	<p>Heydens, William 01-23-2017 (00:00:09)</p> <p>47:14 "Why do more?" 47:15 And your first bullet point: 47:16 "Severe stigma attached to a Group 2A 47:17 classification," right, sir? 47:18 A. That is written there.</p>	<p>Heydens.65 HW6.3.1 HW6.3.2</p>
47:19 - 47:23	<p>Heydens, William 01-23-2017 (00:00:10)</p> <p>47:19 Q. And what 2A classification 47:20 means is the World Health Organization, IARC, 47:21 determining that Roundup, glyphosate, is a 47:22 probable human carcinogen for non-Hodgkin's 47:23 lymphoma?</p>	Heydens.66
48:5 - 48:7	<p>Heydens, William 01-23-2017 (00:00:05)</p> <p>48:5 A. That was their ultimate 48:6 classification, and we believe that is an 48:7 improper classification.</p>	Heydens.67
81:1 - 81:18	<p>Heydens, William 01-23-2017 (00:00:38)</p> <p>81:1 Q. And those two statements we'd 81:2 asked about earlier, and I just want to ask a 81:3 new question regarding that.</p>	<p>Heydens.68 HW4.15</p>

Page/Line	Source	ID
	81:4 "The expert panelists were 81:5 engaged by and acted as consultants to 81:6 Intertek and were not directly contacted by 81:7 the Monsanto Company."	HW4.15.2
	81:8 And the second point, "Neither 81:9 any Monsanto Company employees nor any 81:10 attorneys reviewed any of the expert panel 81:11 manuscripts prior to submission to the 81:12 journal."	HW4.15.4
	81:13 And the reason I quote those 81:14 two statements is to ask this question: In 81:15 fact, Dr. Heydens, you were involved in 81:16 writing this language itself on the 81:17 declaration of interest. You wrote that? 81:18 A. That is absolutely false.	clear
81:25 - 82:4	Heydens, William 01-23-2017 (00:00:07) 81:25 Q. And you saw it before that 82:1 journal article ever came out and helped edit 82:2 it, true, Dr. Heydens? 82:3 A. I don't recall telling them 82:4 what to say.	Heydens.69
82:5 - 82:9	Heydens, William 01-23-2017 (00:00:02) 82:5 (Heydens Exhibit 3-9 marked for 82:6 identification.) 82:7 QUESTIONS BY MR. MILLER: 82:8 Q. Let's take a look at 82:9 Exhibit 3:9, please.	Heydens.70
82:15 - 83:2	Heydens, William 01-23-2017 (00:00:49) 82:15 Now, if we could go to Bate 82:16 stamp 59011 of this chain of e-mails, what we 82:17 see here is that -- we'll start at the 82:18 bottom. Ashley Roberts from Intertek sends 82:19 you a copy of the proposed declaration of 82:20 interest, March of 2016, right, sir? 82:21 A. Yeah, I had forgotten that he 82:22 did send that, but, yes, he did send it. How 82:23 it existed at that point in time, I think it 82:24 was -- if I recall correctly, he had 82:25 indicated to me that he had lots of 83:1 conversations with the journal editor, but at	HW9.1 Heydens.71 HW9.4 HW9.4.2

Page/Line

Source

ID

83:4 - 83:18	<p>83:2 this point in time it was shared, yes.</p> <p>Heydens, William 01-23-2017 (00:00:44)</p> <p>83:4 And we go to page 0112. So to</p> <p>83:5 be clear, you knew that the declaration was</p> <p>83:6 going to say the authors had sole</p> <p>83:7 responsibility for the writing and the</p> <p>83:8 content of the article, and the</p> <p>83:9 interpretations and opinions expressed in the</p> <p>83:10 paper were those of the authors.</p> <p>83:11 You were aware of that before</p> <p>83:12 the article came out, right, sir?</p> <p>83:13 A. I was aware of whatever it says</p> <p>83:14 in the version that he sent me, yes.</p> <p>83:15 If he sent it to me, I probably</p> <p>83:16 read it.</p> <p>83:17 Q. And to be clear, you had made</p> <p>83:18 28 edits to the article in one draft alone?</p>	<p>Heydens.72</p> <p>HW9.5 - HW9.5.1</p> <p>HW9.5.2</p> <p>clear</p>
83:21 - 84:17	<p>Heydens, William 01-23-2017 (00:00:54)</p> <p>83:21 THE WITNESS: Yeah, I'm not --</p> <p>83:22 I think I stated before and -- you</p> <p>83:23 brought that up, and I think I stated,</p> <p>83:24 and certainly I would say, I don't</p> <p>83:25 recall 28 edits, so I'd have to see</p> <p>84:1 what you're referring to.</p> <p>84:2 QUESTIONS BY MR. MILLER:</p> <p>84:3 Q. We'll look at that in a minute,</p> <p>84:4 sir, but right now let's finish with this.</p> <p>84:5 You said here -- did you review</p> <p>84:6 the article before it was sent to the</p> <p>84:7 journal?</p> <p>84:8 A. What article are you referring</p> <p>84:9 to?</p> <p>84:10 Q. Any of the Intertek expert</p> <p>84:11 panel articles.</p> <p>84:12 A. As I said, they were certainly</p> <p>84:13 sent to me. I read some parts of some of</p> <p>84:14 them. I didn't read other parts. I don't</p> <p>84:15 recall exactly which ones I -- you know,</p> <p>84:16 which pieces I looked at and which pieces I</p> <p>84:17 didn't, but I received copies.</p>	<p>Heydens.73</p>

Page/Line	Source	ID
84:24 - 85:6	Heydens, William 01-23-2017 (00:00:17) 84:24 Q. Sir, you knew before the 84:25 article was published that the declaration 85:1 was going to contain this language, quote, 85:2 "Neither Monsanto nor any attorney reviewed 85:3 any of the expert panel's manuscripts prior 85:4 to submission to the journal." 85:5 You knew that to be inaccurate, 85:6 didn't you, sir?	Heydens.74 HW9.5 HW9.5.3
85:9 - 85:18	Heydens, William 01-23-2017 (00:00:32) 85:9 THE WITNESS: Yeah, I don't 85:10 know what he meant when he said that. 85:11 When I -- when I look at that 85:12 sentence, to me that says that, you 85:13 know, Monsanto, or namely me, that -- 85:14 didn't ask for any substantive 85:15 changes, any edits, any conclusions, 85:16 any evaluations. That was -- that 85:17 work was theirs, and that's how I read 85:18 that to mean.	Heydens.75 clear
85:22 - 85:23	Heydens, William 01-23-2017 (00:00:03) 85:22 Q. Let's look at the edits that	Heydens.76
86:5 - 86:11	85:23 you made to the article before publication, Heydens, William 01-23-2017 (00:00:15) 86:5 Now, so here we are. This is 86:6 in January of 2016, right, sir? 86:7 A. Yes, that is correct. 86:8 Q. Yes, sir. 86:9 And it's an e-mail from you to 86:10 Ashley Roberts at Intertek, right? 86:11 A. That is correct.	Heydens.77 HW10.1 HW10.1.1
86:12 - 86:15	Heydens, William 01-23-2017 (00:00:06) 86:12 Q. And it's a summary report. 86:13 It's a combined manuscript draft of this 86:14 Intertek report that we've been talking 86:15 about, right?	Heydens.78 HW10.1.2
86:18 - 86:18	Heydens, William 01-23-2017 (00:00:00) 86:18 THE WITNESS: Yes.	Heydens.79
86:23 - 87:6	Heydens, William 01-23-2017 (00:00:26) 86:23 Q. Yes, sir.	Heydens.80

Page/Line

Source

ID

	<p>86:24 And you go, "Hi, Ashley, here 86:25 are my suggested edits to the draft combined 87:1 manuscript. Most of my edits were made in 87:2 Section 3.1, Exposures to Glyphosate, as it 87:3 reads like a repeat of the entire Results 87:4 section from Keith's exposure paper/chapter, 87:5 including table/graph replication, as also 87:6 noted in John Acquavella's e-mail."</p>	HW10.1.3
87:12 - 88:20	<p>Heydens, William 01-23-2017 (00:01:26) 87:12 THE WITNESS: So we talked 87:13 about this earlier, so let me tell you 87:14 what this is. 87:15 So what I'd like to point out 87:16 is this is a very late stage in the 87:17 publication process. These experts 87:18 had worked on this a long, long time, 87:19 and this was near final. 87:20 If you look at the comments 87:21 that I made on here, they are pretty 87:22 minor things. None of them have 87:23 anything to do with the conclusions. 87:24 Some of them are editorial. Some of 87:25 them are just talking about 88:1 organization and things of that 88:2 nature. 88:3 And then -- so those comments 88:4 were provided back to Ashley, and it 88:5 was up to Ashley then to go back to 88:6 deal with those comments as he saw 88:7 fit. And if he wanted to ignore them, 88:8 he could ignore them. He also would 88:9 be -- if he felt appropriate, he would 88:10 be going back to the individual 88:11 scientists and getting them to weigh 88:12 in on it. 88:13 And so at the end of the day, 88:14 my few minor suggestions, it was up to 88:15 them to do whatever they want with 88:16 them. And quite -- you know, I didn't 88:17 even bother to go back and check to</p>	Heydens.81

Page/Line

Source

ID

94:7 already told you, that some minor --
 94:8 at one point late in the process I
 94:9 offered some really minor suggestions,
 94:10 which they may or may not have taken.
 94:11 I don't -- I don't know what they did.
 94:12 So maybe what he means there is
 94:13 that -- is exactly that. There really
 94:14 was no contribution. And so perhaps
 94:15 that's why he -- they went with those
 94:16 words.

118:4 - 118:6

Heydens, William 01-23-2017 (00:00:16)

Heydens.85

118:4 Q. All right. Let's take a look
 118:5 at Exhibit 3:14, a series of e-mails between
 118:6 you and others concerning IARC planning.

HW14.1

119:15 - 119:17

Heydens, William 01-23-2017 (00:00:05)

Heydens.86

119:15 Q. So this was an IARC planning
 119:16 discussion here, right, sir?
 119:17 A. That's correct.

122:11 - 123:4

Heydens, William 01-23-2017 (00:01:05)

Heydens.87

122:11 Q. All right, sir. So in this
 122:12 e-mail in February 2015 to Donna Farmer and
 122:13 others, you go on to say, "For the overall
 122:14 plausibility paper that we discussed with
 122:15 John, where he gave us a butadiene example,
 122:16 I'm still having a little trouble wrapping my
 122:17 mind around that. If we went full-bore
 122:18 involving experts from all the major areas,
 122:19 epi, tox, genotox, mechanism of action,
 122:20 exposure - not sure who we'd get, we could be
 122:21 pushing 250,000 or maybe even more."
 122:22 That was sort of the genesis
 122:23 for this Intertek panel, right?
 122:24 A. Yes. As I already explained,
 122:25 this was kind of an evolving process, you
 123:1 know, brainstorming process. And originally
 123:2 it was conceived as a plausibility paper,
 123:3 which then did evolve into the more
 123:4 comprehensive expert panel.

HW14.1.1 -
HW14.2.1

HW14.2.2

123:5 - 123:21

Heydens, William 01-23-2017 (00:00:51)

Heydens.88

123:5 Q. Yes, sir.

Page/Line	Source	ID
<p>123:6 And you go on to say, "A less 123:7 expensive, more palatable approach might be 123:8 to involve experts only for the areas of 123:9 contention, epidemiology and possibly 123:10 mechanism of action, depending on what comes 123:11 out of the IARC meeting, and we ghostwrite 123:12 the exposure tox and genotox sections." 123:13 You wrote that, right, sir? 123:14 A. Yes, I wrote that. And as I 123:15 indicated just -- or as I said just a moment 123:16 ago, again, this was early stage. This was 123:17 thoughts. It is not how it evolved. 123:18 As we already talked about, it 123:19 evolved into this comprehensive expert panel, 123:20 and it was not ghostwritten. It was written 123:21 by the experts themselves.</p>	HW14.2.3	
123:22 - 124:13	<p>Heydens, William 01-23-2017 (00:00:49) 123:22 Q. Well, let's see what you wrote 123:23 in 2015. "An option would be to add Greim 123:24 and Kier or Kirkland to have their names on 123:25 the publication, but we would keep the cost 124:1 down by us doing the writing, and they would 124:2 just edit and sign their names, so to speak." 124:3 That was the proposal in 2015, 124:4 right? 124:5 A. No. As I just said, that 124:6 was -- this is something that came out in a 124:7 brainstorming mode of thinking. It was just 124:8 something that came out at that point in time 124:9 as a possibility to consider. 124:10 It didn't get considered very 124:11 long, and obviously as I've said now, it's 124:12 not what happened. Same answer as I gave 124:13 previously.</p>	<p>Heydens.89 HW14.2.4</p>
124:14 - 124:22	<p>Heydens, William 01-23-2017 (00:00:17) 124:14 Q. Well, you go on to say here, 124:15 "Recall, that is how we handled Williams, 124:16 Kroes and Munro in 2000." 124:17 Do you see that? 124:18 A. Yeah, I see that.</p>	<p>Heydens.90 HW14.2.5</p>

Page/Line	Source	ID
124:23 - 125:1	<p>124:19 Apparently I didn't have good 124:20 recollection, because that's not what 124:21 happened with Williams, Kroes and Munro in 124:22 2000.</p> <p>Heydens, William 01-23-2017 (00:00:07)</p> <p>124:23 Q. Dr. Heydens, the truth is, you 124:24 ghostwrote the Williams article in 2000, and 124:25 you ghostwrote the Intertek article in 2016, 125:1 correct?</p>	<p>Heydens.91</p> <p>clear</p>
125:5 - 125:8	<p>Heydens, William 01-23-2017 (00:00:08)</p> <p>125:5 THE WITNESS: That's absolutely 125:6 false. Did not ghostwrite the 2000 125:7 paper and did not ghostwrite this 2016 125:8 paper.</p>	Heydens.92
128:6 - 128:9	<p>Heydens, William 01-23-2017 (00:00:11)</p> <p>128:6 Q. Let's take a look at some 128:7 e-mails from that period of time from you, 128:8 sir. These have been marked as Exhibit 3:15, 128:9 produced by Monsanto in this litigation.</p>	<p>Heydens.93</p> <p>HW15.1</p>
128:10 - 128:25	<p>Heydens, William 01-23-2017 (00:00:49)</p> <p>128:10 A. Okay. 128:11 Q. Yes, sir. So Exhibit 3:15 is a 128:12 series of e-mails between you and Ashley 128:13 Roberts about these expert panel manuscripts 128:14 written in January of 2016, right? 128:15 A. Yes, that's correct. 128:16 Q. All right, sir. Now let's go 128:17 to the second page of -- and then we see an 128:18 e-mail from you to Ashley Roberts, and it's 128:19 an update on the animal bioassay and summary 128:20 chapters. 128:21 You go, "I'm not surprised at 128:22 the challenges with the summary chapter, 128:23 exclamation point," right? 128:24 A. Yes, that's correct. It's a 128:25 very complex and complicated document.</p>	<p>Heydens.94</p> <p>HW15.1</p> <p>HW15.1.1</p> <p>HW15.2</p> <p>HW15.2.1</p>
129:1 - 129:3	<p>Heydens, William 01-23-2017 (00:00:04)</p> <p>129:1 Q. Yes, sir. 129:2 That you wrote, right? 129:3 A. That's not correct.</p>	Heydens.95

Page/Line	Source	ID
129:4 - 129:12	Heydens, William 01-23-2017 (00:00:19) 129:4 Q. Here's what it says in 129:5 January 2016. You said then, sir, "I had 129:6 already written a draft introductory chapter 129:7 back in October/November." 129:8 That's what happened, right, 129:9 sir? 129:10 A. Yeah, that's exactly what I was 129:11 just talking to in the previous -- in my 129:12 previous response.	Heydens.96 HW15.2.2
129:13 - 129:18	Heydens, William 01-23-2017 (00:00:18) 129:13 Q. Yet when we go to Exhibit 3:4 129:14 that you just pointed out, page 16, it says, 129:15 "Neither Monsanto" -- "neither any Monsanto 129:16 Company employees nor any attorneys reviewed 129:17 any of the expert panel manuscripts prior to 129:18 submission to the journal."	Heydens.97 HW4.15 HW4.15.3
130:4 - 130:24	Heydens, William 01-23-2017 (00:00:59) 130:4 THE WITNESS: I'll answer 130:5 again: I wrote a draft introductory 130:6 chapter for possible use back at the 130:7 beginning, really, when the panel 130:8 concept was coming together. That -- 130:9 and that -- the information that was 130:10 in there, again, was historical. It 130:11 had nothing to do with the panel 130:12 deliberations. Didn't even deal with 130:13 the data at all because, again, it was 130:14 historical. 130:15 Subsequently it was -- like I 130:16 said in the previous -- my previous 130:17 response, you know, moving forward and 130:18 getting later in time, the journal 130:19 editor didn't think it was even 130:20 appropriate to have the chapter, so he 130:21 had Ashley extract what would be 130:22 relevant historical information to 130:23 include in that publication, and 130:24 that's what Ashley did.	Heydens.98 clear
131:2 - 131:9	Heydens, William 01-23-2017 (00:00:22)	Heydens.99

Page/Line	Source	ID
	131:2 Q. So you went back, and let's see	
	131:3 what you said in 2016, January.	HW15.2
	131:4 "But I wanted to go back and	HW15.2.3
	131:5 re-read it to see if it could benefit from	
	131:6 any 'refreshing' based on things that have	
	131:7 transpired over the last 10 to 12 weeks."	
	131:8 How much refreshing did you do,	clear
	131:9 Dr. Heydens?	
131:12 - 131:13	Heydens, William 01-23-2017 (00:00:05)	Heydens.100
	131:12 THE WITNESS: I don't recall	
	131:13 doing any refreshing.	
131:15 - 131:18	Heydens, William 01-23-2017 (00:00:04)	Heydens.101
	131:15 Q. It says, "I will do that in the	HW15.2.4
	131:16 next few days."	
	131:17 Did you do that the next few	
	131:18 days?	
131:21 - 131:25	Heydens, William 01-23-2017 (00:00:12)	Heydens.102
	131:21 THE WITNESS: I don't recall	
	131:22 what was done. I might have gone back	
	131:23 and read it. I don't -- I don't	
	131:24 recall having doing that, and I don't	
	131:25 recall having modified anything.	
132:16 - 132:19	Heydens, William 01-23-2017 (00:00:10)	Heydens.103
	132:16 Q. You next write, "And then comes	HW15.2.5
	132:17 the question of who should be the ultimate	
	132:18 author - you or Gary?"	
	132:19 Did you write that?	
132:22 - 133:12	Heydens, William 01-23-2017 (00:00:34)	Heydens.104
	132:22 THE WITNESS: Yes, I did, and	
	132:23 it's -- that sentence there is	
	132:24 referring back to this introduction	clear
	132:25 chapter which ultimately was not	
	133:1 included in the paper.	
	133:2 QUESTIONS BY MR. MILLER:	
	133:3 Q. I was --	
	133:4 A. Or excuse me. Was not included	
	133:5 in the publication. There were -- as I said,	
	133:6 there was actually five papers that were	
	133:7 published around this. That introductory was	
	133:8 meant to be -- in its initial phases was	

Page/Line	Source	ID
134:8 - 134:10	133:9 meant to be -- the sixth one actually would 133:10 have been the first one, and like I said, it 133:11 was subsequently dropped. And so five went 133:12 forward, and this one did not. Heydens, William 01-23-2017 (00:00:03)	Heydens.105
134:21 - 134:23	134:8 To be clear, you're not an 134:9 author. You're not a listed author on that 134:10 document, are you? Heydens, William 01-23-2017 (00:00:04)	Heydens.106
145:16 - 145:21	134:21 THE WITNESS: So, no, I'm not 134:22 listed as an author on this paper. I 134:23 think we've established that. Heydens, William 01-23-2017 (00:00:23)	Heydens.107
146:4 - 146:7	145:16 Q. Let's take a look at the 145:17 documents. Exhibit 3:18, produced by 145:18 Monsanto in this litigation, a series of 145:19 e-mails between you, Donna Farmer and Ashley 145:20 Roberts at Intertek in August of 2007 -- I'm 145:21 sorry, '15. '15. Heydens, William 01-23-2017 (00:00:09)	HW18C.3 HW18C.3.1
147:13 - 148:1	146:4 This is an e-mail from, again, 146:5 Ashley Roberts to you and Donna Farmer, 146:6 right? 146:7 A. That's correct. Heydens, William 01-23-2017 (00:00:25)	Heydens.108 Heydens.109
148:1 - 148:10	147:13 Q. So let's go back 147:14 and look at what was said then. 147:15 Ashley Roberts is talking to 147:16 you and Donna Farmer, and he says, "He" -- 147:17 now, you and I can agree "he" means Keith, 147:18 right? 147:19 A. Here it means Keith. 147:20 Q. Yes, sir. 147:21 "He has asked if we need to 147:22 give any consideration to exposure of 147:23 formulants." 147:24 Now, so we understand, 147:25 formulants means the glyphosate combined with 148:1 the surfactant, right? Heydens, William 01-23-2017 (00:00:18)	HW18C.3.2 Heydens.110

Page/Line	Source	ID
	148:1 the surfactant, right?	
	148:2 MR. JOHNSTON: Objection.	
	148:3 Compound.	
	148:4 THE WITNESS: So this is	
	148:5 something that he's writing. When I	
	148:6 look at the sentence, my	
	148:7 interpretation of what he's saying	
	148:8 there is -- or he would be -- anything	
	148:9 that would be in the jug that you buy	
	148:10 would be a formulant.	
149:22 - 149:23	Heydens, William 01-23-2017 (00:00:04)	Heydens.111
	149:22 Q. I got an idea, Doctor. You	
	149:23 read that sentence for me, please.	
150:7 - 150:25	Heydens, William 01-23-2017 (00:00:45)	Heydens.112
	150:7 THE WITNESS: "He has asked if	HW18C.3.3
	150:8 we need to give any consideration to	
	150:9 exposures of formulants in the	
	150:10 commercial product, at least in	
	150:11 applicators? I was under the	
	150:12 impression these were inert, but	
	150:13 reading a response this morning in the	
	150:14 Ecologist makes it sound like it is	
	150:15 the combination that is toxic, three	
	150:16 exclamation points."	
	150:17 QUESTIONS BY MR. MILLER:	clear
	150:18 Q. So you write back in response	
	150:19 to that e-mail, don't you?	
	150:20 A. I did respond.	
	150:21 Q. Yes, sir. And your response at	
	150:22 the top of that page, "Ashley" --	HW18C.3.4
	150:23 Why don't you read your answer	
	150:24 for us, Doctor?	
	150:25 A. Sure.	
151:4 - 151:9	Heydens, William 01-23-2017 (00:00:20)	Heydens.113
	151:4 A. "Ashley, I think the short	
	151:5 answer is no. The focus of this is what is	
	151:6 the carcinogenic potential of glyphosate.	
	151:7 That said, the surfactant in formulation will	
	151:8 come up in the tumor promotion skin study	
	151:9 because we think it played a role there."	

Page/Line	Source	ID
158:20 - 158:23	Heydens, William 01-23-2017 (00:00:14) 158:20 3-20, an e-mail from you with a 158:21 summary article. I have a copy for you and a 158:22 copy for counsel, produced by Monsanto in 158:23 this litigation.	Heydens.114 HW20.1
158:24 - 158:24	Heydens, William 01-23-2017 (00:00:01) 158:24 A. Okay.	Heydens.115
160:9 - 160:23	Heydens, William 01-23-2017 (00:00:34) 160:9 And starting at the bottom of 160:10 the page there, it's an e-mail from Ashley 160:11 Roberts to you regarding the summary 160:12 articles, right? 160:13 "Hi, Bill, please take a look 160:14 at the latest from the epi group, four 160:15 exclamation points." 160:16 Do you see that? 160:17 A. Yes, I see. 160:18 Q. "Call me once you have digested 160:19 this." 160:20 Do you see where he says that? 160:21 A. Yes, I do. 160:22 Q. And you tell him in your 160:23 response that you edited it, right?	Heydens.116 HW20.1.1 HW20.1.2 HW20.1.3
161:4 - 161:4	Heydens, William 01-23-2017 (00:00:00) 161:4 A. That's what's stated there.	Heydens.117
167:1 - 167:4	Heydens, William 01-23-2017 (00:00:13) 167:1 You decided on this draft after report what 167:2 you thought should stay, what can go, and in 167:3 a couple of spots did a little editing. 167:4 That's true, isn't it, sir?	Heydens.118
167:20 - 168:10	Heydens, William 01-23-2017 (00:00:40) 167:20 THE WITNESS: I did not decide. 167:21 I -- as I just gave in my previous 167:22 testimony, I made my suggestions about 167:23 John's suggestions. I didn't decide 167:24 anything. Ashley decided everything. 167:25 168:1 QUESTIONS BY MR. MILLER: 168:2 Q. You indicated what could go, 168:3 didn't you, Dr. Heydens?	Heydens.119 HW20.1.4

Page/Line

Source

ID

168:4 A. Okay. For the third time, I
 168:5 will say that I gave my opinion, my
 168:6 suggestions, about John's suggestions. I
 168:7 gave that information to Ashley, and Ashley
 168:8 resolved it the way he saw fit.
 168:9 Q. And you did a little editing;
 168:10 isn't that true, Dr. Heydens?

168:13 - 169:4

Heydens, William 01-23-2017 (00:00:38)

Heydens.120

168:13 THE WITNESS: I previously
 168:14 indicated that there was some minor
 168:15 editing that was offered. It is not
 168:16 substantial -- it's not about -- it's
 168:17 really just minor editing. It has
 168:18 nothing to do with the conclusions or
 168:19 the evaluations that the expert panel
 168:20 did.

clear

168:21 QUESTIONS BY MR. MILLER:

168:22 Q. And let's go back then to
 168:23 Exhibit 3:4, page 16 -- you have a copy
 168:24 there, sir -- where it says, "Neither any
 168:25 Monsanto Company employees nor any attorneys
 169:1 reviewed any of the expert panel manuscripts
 169:2 prior to submission to the journal."
 169:3 Can't you now at least agree
 169:4 that's a lie?

HW4.15

HW4.15.3

169:8 - 170:1

Heydens, William 01-23-2017 (00:00:50)

Heydens.121

169:8 THE WITNESS: So we talked
 169:9 about that earlier this morning, and I
 169:10 gave you my thoughts on that. And I
 169:11 recall that my thoughts were that,
 169:12 first of all, that is something that
 169:13 was written -- that came from the
 169:14 Intertek panel. Those are not my
 169:15 words.

clear

169:16 I gave you my interpretation of
 169:17 what I thought it might mean, and my
 169:18 interpretation of what it might mean
 169:19 is they didn't really take anything
 169:20 from anybody that -- it's the expert
 169:21 panel, it's what they wrote, it's

Page/Line	Source	ID
170:14 - 170:18	<p>169:22 their thoughts, their conclusions. 169:23 Did not -- Monsanto, myself, did not 169:24 influence any of that. So perhaps 169:25 that was what they were thinking when 170:1 they wrote that same statement. Heydens, William 01-23-2017 (00:00:09)</p>	Heydens.122
170:21 - 171:7	<p>170:14 Q. Let's talk now -- it wasn't 170:15 just the epidemiology section that you 170:16 reviewed before publication and chose to 170:17 edit. You looked at the genotox section, 170:18 too, didn't you? Heydens, William 01-23-2017 (00:00:28)</p>	Heydens.123
171:10 - 171:22	<p>170:21 THE WITNESS: So again, you 170:22 said I chose to edit. I offered 170:23 suggestions, and Ashley did what he 170:24 wanted with them. 170:25 (Heydens Exhibit 3-21 marked 171:1 for identification.) 171:2 QUESTIONS BY MR. MILLER: 171:3 Q. Let's look at a document 171:4 quickly to show your receipt of the genotox 171:5 report. Exhibit 3-21, produced by Monsanto 171:6 in this litigation. I have a copy for you, 171:7 sir. Heydens, William 01-23-2017 (00:00:32)</p>	HW21.1
172:3 - 172:5	<p>171:10 So in this e-mail it shows, 171:11 fair to say, sir, that in fact you did 171:12 receive the genotox report prior to 171:13 publication, right? 171:14 A. He sent this to me and he said 171:15 for your review, but I probably -- I did not 171:16 review it, and I'm not qualified to review 171:17 it, quite honestly. I mean -- yeah. 171:18 Q. So -- 171:19 A. I saw it, that's true. I did 171:20 see it. 171:21 Q. But you put it in the corner, 171:22 didn't read it; is that your testimony? Heydens, William 01-23-2017 (00:00:06) 172:3 A. I might have opened -- I'm sure</p>	Heydens.124
		HW21.1.1
		Heydens.125

Page/Line	Source	ID
	172:4 I opened it up and took a look at it, and I 172:5 doubt very much that I offered anything.	clear
188:13 - 189:8	Heydens, William 01-23-2017 (00:00:53) 188:13 The Williams paper, you're 188:14 familiar with what I mean when I say that, 188:15 right, sir? 188:16 A. You mean the Williams 2000 188:17 publication? 188:18 Q. Yes, sir. 188:19 A. Yes. 188:20 Q. Yes, sir.	Heydens.126
	188:21 And I want to go to page 2 of 188:22 the Exhibit 3-14, and that's an e-mail from 188:23 you to Donna Farmer and others where you 188:24 state at the bottom paragraph, "An option 188:25 would be to add Greim and Kier and Kirkland 189:1 to have their names on the publication, but 189:2 we would keep the cost down by us doing the 189:3 writing, and they would just edit and sign 189:4 their names, so to speak. Recall this is how 189:5 we handled Williams, Kroes and Munro, 2000." 189:6 That is, in fact, how you 189:7 handled Williams, Kroes and Munro: You wrote 189:8 it, they edited and signed it, true?	HW14.2 - HW14.2.6
189:12 - 189:15	Heydens, William 01-23-2017 (00:00:07) 189:12 THE WITNESS: As I stated this 189:13 morning, I must have had bad recall 189:14 because that is not what happened with 189:15 Williams, Kroes and Munro, 2000.	Heydens.127
198:14 - 198:16	Heydens, William 01-23-2017 (00:00:06) 198:14 Q. Fair to say you told Donna 198:15 Farmer that you would strangle Dr. Williams 198:16 if he wanted to rewrite the paper?	clear Heydens.128
198:19 - 198:24	Heydens, William 01-23-2017 (00:00:05) 198:19 THE WITNESS: I don't recall 198:20 having said that. 198:21 (Heydens Exhibit 3-26 marked 198:22 for identification.) 198:23 QUESTIONS BY MR. MILLER: 198:24 Q. Exhibit 3:26.	Heydens.129 HW26.1

Page/Line	Source	ID
215:18 - 215:21	Heydens, William 01-23-2017 (00:00:11) 215:18 Q. Let's go back to Exhibit 3-28. 215:19 It's an e-mail that you sent in July of 1999. 215:20 Do you see that, Doctor? 215:21 A. I do.	Heydens.133 HW28.1.1
215:22 - 215:24	Heydens, William 01-23-2017 (00:00:10) 215:22 Q. And it's sent to imunro@cantox. 215:23 That's the same I. Munro who was an author of 215:24 the Williams paper, right, sir?	Heydens.134
216:7 - 216:8	Heydens, William 01-23-2017 (00:00:03) 216:7 A. I. Munro would be Ian Munro at 216:8 Cantox.	Heydens.135
217:2 - 217:4	Heydens, William 01-23-2017 (00:00:06) 217:2 Q. All right. So you're writing 217:3 to Ian about this paper; is that fair, 217:4 Doctor?	Heydens.136
217:25 - 218:2	Heydens, William 01-23-2017 (00:00:03) 217:25 THE WITNESS: Yes, that is 218:1 there in the document -- in the 218:2 e-mail.	Heydens.137
218:4 - 218:5	Heydens, William 01-23-2017 (00:00:03) 218:4 Q. So you got gray hair writing 218:5 this paper, okay?	Heydens.138 HW28.1.2
218:11 - 218:15	Heydens, William 01-23-2017 (00:00:14) 218:11 A. Yes. So as I look at this now, 218:12 you know, probably what I was really 218:13 referring to was that it was a lengthy 218:14 process, as a seminal review paper would 218:15 probably be.	Heydens.139
218:20 - 218:22	Heydens, William 01-23-2017 (00:00:06) 218:20 And you write that, "Everyone 218:21 at Monsanto has agreed with adding you as an 218:22 author. Please do so."	Heydens.140 HW28.1.3
219:2 - 219:15	Heydens, William 01-23-2017 (00:00:47) 219:2 Q. Did I read that correctly? 219:3 A. You read that correctly. I 219:4 don't know why that is there, because Ian was 219:5 always going to be an author as far as -- to 219:6 my recollection. I'm not sure why that's 219:7 there.	Heydens.141

Page/Line	Source	ID
	219:8 I mean, he participated in the 219:9 review to the same degree that the other two 219:10 scientists did, so I don't know why that's 219:11 there.	clear
219:18 - 219:23	219:12 Q. Well, two months before that 219:13 you wrote an e-mail where you said you would 219:14 manage your experts as authors. 219:15 Do you remember that, sir? Heydens, William 01-23-2017 (00:00:02)	Heydens.142
	219:18 THE WITNESS: I don't remember 219:19 that. 219:20 (Heydens Exhibit 3-30 marked 219:21 for identification.) 219:22 QUESTIONS BY MR. MILLER: 219:23 Q. Let's take a look at it.	HW30.1
220:5 - 220:22	Heydens, William 01-23-2017 (00:00:51) 220:5 This is an e-mail that you 220:6 wrote in May of '99, right, sir? 220:7 A. That appears to be correct, 220:8 yes. 220:9 Q. And you wrote it to a William 220:10 Graham, also a Monsanto employee? 220:11 A. Yes, that is correct. 220:12 Q. And I just want to go over a 220:13 few points in it. Your point number 2: 220:14 "Outside scientific experts who are 220:15 influential at driving science, regulators, 220:16 public opinion, et cetera, we would have 220:17 they" -- I think you meant "the," but I'll 220:18 ask you -- "we would have the people directly 220:19 or indirectly behind the scenes work on our 220:20 behalf." 220:21 Was that part of your strategy 220:22 in May of 1999?	Heydens.143 HW30.1.1
221:1 - 221:3	Heydens, William 01-23-2017 (00:00:04) 221:1 THE WITNESS: Those words are 221:2 written there. I don't remember this 221:3 e-mail.	Heydens.144
221:5 - 221:13	Heydens, William 01-23-2017 (00:00:28) 221:5 Q. Was one of your jobs to --	Heydens.145

Page/Line	Source	ID
221:17 - 222:5	<p>221:6 quote, "Monsanto people who are responsible 221:7 for dissemination and coordination of 221:8 scientific information within and outside of 221:9 Monsanto. They will play a role in 221:10 establishing and, quote, managing 221:11 relationships with outside experts." 221:12 My question to you, sir, is: 221:13 Why did you put "managing" in quotes there?</p>	HW30.1.3
222:7 - 222:10	<p>Heydens, William 01-23-2017 (00:00:41) 221:17 THE WITNESS: So as I said just 221:18 a moment ago, I don't remember this 221:19 e-mail. As I look at it now, I would 221:20 interpret that as just meaning who has 221:21 the contact relationship. 221:22 Usually with -- quite often, 221:23 anyway, with -- different scientists 221:24 would have perhaps different key 221:25 contact points. So, for instance, if 222:1 an external scientist was a genetic 222:2 toxicologist, then we might have one 222:3 of our own genetic toxicologists be 222:4 the contact person for that. So 222:5 that's what I think I meant by that.</p>	Heydens.146
222:17 - 222:23	<p>Heydens, William 01-23-2017 (00:00:13) 222:7 Q. And number 4 you write, "As far 222:8 as how we get, quote, people to get up and 222:9 shout glyphosate is nontoxic," end quote. 222:10 Was that one of your jobs?</p>	Heydens.147 HW30.1.4
223:16 - 223:18	<p>Heydens, William 01-23-2017 (00:00:17) 222:17 THE WITNESS: No. As I stated 222:18 this morning, it really -- my job is 222:19 to make sure that the best science 222:20 gets conducted on glyphosate and the 222:21 best science using sound principles is 222:22 communicated. That's always been my 222:23 role in glyphosate. Heydens, William 01-23-2017 (00:00:11) 223:16 Q. By 2014 you knew that 223:17 glyphosate was vulnerable in the area of 223:18 epidemiology, didn't you, sir?</p>	Heydens.148
		Heydens.149

Page/Line	Source	ID
223:21 - 224:8	<p>Heydens, William 01-23-2017 (00:00:27)</p> <p>223:21 THE WITNESS: So in 2014, I was 223:22 aware that there were -- and I think 223:23 we discussed some of them this 223:24 morning. I was aware that there were 223:25 epidemiology studies out there, most 224:1 of which believed to have serious and 224:2 significant flaws. 224:3 QUESTIONS BY MR. MILLER: 224:4 Q. Epidemiology wasn't the only 224:5 area of vulnerability, right? 224:6 You were concerned about 224:7 exposure, genotox and mode of action, weren't 224:8 you?</p>	<p>Heydens.150 clear</p>
224:11 - 224:20	<p>Heydens, William 01-23-2017 (00:00:28)</p> <p>224:11 THE WITNESS: And I think we 224:12 covered some of these this morning as 224:13 well, but much like there was -- we 224:14 knew in 2014 that there were 224:15 some tox -- excuse me, epidemiology 224:16 studies that had serious problems with 224:17 them. We know that there were also 224:18 some gene tox and, I would say 224:19 loosely, mode-of-action studies that 224:20 had serious flaws with them as well.</p>	Heydens.151
224:24 - 225:2	<p>Heydens, William 01-23-2017 (00:00:08)</p> <p>224:24 Q. Let's look at Exhibit 3:31, an 224:25 e-mail produced by Monsanto in discovery 225:1 here, prepared by you. And I have a copy for 225:2 you and counsel.</p>	<p>Heydens.152 HW31.1 HW31.1.1</p>
226:8 - 226:11	<p>Heydens, William 01-23-2017 (00:00:10)</p> <p>226:8 And to put this in context, by 226:9 October of 2014, you knew that in 2015 IARC 226:10 was going to do their review of glyphosate, 226:11 true?</p>	Heydens.153
226:14 - 226:17	<p>Heydens, William 01-23-2017 (00:00:06)</p> <p>226:14 THE WITNESS: It was sometime 226:15 in the fall of 2014. I would need 226:16 documentation to know exactly when we 226:17 became aware of that.</p>	Heydens.154

Page/Line	Source	ID
226:20 - 227:6	<p>Heydens, William 01-23-2017 (00:00:34) 226:20 So here we are now in October 226:21 of 2014. You send this e-mail out to Richard 226:22 Garnett, copied Farmer and others, and the 226:23 bottom line of the call was that there really 226:24 was no meaningful publication that we can 226:25 complete prior to the February submission to 227:1 positively impact the epidemiological -- I'm 227:2 sorry, the epidemiology discussion outcome in 227:3 March. 227:4 Now, March is -- of 2015 is 227:5 when IARC met, right? 227:6 A. IARC did meet in March of 2015.</p>	Heydens.155 HW31.1.5
228:19 - 229:1	<p>Heydens, William 01-23-2017 (00:00:26) 228:19 Q. All right. Well, what we know 228:20 from looking at your e-mail is that, quote, 228:21 "And while we have vulnerability in the area 228:22 of epidemiology, we also have potential 228:23 vulnerabilities in other areas that IARC will 228:24 consider, namely, exposure, genotox and mode 228:25 of action, paren, David has the animal onco 229:1 studies under control."</p>	Heydens.156 HW31.1.6
229:7 - 229:16	<p>Heydens, William 01-23-2017 (00:00:20) 229:7 You agree, sir, that you had 229:8 vulnerabilities in the areas of epidemiology, 229:9 right? 229:10 A. I told you previously that 229:11 there was some flawed studies out there. 229:12 Q. Yes, sir. 229:13 And you agree you have 229:14 vulnerabilities in other areas that IARC will 229:15 consider. Exposure means how much the person 229:16 is exposed to the product, right?</p>	Heydens.157
229:22 - 230:5	<p>Heydens, William 01-23-2017 (00:00:18) 229:22 A. So for that one, as I look at 229:23 the sentence there, I'm naming some of the 229:24 areas that they look at. Because really for 229:25 exposure, there's really no vulnerabilities. 230:1 The exposure is what the exposure is, and 230:2 it's just a matter of documenting that.</p>	Heydens.158

Page/Line	Source	ID
230:9 - 230:12	<p>230:3 Q. And by genotox, the 230:4 vulnerability in genotox, explain to us what 230:5 genotox is.</p> <p>Heydens, William 01-23-2017 (00:00:10)</p>	Heydens.159
230:14 - 230:16	<p>230:9 THE WITNESS: Genotoxicity 230:10 refers to whether or not -- it's the 230:11 study of whether or not a chemistry 230:12 can alter or impact DNA.</p> <p>Heydens, William 01-23-2017 (00:00:05)</p>	Heydens.160
230:22 - 231:2	<p>230:14 Q. What did you mean by 230:15 exposure -- I'm sorry, vulnerability in mode 230:16 of action? What is mode of action?</p> <p>Heydens, William 01-23-2017 (00:00:21)</p> <p>230:22 A. So mode of action refers to -- 230:23 basically it's answering the question if a 230:24 chemical does produce an adverse effect. 230:25 Mode of action investigation would ask the 231:1 question: How does the chemical do that, and 231:2 is it relevant to humans.</p>	Heydens.161
232:1 - 232:23	<p>Heydens, William 01-23-2017 (00:01:00)</p> <p>232:1 THE WITNESS: So what I meant 232:2 by that is at that point in time we 232:3 had already made the decision that -- 232:4 so recall that I told you a few 232:5 minutes ago that as part of this 232:6 overall review process that we found 232:7 out -- well, we say found out. It 232:8 came up that there was other -- 232:9 several other oncogenicity studies 232:10 that had been conducted by other 232:11 registrants. 232:12 And so the task force that's 232:13 referred to here made the decision 232:14 that it would be a good idea to 232:15 publish the results of those 232:16 oncogenicity studies in the 232:17 peer-reviewed literature, complete 232:18 with individual data tables so that 232:19 other scientists could see the data 232:20 for themselves.</p>	Heydens.162

Page/Line	Source	ID
232:25 - 233:19	<p>232:21 And so David was working with 232:22 experts to make sure that that 232:23 information got published.</p> <p>Heydens, William 01-23-2017 (00:01:02)</p>	Heydens.163
	<p>232:25 Q. The next sentence you write 233:1 here, sir, is, quote, "If there is a force 233:2 working against glyphosate, there is ample 233:3 fodder to string together to help the cause, 233:4 even though it is not scientifically 233:5 justified in its purest form." 233:6 What did you mean by "ample 233:7 fodder to string together to help the cause"? 233:8 What do you mean by that? 233:9 A. Well, I've talked about -- 233:10 several times today I have talked about that 233:11 there are -- in the areas that we've talked 233:12 about, so epidemiology -- primarily 233:13 epidemiology and genotoxicity -- that there 233:14 were a number of studies out there in the 233:15 literature that were poorly conducted. And 233:16 if not put in the proper light, if not 233:17 understood how they are studies that have the 233:18 problems, someone could use that information 233:19 to try and come to a different conclusion.</p>	HW31.1.7
263:18 - 263:20	<p>Heydens, William 01-23-2017 (00:00:10)</p>	Heydens.164
263:25 - 264:16	<p>263:18 Q. Okay. Has there been a 263:19 decision to preclude the use of POEA as a 263:20 surfactant with glyphosate in Europe?</p> <p>Heydens, William 01-23-2017 (00:01:00)</p> <p>263:25 A. So I'm aware of some places in 264:1 Europe where that proposal -- and, in fact, 264:2 has taken place. What I will say is that is 264:3 due to political reasons and is not supported 264:4 by the scientific data. 264:5 In fact, the risk assessments 264:6 that have been done by the German BfR -- it 264:7 was approximately back in 2010, 2012. That 264:8 is the same organization -- or the same 264:9 regulatory agency who was the rapporteur for 264:10 glyphosate in the reevaluation. That very</p>	clear

Page/Line	Source	ID
264:11 agency evaluated tallow amine and came to the 264:12 conclusion that there's no unreasonable risk.		
264:13 (Heydens Exhibit 3-36 marked 264:14 for identification.)		
264:15 QUESTIONS BY MR. MILLER:		
264:16 Q. Let's look at Exhibit 3-36, sir.		HW36C.1
264:25 - 267:16	Heydens, William 01-23-2017 (00:03:32)	Heydens.166
264:25 we see on Exhibit 3-36 "reasons for defending 265:1 tallow amines"?		HW36C.1.5
265:2 A. It looks like my handwriting.		
265:3 Q. And this is an e-mail from you		
265:4 in the bottom of the first page of that		
265:5 document, from Bill Heydens, January 2010, to		HW36C.1.6
265:6 Richard Garnett.		
265:7 I believe he's a Monsanto		
265:8 employee in Europe?		
265:9 A. That is correct.		
265:10 Q. Yes, sir.		
265:11 A. couple of comments. This is		
265:12 you, quote, "First, there is still a strong		HW36C.1.7
265:13 sentiment in STL" --		
265:14 Is that St. Louis?		
265:15 A. That is correct.		
265:16 Q. Which is where the Monsanto		
265:17 headquarters is?		
265:18 A. That is correct.		
265:19 Q. Okay. "There is still a strong		
265:20 sentiment in St. Louis that we need to		
265:21 continue to defend tallow amines, even though		
265:22 we prepare to switch over because of their		
265:23 impending demise."		
265:24 Did I read that correctly?		
265:25 A. You did.		
266:1 Q. And what did you understand in		
266:2 2010?		
266:3 Why was there an impending		
266:4 demise of tallow amine?		
266:5 A. Well, the conversation that we		
266:6 were already hearing in our conversations		
266:7 that, as you have already said, that there --		

Page/Line

Source

ID

266:8 some of the regulatory agencies and some of
 266:9 the -- some of the politicians were starting
 266:10 to talk about enacting bans on tallow amines.
 266:11 Q. And you were responding to an
 266:12 e-mail that had come from you -- come to you
 266:13 from a Richard Garnett, the Monsanto employee
 266:14 in Europe, right, sir?

266:15 A. Yes.

266:16 Q. And he asked in his e-mail, the
 266:17 top of page 2, "Anyway, there are
 266:18 nonhazardous formulations, so why sell a
 266:19 hazardous one?"

HW36C.2.1

266:20 Do you remember him asking you
 266:21 that question?

266:22 A. I think that's more a
 266:23 rhetorical question, if you will.

266:24 Q. Back to the first page. What
 266:25 you write, sir, is that you were very
 267:1 worried -- excuse me. Let me get it right.

HW36C.1.8

267:2 "Reason to do so: Domino
 267:3 effect on ether amines, defend other world
 267:4 areas to the best of our ability. Second, I
 267:5 was in Brazil all last week - they are very
 267:6 worried about this coming across the Atlantic
 267:7 to their part of the American hemisphere."
 267:8 Those were the reasons you were
 267:9 defending tallow amines?

267:10 A. The reason why defending tallow
 267:11 amines is because I believe -- we believe
 267:12 that the science is behind tallow amines. If
 267:13 the science is behind the product, then I
 267:14 think it's -- certainly you should be making
 267:15 sure that decisions are being made about your
 267:16 material based on sound science.

clear

289:19 - 299:7

Heydens, William 01-24-2017 (00:08:53)

Heydens.167

289:19 Q. Can you tell the jury what your
 289:20 profession is, Dr. Heydens?

289:21 A. Yes. I'm a toxicologist by
 289:22 profession.

289:23 Q. And what is your current title

289:24 at Monsanto?

289:25 A. Currently I'm product safety
290:1 assessment strategy lead.

290:2 Q. And can you tell the jury what
290:3 you do in that role?

290:4 A. In that role, my job is to work
290:5 with other scientists as we get new products
290:6 that come in that would need to be tested for
290:7 safety to work on, devise the overall testing
290:8 strategy and sets of studies that we would do
290:9 to support the safety of that product.

290:10 Q. Are there standard studies or a
290:11 guide to what kind of studies need to be done
290:12 for a new product?

290:13 A. There are for some -- for the
290:14 traditional pesticides, there are a set of
290:15 guideline studies. A couple different sets
290:16 of guideline studies that we can use and we
290:17 can -- if necessary, we can adapt those for a
290:18 different product concept.

290:19 Q. Are there any required studies
290:20 that would have to be done for a new
290:21 herbicide or pesticide?

290:22 A. For new pesticides, for which
290:23 herbicide is one, yes, there's a whole set of
290:24 studies, a very comprehensive set of studies
290:25 that need to be done, all way from acutes,
291:1 subchronics, gene tox studies, reproductive
291:2 toxicity, developmental toxicity, cancer,
291:3 metabolism, just -- neurotoxicity,
291:4 everything.

291:5 Q. Who specifies what studies need
291:6 to be done?

291:7 A. Here in the United -- that's by
291:8 regulatory agency. So here in the United
291:9 States, that would be the Environmental
291:10 Protection Agency.

291:11 Q. I want to briefly review your
291:12 background.

291:13 Can you tell the jury where you

291:14 went to college?
291:15 A. For undergraduate, I went to
291:16 Grand Valley State.
291:17 Q. And what state is that in?
291:18 A. That's in the state of
291:19 Michigan.
291:20 Q. And what degree did you receive
291:21 from Grand Valley State?
291:22 A. My degree was a bachelor's
291:23 degree in biomedical sciences.
291:24 Q. Was that a bachelor of arts or
291:25 a bachelor of science?
292:1 A. A bachelor of science.
292:2 Q. Okay. And what year did you
292:3 get that degree?
292:4 A. That was 1977.
292:5 Q. And did you have any further
292:6 academic training after you graduated from
292:7 Grand Valley State?
292:8 A. Yes.
292:9 Q. What else did you do?
292:10 A. I went to the University of
292:11 Michigan, the toxicology program there, and
292:12 culminated in receiving my Ph.D. in
292:13 toxicology.
292:14 Q. And what year did you get your
292:15 Ph.D.?
292:16 A. That was 1984.
292:17 Q. Did you complete any class work
292:18 on toxicology either as part of your BS
292:19 degree or your Ph.D. degree?
292:20 A. Completed -- the Ph.D. program
292:21 the first two years was all class work, a
292:22 variety of different toxicology classes and
292:23 also other medical sciences such as
292:24 pharmacology and things of that nature.
292:25 Q. Did you write a thesis as part
293:1 of your Ph.D. program?
293:2 A. Yes, I wrote a thesis.
293:3 Q. What was your thesis on?

293:4 A. It was the effects of
293:5 thiocyanate on postnatal -- on prenatal and
293:6 postnatal development in rats.
293:7 Q. And did you actually conduct
293:8 experiments on animals as part of that Ph.D.
293:9 thesis?
293:10 A. Yes, approximately did that for
293:11 almost three years.
293:12 Q. Are there different kinds of
293:13 toxicologists?
293:14 A. Yes, there's a variety of
293:15 toxicologists. Generally there's people who
293:16 are generalists and then there are other
293:17 toxicologists who can specialize in a
293:18 particular area.
293:19 Q. Is there an area called
293:20 regulatory toxicology?
293:21 A. There is an area of regulatory
293:22 toxicology.
293:23 Q. Have you been involved in
293:24 regulatory toxicology during your employment
293:25 at Monsanto?
294:1 A. Most of my employment has been
294:2 in regulatory toxicology.
294:3 Q. What does a regulatory
294:4 toxicologist do?
294:5 A. A regulatory toxicologist is
294:6 responsible for actually making sure that
294:7 they either conduct the studies or make sure
294:8 that the studies are conducted that are
294:9 required by regulatory agencies for that
294:10 product and for the safety and safety
294:11 evaluations that need to be conducted.
294:12 Q. What did you do after you got
294:13 your Ph.D.?
294:14 A. After receiving my Ph.D., I
294:15 came to work for Monsanto.
294:16 Q. And why were you interested in
294:17 a job at Monsanto?
294:18 A. I had actually -- when I was in

294:19 graduate school between my first and second
294:20 year, there was like an internship program
294:21 where you could go to -- come to Monsanto and
294:22 work in the toxicology lab that Monsanto had
294:23 actually conducting the studies. That
294:24 sounded interesting to me so I, in fact, did
294:25 that and I went back to school to get my --
295:1 to finish out my Ph.D. and about the time
295:2 that I was finishing my Ph.D., the lab, it
295:3 was called the Environmental Health
295:4 Laboratory, had an opening, the person that
295:5 had the opening who remembered me, called me
295:6 up and said -- asked me if I wanted to come
295:7 and apply for the role of that they had open.
295:8 So I did apply and obviously I took it.
295:9 Q. And so what was your first
295:10 position when you joined Monsanto?
295:11 A. My first position, I was an
295:12 inhalation toxicologist.
295:13 Q. And where did you work in that
295:14 first position at Monsanto?
295:15 A. That was -- that was at our
295:16 toxicology lab, which was called the
295:17 Environmental Health Laboratory.
295:18 Q. And sometimes that's referred
295:19 to in documents as the EHL, correct?
295:20 A. That's correct.
295:21 Q. Okay. And where was the EHL
295:22 located?
295:23 A. EHL is located just on the
295:24 skirt -- it's in St. Louis, on the edge of
295:25 St. Louis.
296:1 Q. And what did you do as an
296:2 inhalation toxicologist at Monsanto's EHL?
296:3 A. I was responsible for -- I was
296:4 for conducting the studies in the role of
296:5 study director. And so, like I say, I was
296:6 responsible for all aspects of the study
296:7 conduct for those studies that were conducted
296:8 by the inhalation route of exposure. And

296:9 those could have been acute studies,
296:10 subchronic studies, fertility and
296:11 reproduction studies.
296:12 Q. Were you doing any studies on
296:13 glyphosate in that role?
296:14 A. I may have just conducted one
296:15 or two acute studies that would have been in
296:16 that time frame.
296:17 Q. Were there other chemicals that
296:18 you were conducting studies on in that role?
296:19 A. I conducted studies on a
296:20 variety of what are called intermediates
296:21 chemicals that are mixed together to turn
296:22 into a product. They were basically studies
296:23 that we were doing for worker safety,
296:24 questions because there's the potential -- at
296:25 least back in those days, there was the
297:1 potential for some workers to be exposed to
297:2 some of these intermediates, and so we were
297:3 investigating to see what possible health
297:4 effects there might be.
297:5 Q. How long did you work at the
297:6 EHL?
297:7 A. A little less than four years.
297:8 Q. So that would take us till
297:9 about 1987?
297:10 A. That is correct.
297:11 Q. What did you do after EHL?
297:12 A. After EHL I went to the --
297:13 what's called the product toxicology group.
297:14 That was a small group of toxicologists who
297:15 were responsible for the overall -- all the
297:16 products that were in or were coming into
297:17 Monsanto's agricultural pipeline.
297:18 Q. And how many products would you
297:19 have been assigned as a toxicologist at one
297:20 time in the products toxicology group?
297:21 A. It would vary. It could be as
297:22 few as two and possibly as many as four or
297:23 five.

297:24 Q. And was glyphosate one of the
297:25 products that you had responsibility for in
298:1 that role?

298:2 A. For a period of time, yes.

298:3 Q. And when was that time?

298:4 A. So I had responsibility for
298:5 that starting essentially in 1988 and into
298:6 1992.

298:7 Q. And at the time in 1998 when
298:8 you were first involved with glyphosate, had
298:9 glyphosate been approved in the United
298:10 States?

298:11 A. Yes, it had been.

298:12 Q. What were your main
298:13 responsibilities on glyphosate while you were
298:14 in the product toxicology group?

298:15 A. My main responsibilities would
298:16 have been to make sure that any studies that
298:17 were necessary were performed, the studies
298:18 both on glyphosate itself as well as studies
298:19 on glyphosate-containing formulations. Also
298:20 had some responsibilities for investigating
298:21 the toxicity of some surfactants and some
298:22 other related materials that were part of the
298:23 overall portfolio for Roundup.

298:24 Q. And were any studies -- so the
298:25 studies on glyphosate that you were involved
299:1 in, where were those studies done during that
299:2 time period?

299:3 A. Most of the studies were done
299:4 right there at our Environmental Health
299:5 Laboratory. Some of them might have been
299:6 done out at a contract resource agency, but
299:7 for the most part at that lab.

289:19 - 299:6

Heydens, William 01-24-2017 (00:08:51)

Heydens.168

289:19 Q. Can you tell the jury what your
289:20 profession is, Dr. Heydens?

289:21 A. Yes. I'm a toxicologist by
289:22 profession.

289:23 Q. And what is your current title

289:24 at Monsanto?

289:25 A. Currently I'm product safety
290:1 assessment strategy lead.

290:2 Q. And can you tell the jury what
290:3 you do in that role?

290:4 A. In that role, my job is to work
290:5 with other scientists as we get new products
290:6 that come in that would need to be tested for
290:7 safety to work on, devise the overall testing
290:8 strategy and sets of studies that we would do
290:9 to support the safety of that product.

290:10 Q. Are there standard studies or a
290:11 guide to what kind of studies need to be done
290:12 for a new product?

290:13 A. There are for some -- for the
290:14 traditional pesticides, there are a set of
290:15 guideline studies. A couple different sets
290:16 of guideline studies that we can use and we
290:17 can -- if necessary, we can adapt those for a
290:18 different product concept.

290:19 Q. Are there any required studies
290:20 that would have to be done for a new
290:21 herbicide or pesticide?

290:22 A. For new pesticides, for which
290:23 herbicide is one, yes, there's a whole set of
290:24 studies, a very comprehensive set of studies
290:25 that need to be done, all way from acutes,
291:1 subchronics, gene tox studies, reproductive
291:2 toxicity, developmental toxicity, cancer,
291:3 metabolism, just -- neurotoxicity,
291:4 everything.

291:5 Q. Who specifies what studies need
291:6 to be done?

291:7 A. Here in the United -- that's by
291:8 regulatory agency. So here in the United
291:9 States, that would be the Environmental
291:10 Protection Agency.

291:11 Q. I want to briefly review your
291:12 background.

291:13 Can you tell the jury where you

291:14 went to college?
291:15 A. For undergraduate, I went to
291:16 Grand Valley State.
291:17 Q. And what state is that in?
291:18 A. That's in the state of
291:19 Michigan.
291:20 Q. And what degree did you receive
291:21 from Grand Valley State?
291:22 A. My degree was a bachelor's
291:23 degree in biomedical sciences.
291:24 Q. Was that a bachelor of arts or
291:25 a bachelor of science?
292:1 A. A bachelor of science.
292:2 Q. Okay. And what year did you
292:3 get that degree?
292:4 A. That was 1977.
292:5 Q. And did you have any further
292:6 academic training after you graduated from
292:7 Grand Valley State?
292:8 A. Yes.
292:9 Q. What else did you do?
292:10 A. I went to the University of
292:11 Michigan, the toxicology program there, and
292:12 culminated in receiving my Ph.D. in
292:13 toxicology.
292:14 Q. And what year did you get your
292:15 Ph.D.?
292:16 A. That was 1984.
292:17 Q. Did you complete any class work
292:18 on toxicology either as part of your BS
292:19 degree or your Ph.D. degree?
292:20 A. Completed -- the Ph.D. program
292:21 the first two years was all class work, a
292:22 variety of different toxicology classes and
292:23 also other medical sciences such as
292:24 pharmacology and things of that nature.
292:25 Q. Did you write a thesis as part
293:1 of your Ph.D. program?
293:2 A. Yes, I wrote a thesis.
293:3 Q. What was your thesis on?

293:4 A. It was the effects of
293:5 thiocyanate on postnatal -- on prenatal and
293:6 postnatal development in rats.
293:7 Q. And did you actually conduct
293:8 experiments on animals as part of that Ph.D.
293:9 thesis?
293:10 A. Yes, approximately did that for
293:11 almost three years.
293:12 Q. Are there different kinds of
293:13 toxicologists?
293:14 A. Yes, there's a variety of
293:15 toxicologists. Generally there's people who
293:16 are generalists and then there are other
293:17 toxicologists who can specialize in a
293:18 particular area.
293:19 Q. Is there an area called
293:20 regulatory toxicology?
293:21 A. There is an area of regulatory
293:22 toxicology.
293:23 Q. Have you been involved in
293:24 regulatory toxicology during your employment
293:25 at Monsanto?
294:1 A. Most of my employment has been
294:2 in regulatory toxicology.
294:3 Q. What does a regulatory
294:4 toxicologist do?
294:5 A. A regulatory toxicologist is
294:6 responsible for actually making sure that
294:7 they either conduct the studies or make sure
294:8 that the studies are conducted that are
294:9 required by regulatory agencies for that
294:10 product and for the safety and safety
294:11 evaluations that need to be conducted.
294:12 Q. What did you do after you got
294:13 your Ph.D.?
294:14 A. After receiving my Ph.D., I
294:15 came to work for Monsanto.
294:16 Q. And why were you interested in
294:17 a job at Monsanto?
294:18 A. I had actually -- when I was in

294:19 graduate school between my first and second
294:20 year, there was like an internship program
294:21 where you could go to -- come to Monsanto and
294:22 work in the toxicology lab that Monsanto had
294:23 actually conducting the studies. That
294:24 sounded interesting to me so I, in fact, did
294:25 that and I went back to school to get my --
295:1 to finish out my Ph.D. and about the time
295:2 that I was finishing my Ph.D., the lab, it
295:3 was called the Environmental Health
295:4 Laboratory, had an opening, the person that
295:5 had the opening who remembered me, called me
295:6 up and said -- asked me if I wanted to come
295:7 and apply for the role of that they had open.
295:8 So I did apply and obviously I took it.
295:9 Q. And so what was your first
295:10 position when you joined Monsanto?
295:11 A. My first position, I was an
295:12 inhalation toxicologist.
295:13 Q. And where did you work in that
295:14 first position at Monsanto?
295:15 A. That was -- that was at our
295:16 toxicology lab, which was called the
295:17 Environmental Health Laboratory.
295:18 Q. And sometimes that's referred
295:19 to in documents as the EHL, correct?
295:20 A. That's correct.
295:21 Q. Okay. And where was the EHL
295:22 located?
295:23 A. EHL is located just on the
295:24 skirt -- it's in St. Louis, on the edge of
295:25 St. Louis.
296:1 Q. And what did you do as an
296:2 inhalation toxicologist at Monsanto's EHL?
296:3 A. I was responsible for -- I was
296:4 for conducting the studies in the role of
296:5 study director. And so, like I say, I was
296:6 responsible for all aspects of the study
296:7 conduct for those studies that were conducted
296:8 by the inhalation route of exposure. And

296:9 those could have been acute studies,
296:10 subchronic studies, fertility and
296:11 reproduction studies.
296:12 Q. Were you doing any studies on
296:13 glyphosate in that role?
296:14 A. I may have just conducted one
296:15 or two acute studies that would have been in
296:16 that time frame.
296:17 Q. Were there other chemicals that
296:18 you were conducting studies on in that role?
296:19 A. I conducted studies on a
296:20 variety of what are called intermediates
296:21 chemicals that are mixed together to turn
296:22 into a product. They were basically studies
296:23 that we were doing for worker safety,
296:24 questions because there's the potential -- at
296:25 least back in those days, there was the
297:1 potential for some workers to be exposed to
297:2 some of these intermediates, and so we were
297:3 investigating to see what possible health
297:4 effects there might be.
297:5 Q. How long did you work at the
297:6 EHL?
297:7 A. A little less than four years.
297:8 Q. So that would take us till
297:9 about 1987?
297:10 A. That is correct.
297:11 Q. What did you do after EHL?
297:12 A. After EHL I went to the --
297:13 what's called the product toxicology group.
297:14 That was a small group of toxicologists who
297:15 were responsible for the overall -- all the
297:16 products that were in or were coming into
297:17 Monsanto's agricultural pipeline.
297:18 Q. And how many products would you
297:19 have been assigned as a toxicologist at one
297:20 time in the products toxicology group?
297:21 A. It would vary. It could be as
297:22 few as two and possibly as many as four or
297:23 five.

297:24 Q. And was glyphosate one of the
297:25 products that you had responsibility for in
298:1 that role?

298:2 A. For a period of time, yes.

298:3 Q. And when was that time?

298:4 A. So I had responsibility for
298:5 that starting essentially in 1988 and into
298:6 1992.

298:7 Q. And at the time in 1998 when
298:8 you were first involved with glyphosate, had
298:9 glyphosate been approved in the United
298:10 States?

298:11 A. Yes, it had been.

298:12 Q. What were your main
298:13 responsibilities on glyphosate while you were
298:14 in the product toxicology group?

298:15 A. My main responsibilities would
298:16 have been to make sure that any studies that
298:17 were necessary were performed, the studies
298:18 both on glyphosate itself as well as studies
298:19 on glyphosate-containing formulations. Also
298:20 had some responsibilities for investigating
298:21 the toxicity of some surfactants and some
298:22 other related materials that were part of the
298:23 overall portfolio for Roundup.

298:24 Q. And were any studies -- so the
298:25 studies on glyphosate that you were involved
299:1 in, where were those studies done during that
299:2 time period?

299:3 A. Most of the studies were done
299:4 right there at our Environmental Health
299:5 Laboratory. Some of them might have been
299:6 done out at a contract resource agency, but

300:9 - 301:23

Heydens, William 01-24-2017 (00:01:41)

Heydens.169

300:9 Q. And then during -- and then did
300:10 you become the director of the toxicology
300:11 group at some point?

300:12 A. Yes. That happened in 1999.

300:13 Q. And then what were your
300:14 responsibilities as director of the

300:15 toxicology group?
 300:16 A. As director of the toxicology
 300:17 group, as a combination you both have -- you
 300:18 have responsibilities that go just with
 300:19 management of all the people that are in the
 300:20 group, and then also you have scientific
 300:21 oversight responsibilities for the work that
 300:22 those toxicologists are doing.
 300:23 Q. And in 1999 when you became
 300:24 director of the toxicology group, was there a
 300:25 person handling the glyphosate products?
 301:1 A. Yes, there was.
 301:2 Q. Who was that?
 301:3 A. At the time that I took that
 301:4 over, that would have been Donna Farmer.
 301:5 Q. How much work did you do with
 301:6 glyphosate as the director of the toxicology
 301:7 group?
 301:8 A. Very, very little for that
 301:9 period of time. Because the other thing that
 301:10 was happening shortly after I became the
 301:11 director of the toxicology group, I also
 301:12 became the co-lead for what was -- what
 301:13 Monsanto called the product safety center.
 301:14 And the product safety center was responsible
 301:15 for -- that was the group where the group of
 301:16 scientists was housed who were responsible
 301:17 for demonstrating the safety of Monsanto's
 301:18 biotechnology portfolio. And that's a
 301:19 portfolio that in the early 2000s was growing
 301:20 rather significantly, and so I found myself
 301:21 spending more and more time working in those
 301:22 areas and less on the traditional chemicals
 301:23 like glyphosate.

300:9 - 301:23

Heydens, William 01-24-2017 (00:01:41)

Heydens.170

300:9 Q. And then during -- and then did
 300:10 you become the director of the toxicology
 300:11 group at some point?
 300:12 A. Yes. That happened in 1999.
 300:13 Q. And then what were your

300:14 responsibilities as director of the
 300:15 toxicology group?
 300:16 A. As director of the toxicology
 300:17 group, as a combination you both have -- you
 300:18 have responsibilities that go just with
 300:19 management of all the people that are in the
 300:20 group, and then also you have scientific
 300:21 oversight responsibilities for the work that
 300:22 those toxicologists are doing.
 300:23 Q. And in 1999 when you became
 300:24 director of the toxicology group, was there a
 300:25 person handling the glyphosate products?
 301:1 A. Yes, there was.
 301:2 Q. Who was that?
 301:3 A. At the time that I took that
 301:4 over, that would have been Donna Farmer.
 301:5 Q. How much work did you do with
 301:6 glyphosate as the director of the toxicology
 301:7 group?
 301:8 A. Very, very little for that
 301:9 period of time. Because the other thing that
 301:10 was happening shortly after I became the
 301:11 director of the toxicology group, I also
 301:12 became the co-lead for what was -- what
 301:13 Monsanto called the product safety center.
 301:14 And the product safety center was responsible
 301:15 for -- that was the group where the group of
 301:16 scientists was housed who were responsible
 301:17 for demonstrating the safety of Monsanto's
 301:18 biotechnology portfolio. And that's a
 301:19 portfolio that in the early 2000s was growing
 301:20 rather significantly, and so I found myself
 301:21 spending more and more time working in those
 301:22 areas and less on the traditional chemicals
 301:23 like glyphosate.

304:1 - 309:4

Heydens, William 01-24-2017 (00:05:27)

Heydens.171

304:1 Q. Going back to 1998 when you
 304:2 first joined -- well, soon after you joined
 304:3 the company, did you ever become responsible
 304:4 for regulatory submissions to the EPA on

304:5 glyphosate, any submissions at all, or
304:6 studies?
304:7 A. Myself directly?
304:8 Q. Yeah.
304:9 A. I did not make submissions, per
304:10 se.
304:11 Q. All right. Were you
304:12 responsible for any studies that would have
304:13 been submitted to the EPA in support of a
304:14 registration decision?
304:15 A. Yes. There were two studies.
304:16 There was a rat reproduction study, and then
304:17 there was a two-year rat study.
304:18 Q. And that two-year rat study, is
304:19 that sometimes referred to as a rat
304:20 carcinogenicity study?
304:21 A. Yes.
304:22 Q. Okay. And do you know when
304:23 that study was completed?
304:24 A. That study was completed
304:25 approximately 1990.
305:1 Q. Okay. And have you ever heard
305:2 of the phrase "bioassay"?
305:3 A. Yes.
305:4 Q. What does that word refer to?
305:5 A. That's synonymous. It's the
305:6 same as a carcinogenicity study, the way we
305:7 use it.
305:8 Q. And what role did you have in
305:9 that 1990 rat carcinogenicity study?
305:10 A. I joined the group shortly
305:11 after that study began, so I -- at that point
305:12 in time I became what was called the study
305:13 monitor for that study.
305:14 Q. And can you explain what a
305:15 study monitor does?
305:16 A. Yes.
305:17 So a study monitor is
305:18 responsible -- and this is starting at the
305:19 beginning. The study monitor is responsible

305:20 for placing the study, where it's going to
305:21 go; working with the laboratory personnel to
305:22 make sure that an appropriate protocol is put
305:23 in place; and then once the study actually
305:24 starts, just monitor as the name implies,
305:25 data that comes in over the course of the
306:1 study; and then at the end of the study,
306:2 there would be reviewing of the report that
306:3 comes out of that, making sure that it's --
306:4 you know, for clarity and things of that
306:5 nature; and then using those reports in any
306:6 safety assessments that may need to be done.
306:7 Q. Can you explain to the jury
306:8 what the purposes of a rat carcinogenicity
306:9 study are?
306:10 A. The primary purpose is to see
306:11 if the chemical has the ability to produce
306:12 tumors in the laboratory animals.
306:13 A. secondary purpose is just to
306:14 explore any potential toxicity that you might
306:15 observe after the animals have been exposed
306:16 throughout their lifetime.
306:17 Q. And what does the word
306:18 "carcinogenicity" mean in layman's terms?
306:19 A. It means the ability or the
306:20 possibility of causing cancer.
306:21 Q. And you just said that one of
306:22 the goals is to look for tumors.
306:23 How does that relate to
306:24 carcinogenicity?
306:25 A. Well, if that -- that is the
307:1 major end point of that study is to look to
307:2 see -- in a variety of tissues and organs to
307:3 see if any tumors were produced by the
307:4 chemical or not.
307:5 Q. Why are rodents used in these
307:6 studies?
307:7 A. Rodents are used because
307:8 they're a good, practical species in that
307:9 they're relatively small and they have

307:10 relatively manageable lifespans. So for
307:11 rats, their lifespan is approximately two
307:12 years. For mice, their lifespan is
307:13 approximately 18 months.
307:14 So -- and because of their
307:15 size, so what it enables you to do in those
307:16 assays is you can have a relatively large
307:17 number of animals that you study over a
307:18 manageable period of time.
307:19 Q. Have the results from rodent
307:20 studies been found to be useful in evaluating
307:21 health effects for humans?
307:22 A. Yes, they are the standard
307:23 model, and it's the standard studies that all
307:24 regulatory agencies globally ask for to
307:25 register lots of chemicals, but specifically
308:1 here pesticides and herbicides as well.
308:2 Q. In evaluating whether there's
308:3 tumors present, is there any evaluation of
308:4 the tissues of the animal?
308:5 A. Yes.
308:6 Q. And is there a specialty in
308:7 science that is related to tissue evaluation?
308:8 A. That would be pathology. So
308:9 those determinations are made by board
308:10 certified pathologists.
308:11 Q. And what is a pathologist
308:12 looking at?
308:13 A. A pathologist is looking at
308:14 actually -- that is the individual who looks
308:15 at all the organs and tissues that come from
308:16 all of those studies. And they will look at
308:17 them both grossly, so that would be visually
308:18 looking at the organs, and then also in a
308:19 histopathological examination, which is where
308:20 tissues are taken, they're sliced up, put
308:21 onto microscopic slides and then the
308:22 pathologist then will examine them through
308:23 the microscope.
308:24 Q. How many organs or tissues does

308:25 a pathologist examine as part of an EPA
309:1 regulatory rat study?
309:2 A. In those bioassays, typically
309:3 40 to 45 different tissues and organs are
309:4 examined.

304:1 - 309:4

Heydens, William 01-24-2017 (00:05:27)

Heydens.172

304:1 Q. Going back to 1998 when you
304:2 first joined -- well, soon after you joined
304:3 the company, did you ever become responsible
304:4 for regulatory submissions to the EPA on
304:5 glyphosate, any submissions at all, or
304:6 studies?
304:7 A. Myself directly?
304:8 Q. Yeah.
304:9 A. I did not make submissions, per
304:10 se.
304:11 Q. All right. Were you
304:12 responsible for any studies that would have
304:13 been submitted to the EPA in support of a
304:14 registration decision?
304:15 A. Yes. There were two studies.
304:16 There was a rat reproduction study, and then
304:17 there was a two-year rat study.
304:18 Q. And that two-year rat study, is
304:19 that sometimes referred to as a rat
304:20 carcinogenicity study?
304:21 A. Yes.
304:22 Q. Okay. And do you know when
304:23 that study was completed?
304:24 A. That study was completed
304:25 approximately 1990.
305:1 Q. Okay. And have you ever heard
305:2 of the phrase "bioassay"?
305:3 A. Yes.
305:4 Q. What does that word refer to?
305:5 A. That's synonymous. It's the
305:6 same as a carcinogenicity study, the way we
305:7 use it.
305:8 Q. And what role did you have in
305:9 that 1990 rat carcinogenicity study?

305:10 A. I joined the group shortly
305:11 after that study began, so I -- at that point
305:12 in time I became what was called the study
305:13 monitor for that study.
305:14 Q. And can you explain what a
305:15 study monitor does?
305:16 A. Yes.
305:17 So a study monitor is
305:18 responsible -- and this is starting at the
305:19 beginning. The study monitor is responsible
305:20 for placing the study, where it's going to
305:21 go; working with the laboratory personnel to
305:22 make sure that an appropriate protocol is put
305:23 in place; and then once the study actually
305:24 starts, just monitor as the name implies,
305:25 data that comes in over the course of the
306:1 study; and then at the end of the study,
306:2 there would be reviewing of the report that
306:3 comes out of that, making sure that it's --
306:4 you know, for clarity and things of that
306:5 nature; and then using those reports in any
306:6 safety assessments that may need to be done.
306:7 Q. Can you explain to the jury
306:8 what the purposes of a rat carcinogenicity
306:9 study are?
306:10 A. The primary purpose is to see
306:11 if the chemical has the ability to produce
306:12 tumors in the laboratory animals.
306:13 A. secondary purpose is just to
306:14 explore any potential toxicity that you might
306:15 observe after the animals have been exposed
306:16 throughout their lifetime.
306:17 Q. And what does the word
306:18 "carcinogenicity" mean in layman's terms?
306:19 A. It means the ability or the
306:20 possibility of causing cancer.
306:21 Q. And you just said that one of
306:22 the goals is to look for tumors.
306:23 How does that relate to
306:24 carcinogenicity?

306:25 A. Well, if that -- that is the
307:1 major end point of that study is to look to
307:2 see -- in a variety of tissues and organs to
307:3 see if any tumors were produced by the
307:4 chemical or not.
307:5 Q. Why are rodents used in these
307:6 studies?
307:7 A. Rodents are used because
307:8 they're a good, practical species in that
307:9 they're relatively small and they have
307:10 relatively manageable lifespans. So for
307:11 rats, their lifespan is approximately two
307:12 years. For mice, their lifespan is
307:13 approximately 18 months.
307:14 So -- and because of their
307:15 size, so what it enables you to do in those
307:16 assays is you can have a relatively large
307:17 number of animals that you study over a
307:18 manageable period of time.
307:19 Q. Have the results from rodent
307:20 studies been found to be useful in evaluating
307:21 health effects for humans?
307:22 A. Yes, they are the standard
307:23 model, and it's the standard studies that all
307:24 regulatory agencies globally ask for to
307:25 register lots of chemicals, but specifically
308:1 here pesticides and herbicides as well.
308:2 Q. In evaluating whether there's
308:3 tumors present, is there any evaluation of
308:4 the tissues of the animal?
308:5 A. Yes.
308:6 Q. And is there a specialty in
308:7 science that is related to tissue evaluation?
308:8 A. That would be pathology. So
308:9 those determinations are made by board
308:10 certified pathologists.
308:11 Q. And what is a pathologist
308:12 looking at?
308:13 A. A pathologist is looking at
308:14 actually -- that is the individual who looks

Page/Line

Source

ID

308:15 at all the organs and tissues that come from
 308:16 all of those studies. And they will look at
 308:17 them both grossly, so that would be visually
 308:18 looking at the organs, and then also in a
 308:19 histopathological examination, which is where
 308:20 tissues are taken, they're sliced up, put
 308:21 onto microscopic slides and then the
 308:22 pathologist then will examine them through
 308:23 the microscope.

308:24 Q. How many organs or tissues does
 308:25 a pathologist examine as part of an EPA
 309:1 regulatory rat study?

309:2 A. In those bioassays, typically
 309:3 40 to 45 different tissues and organs are
 309:4 examined.

322:10 - 323:7

Heydens, William 01-24-2017 (00:00:49)

Heydens.173

322:10 Q. And you might want to write
 322:11 3-41 on that because it's possible that I may
 322:12 come back to that in later questions, so I
 322:13 want you to be able to find it.

322:14 A. 3-41?

322:15 Q. 3-41, yes.

322:16 A. Oh, sorry.

322:17 Q. Have you seen this document
 322:18 before?

322:19 A. Yes, I have.

322:20 Q. Can you tell the jury what this
 322:21 document is?

322:22 A. This is EPA's re-registration
 322:23 eligibility decision document, otherwise
 322:24 known as the RED. It is the document that
 322:25 EPA documents the conclusions of the agency
 323:1 after they have gone through the
 323:2 re-registration process.

323:3 Q. And as part of the
 323:4 re-registration eligibility decision for
 323:5 glyphosate, did EPA conduct a human health
 323:6 risk assessment?

323:7 A. Yes, they did.

322:10 - 323:7

Heydens, William 01-24-2017 (00:00:46)

Heydens.174

Page/Line	Source	ID
322:10	Q. And you might want to write	
322:11	3-41 on that because it's possible that I may	4939.2
322:12	come back to that in later questions, so I	
322:13	want you to be able to find it.	
322:14	A. 3-41?	
322:15	Q. 3-41, yes.	
322:16	A. Oh, sorry.	
322:17	Q. Have you seen this document	
322:18	before?	
322:19	A. Yes, I have.	
322:20	Q. Can you tell the jury what this	
322:21	document is?	
322:22	A. This is EPA's re-registration	4939.2.1
322:23	eligibility decision document, otherwise	
322:24	known as the RED. It is the document that	
322:25	EPA documents the conclusions of the agency	
323:1	after they have gone through the	
323:2	re-registration process.	
323:3	Q. And as part of the	
323:4	re-registration eligibility decision for	
323:5	glyphosate, did EPA conduct a human health	
323:6	risk assessment?	
323:7	A. Yes, they did.	
323:19 - 323:22	Heydens, William 01-24-2017 (00:00:07)	Heydens.175
323:19	Q. Was a human health risk	clear
323:20	assessment conducted for glyphosate as part	
323:21	of the RED decision-making process?	
323:22	A. Yes, it was.	
323:19 - 323:22	Heydens, William 01-24-2017 (00:00:07)	Heydens.176
323:19	Q. Was a human health risk	
323:20	assessment conducted for glyphosate as part	
323:21	of the RED decision-making process?	
323:22	A. Yes, it was.	
329:15 - 330:24	Heydens, William 01-24-2017 (00:01:16)	Heydens.177
329:15	Q. Has the EPA evaluated the	
329:16	carcinogenic potential of glyphosate since	
329:17	the 1993 registration eligibility decision?	
329:18	A. Yes, they have.	
329:19	Q. Do you know when the first time	
329:20	they did that since then was?	

329:21 A. Well, they've actually done it
 329:22 a number of times.
 329:23 (Heydens Exhibit 3-42 marked
 329:24 for identification.)
 329:25
 330:1 QUESTIONS BY MR. JOHNSTON:
 330:2 Q. Okay. Let me mark as
 330:3 Exhibit 3-42 and ask if you've seen
 330:4 Exhibit 3-42 before?
 330:5 A. Yes, I have.
 330:6 Q. Can you tell the jury what
 330:7 Exhibit 3-42 is?
 330:8 A. Yes. This is the report that
 330:9 comes from the Environmental Protection
 330:10 Agency and specifically here from their
 330:11 Cancer Assessment Review Committee. That is
 330:12 the committee that -- EPA has a committee of
 330:13 scientists who review chemicals to determine
 330:14 the oncogenic potential of the different
 330:15 chemicals that they evaluate.
 330:16 Q. And this is their report, the
 330:17 subject of which is Glyphosate Report of the
 330:18 Cancer Assessment Review Committee; is that
 330:19 correct?
 330:20 A. Yes, this is their report on
 330:21 glyphosate.
 330:22 Q. And that was dated October 1,
 330:23 2015; is that correct?
 330:24 A. That's correct.

329:15 - 330:24

Heydens, William 01-24-2017 (00:01:16)

Heydens.178

329:15 Q. Has the EPA evaluated the
 329:16 carcinogenic potential of glyphosate since
 329:17 the 1993 registration eligibility decision?
 329:18 A. Yes, they have.
 329:19 Q. Do you know when the first time
 329:20 they did that since then was?
 329:21 A. Well, they've actually done it
 329:22 a number of times.
 329:23 (Heydens Exhibit 3-42 marked
 329:24 for identification.)

Page/Line	Source	ID
	329:25	
	330:1 QUESTIONS BY MR. JOHNSTON:	
	330:2 Q. Okay. Let me mark as	
	330:3 Exhibit 3-42 and ask if you've seen	
	330:4 Exhibit 3-42 before?	
	330:5 A. Yes, I have.	
	330:6 Q. Can you tell the jury what	
	330:7 Exhibit 3-42 is?	
	330:8 A. Yes. This is the report that	
	330:9 comes from the Environmental Protection	
	330:10 Agency and specifically here from their	
	330:11 Cancer Assessment Review Committee. That is	
	330:12 the committee that -- EPA has a committee of	
	330:13 scientists who review chemicals to determine	
	330:14 the oncogenic potential of the different	
	330:15 chemicals that they evaluate.	
	330:16 Q. And this is their report, the	
	330:17 subject of which is Glyphosate Report of the	
	330:18 Cancer Assessment Review Committee; is that	
	330:19 correct?	
	330:20 A. Yes, this is their report on	
	330:21 glyphosate.	
	330:22 Q. And that was dated October 1,	
	330:23 2015; is that correct?	
	330:24 A. That's correct.	
332:13 - 332:16	Heydens, William 01-24-2017 (00:00:08)	Heydens.179
	332:13 Q. Where would those additional --	
	332:14 were -- those additional rodent	
	332:15 carcinogenicity studies mentioned, were those	
	332:16 Monsanto studies?	
332:13 - 332:16	Heydens, William 01-24-2017 (00:00:09)	Heydens.180
	332:13 Q. Where would those additional --	
	332:14 were -- those additional rodent	
	332:15 carcinogenicity studies mentioned, were those	
	332:16 Monsanto studies?	
332:22 - 332:25	Heydens, William 01-24-2017 (00:00:09)	Heydens.181
	332:22 And so these	
	332:23 additional studies that were done after	
	332:24 Monsanto's studies were the studies that are	
	332:25 referenced here.	

Page/Line	Source	ID
332:22 - 332:25	Heydens, William 01-24-2017 (00:00:06) 332:22 And so these 332:23 additional studies that were done after 332:24 Monsanto's studies were the studies that are 332:25 referenced here.	Heydens.182
334:5 - 334:9	Heydens, William 01-24-2017 (00:00:10) 334:5 Q. Where did the other eight 334:6 studies come from? 334:7 A. The other studies came from the 334:8 other registrants who had conducted their own 334:9 chronic studies.	Heydens.183
334:5 - 334:9	Heydens, William 01-24-2017 (00:00:10) 334:5 Q. Where did the other eight 334:6 studies come from? 334:7 A. The other studies came from the 334:8 other registrants who had conducted their own 334:9 chronic studies.	Heydens.184
335:11 - 335:24	Heydens, William 01-24-2017 (00:00:38) 335:11 Q. Let's look on page 10 and take 335:12 a look at the conclusion. 335:13 You see this paragraph right 335:14 before the bullet points on page 10? 335:15 A. Yes. 335:16 Q. Can you read that for the jury? 335:17 A. "In accordance with the 2005 335:18 guidelines for carcinogen risk assessment, 335:19 based on the weight of evidence, glyphosate 335:20 is classified as, in quotation marks, 'not 335:21 likely to be carcinogenic to humans.' 335:22 Q. Let's stop there. Do you agree 335:23 with that conclusion? 335:24 A. Yes, I do.	Heydens.185
335:11 - 335:15	Heydens, William 01-24-2017 (00:00:13) 335:11 Q. Let's look on page 10 and take 335:12 a look at the conclusion. 335:13 You see this paragraph right 335:14 before the bullet points on page 10? 335:15 A. Yes.	Heydens.186
335:22 - 335:24	Heydens, William 01-24-2017 (00:00:02) 335:22 Q. Do you agree	Heydens.187

Page/Line	Source	ID
	335:23 with that conclusion?	
	335:24 A. Yes, I do.	
335:25 - 337:4	Heydens, William 01-24-2017 (00:01:11)	Heydens.188
	335:25 Q. Since the CARC report in 2015,	
	336:1 has EPA issued any additional conclusions	
	336:2 about the carcinogenicity of glyphosate?	
	336:3 A. Yes, they have.	
	336:4 Q. When did that occur?	
	336:5 A. 2016.	
	336:6 Q. And what agency -- what group	clear
	336:7 within the EPA issued those findings?	
	336:8 A. It's the overall HED OPP group.	
	336:9 Q. What does OPP stand for?	
	336:10 A. Office of Pesticide Programs.	
	336:11 (Heydens Exhibit 3-43 marked	
	336:12 for identification.)	
	336:13 QUESTIONS BY MR. JOHNSTON:	
	336:14 Q. I hand you what's been marked	
	336:15 as Exhibit 3-43, and I'll ask you if you can	2112.1.1
	336:16 tell the jury what this document is.	
	336:17 A. This is a glyphosate issue	2112.1.2
	336:18 paper that EPA put together, their next	
	336:19 comprehensive assessment that they did to get	
	336:20 ready for the next review of glyphosate that	
	336:21 they were going to do.	
	336:22 Q. And what date did the Office of	
	336:23 Pesticide Programs issue this report?	2112.1.3
	336:24 A. This report is dated	
	336:25 September 12, 2016.	
	337:1 Q. And have you reviewed this	
	337:2 evaluation?	
	337:3 A. Yes, I have.	
	337:4 Q. If you turn to page 13, can you	2112.13.1
336:14 - 337:3	Heydens, William 01-24-2017 (00:00:39)	Heydens.189
	336:14 Q. I hand you what's been marked	
	336:15 as Exhibit 3-43, and I'll ask you if you can	
	336:16 tell the jury what this document is.	
	336:17 A. This is a glyphosate issue	
	336:18 paper that EPA put together, their next	
	336:19 comprehensive assessment that they did to get	

Page/Line

Source

ID

336:20 ready for the next review of glyphosate that
336:21 they were going to do.

336:22 Q. And what date did the Office of
336:23 Pesticide Programs issue this report?

336:24 A. This report is dated
336:25 September 12, 2016.

337:1 Q. And have you reviewed this
337:2 evaluation?

337:3 A. Yes, I have.

337:4 - 337:4

Heydens, William 01-24-2017 (00:00:02)

Heydens.190

337:4 Q. If you turn to page 13, can you

337:4 - 338:13

Heydens, William 01-24-2017 (00:01:39)

Heydens.191

337:4 Q. If you turn to page 13, can you
337:5 read the highlighted paragraph that I'm
337:6 showing there --

337:7 A. Yes.

337:8 Q. -- to the jury, please?

337:9 A. "The recent peer review
337:10 performed by CARC served as an initial
337:11 analysis to update the data evaluation for
337:12 glyphosate at that time. Based on an
337:13 evaluation of the studies included in the
337:14 recent analysis by IARC, JMPR and EFSA, the
337:15 agency then became aware of additional
337:16 relevant studies not available to EPA. As a
337:17 result, EPA also requested information from
337:18 registrants about studies that existed but
337:19 had never been submitted to the agency. The
337:20 current evaluation incorporates these
337:21 additional studies. In addition, the agency
337:22 conducted a systematic review of the open
337:23 literature and toxicological databases for
337:24 glyphosate by using a draft, in quotation
337:25 marks, 'framework for incorporating human
338:1 epidemiologic and incident data in health
338:2 risk assessment.' As a result, the current
338:3 evaluation also provides a more thorough
338:4 evaluation than the 2015 CARC review."

338:5 Q. Based on that paragraph, is it
338:6 your understanding -- what is your

338:7 understanding with regard to whether the EPA
 338:8 looked at literature reports regarding
 338:9 glyphosate?
 338:10 A. My conclusion is they -- as
 338:11 they say there, they did a systematic review
 338:12 of all the open literature that they could
 338:13 find that was relevant.

337:5 - 339:3

Heydens, William 01-24-2017 (00:02:12)

Heydens.192

337:5 read the highlighted paragraph that I'm
 337:6 showing there --
 337:7 A. Yes.
 337:8 Q. -- to the jury, please?
 337:9 A. "The recent peer review
 337:10 performed by CARC served as an initial
 337:11 analysis to update the data evaluation for
 337:12 glyphosate at that time. Based on an
 337:13 evaluation of the studies included in the
 337:14 recent analysis by IARC, JMPR and EFSA, the
 337:15 agency then became aware of additional
 337:16 relevant studies not available to EPA. As a
 337:17 result, EPA also requested information from
 337:18 registrants about studies that existed but
 337:19 had never been submitted to the agency. The
 337:20 current evaluation incorporates these
 337:21 additional studies. In addition, the agency
 337:22 conducted a systematic review of the open
 337:23 literature and toxicological databases for
 337:24 glyphosate by using a draft, in quotation
 337:25 marks, 'framework for incorporating human
 338:1 epidemiologic and incident data in health
 338:2 risk assessment.' As a result, the current
 338:3 evaluation also provides a more thorough
 338:4 evaluation than the 2015 CARC review."
 338:5 Q. Based on that paragraph, is it
 338:6 your understanding -- what is your
 338:7 understanding with regard to whether the EPA
 338:8 looked at literature reports regarding
 338:9 glyphosate?
 338:10 A. My conclusion is they -- as
 338:11 they say there, they did a systematic review

2112.13.2

Page/Line

Source

ID

338:12 of all the open literature that they could
338:13 find that was relevant.

338:14 Q. And what is your conclusion

clear

338:15 regarding what studies -- compared to what

338:16 CARC reviewed, what studies the OPP reviewed

338:17 in 2016?

338:18 A. My conclusion is that they

338:19 pulled in some additional chronic studies

338:20 that they had not seen before.

338:21 Q. Do you agree with the OPP

338:22 conclusion that its evaluation in 2016 was

338:23 more thorough than the 2015 CARC review?

338:24 A. Yes, I do.

338:25 Q. And the 2015 CARC review had

339:1 concluded that glyphosate was not likely to

339:2 be carcinogenic to humans, correct?

339:3 A. That is correct.

339:6 - 340:24

Heydens, William 01-24-2017 (00:01:38)

Heydens.193

339:6 Q. Just a couple of questions

339:7 here.

339:8 What is -- there's a couple of

339:9 some names here. JPMR [sic], can you tell

2112.13.2

339:10 the jury what that is?

339:11 A. JMPR, that stands for Joint

339:12 Meeting on Pesticide Residues.

339:13 That represents an

339:14 organization, joint organization, within the

339:15 World Health Organization and Food and

339:16 Agricultural Organization. That is a group

339:17 that is responsible for evaluating the

339:18 potential effects of pesticides, an

339:19 additional group. It's based out of Europe.

339:20 And they do thorough reviews when asked on a

339:21 periodic basis. Much like the review that

339:22 EPA did, they would do a review as well.

339:23 Q. Have they reached any recent

339:24 conclusions regarding the carcinogenicity of

339:25 glyphosate?

340:1 A. Yes, they did.

340:2 Q. When did that occur?

Page/Line

Source

ID

340:3 A. That occurred just this past
340:4 year as well, 2016.

340:5 Q. Okay. And what was their
340:6 conclusion?

340:7 A. Their conclusion was
340:8 essentially the same as EPA's.

340:9 Q. And what is the EFSA?

2112.13.3

340:10 A. EFSA is the European Food
340:11 Safety Authority. That is the safety
340:12 agent -- main safety agency of the European
340:13 Union.

340:14 Q. Have they considered recently
340:15 the carcinogenic potential of glyphosate?

clear

340:16 A. Yes. They have -- they have
340:17 done that conclusion actually twice in the
340:18 last year or so.

340:19 Q. And what did they conclude
340:20 about the carcinogenic potential for
340:21 glyphosate?

340:22 A. Like EPA and like JMPR, they
340:23 did not believe that glyphosate posed a
340:24 carcinogenic risk.

339:6 - 339:22

Heydens, William 01-24-2017 (00:00:44)

Heydens.194

339:6 Q. Just a couple of questions
339:7 here.

339:8 What is -- there's a couple of
339:9 some names here. JPMR [sic], can you tell
339:10 the jury what that is?

339:11 A. JMPR, that stands for Joint
339:12 Meeting on Pesticide Residues.

339:13 That represents an
339:14 organization, joint organization, within the
339:15 World Health Organization and Food and
339:16 Agricultural Organization. That is a group
339:17 that is responsible for evaluating the
339:18 potential effects of pesticides, an
339:19 additional group. It's based out of Europe.
339:20 And they do thorough reviews when asked on a
339:21 periodic basis. Much like the review that
339:22 EPA did, they would do a review as well.

Page/Line	Source	ID
340:25 - 341:4	<p>Heydens, William 01-24-2017 (00:00:19) 340:25 Q. Let's look at what the OPP had 341:1 to say about this in 2016. If you'll turn to 341:2 page 131 of this document, and can you read 341:3 for the jury the highlighted sentence there? 341:4 A. Yes.</p>	Heydens.195
347:16 - 347:22	<p>Heydens, William 01-24-2017 (00:00:23) 347:16 Q. Did EPA's OPP evaluate the 347:17 epidemiological data regarding the alleged 347:18 association between Roundup exposure and NHL 347:19 in its 2016 evaluation of glyphosate? 347:20 A. Yes, they did. 347:21 Q. All right. Let's look at 347:22 Exhibit 3-43 and have you turn to page 140.</p>	Heydens.196
347:16 - 348:20	<p>Heydens, William 01-24-2017 (00:01:35) 347:16 Q. Did EPA's OPP evaluate the 347:17 epidemiological data regarding the alleged 347:18 association between Roundup exposure and NHL 347:19 in its 2016 evaluation of glyphosate? 347:20 A. Yes, they did. 347:21 Q. All right. Let's look at 347:22 Exhibit 3-43 and have you turn to page 140. 347:23 A. 140? 347:24 Q. 140 of 227. 347:25 And this is in the section 348:1 titled "The Proposed Conclusions Regarding 348:2 the Carcinogenic Potential of Glyphosate," 348:3 correct? 348:4 A. That is correct. 348:5 Q. Okay. Can you read this 348:6 highlighted language for the jury, please? 348:7 A. "An extensive database exists 348:8 for evaluating the carcinogenic potential of 348:9 glyphosate, including 23 epidemiological 348:10 studies, 15 animal carcinogenicity studies, 348:11 and nearly 90 genotoxicity studies for the 348:12 active ingredient glyphosate. These studies 348:13 were evaluated for quality and results were 348:14 analyzed across studies within each line of 348:15 evidence."</p>	2112.140 Heydens.197

Page/Line	Source	ID
347:23 - 347:24	<p>348:16 Q. Okay. And then let's look on 348:17 page 21. 348:18 Did the OPP consider studies in 348:19 the open literature in addition to 348:20 regulatorily submitted studies? Heydens, William 01-24-2017 (00:00:03)</p>	Heydens.198
347:25 - 348:20	<p>347:23 A. 140? 347:24 Q. 140 of 227. Heydens, William 01-24-2017 (00:00:54) 347:25 And this is in the section 348:1 titled "The Proposed Conclusions Regarding 348:2 the Carcinogenic Potential of Glyphosate," 348:3 correct? 348:4 A. That is correct. 348:5 Q. Okay. Can you read this 348:6 highlighted language for the jury, please? 348:7 A. "An extensive database exists 348:8 for evaluating the carcinogenic potential of 348:9 glyphosate, including 23 epidemiological 348:10 studies, 15 animal carcinogenicity studies, 348:11 and nearly 90 genotoxicity studies for the 348:12 active ingredient glyphosate. These studies 348:13 were evaluated for quality and results were 348:14 analyzed across studies within each line of 348:15 evidence." 348:16 Q. Okay. And then let's look on 348:17 page 21. 348:18 Did the OPP consider studies in 348:19 the open literature in addition to 348:20 regulatorily submitted studies?</p>	Heydens.199 2112.140.1
348:22 - 348:22	<p>Heydens, William 01-24-2017 (00:00:01) 348:22 THE WITNESS: Absolutely.</p>	Heydens.200 clear
348:22 - 348:22	<p>Heydens, William 01-24-2017 (00:00:00) 348:22 THE WITNESS: Absolutely.</p>	Heydens.201
350:22 - 351:15	<p>Heydens, William 01-24-2017 (00:00:44) 350:22 Q. I want to talk about 350:23 genotoxicity briefly. 350:24 Can you remind the jury what 350:25 genotoxicity is? 351:1 A. Genotoxicity is the ability of</p>	Heydens.202

Page/Line

Source

ID

351:2 something to produce damage to DNA.
 351:3 Q. And there's another word that
 351:4 we've heard, mutagenicity. What is
 351:5 mutagenicity?
 351:6 A. Mutagenicity is -- gets
 351:7 sometimes -- some people will use it
 351:8 interchangeably with genotoxicity, but really
 351:9 it's a subset of genotoxicity where there are
 351:10 substitutions made in the genetic material.
 351:11 It's a form of damage that can occur.
 351:12 Q. So are you saying that
 351:13 mutagenicity is a subgroup within
 351:14 genotoxicity?
 351:15 A. Yes.

350:22 - 351:15

Heydens, William 01-24-2017 (00:00:44)

Heydens.203

350:22 Q. I want to talk about
 350:23 genotoxicity briefly.
 350:24 Can you remind the jury what
 350:25 genotoxicity is?
 351:1 A. Genotoxicity is the ability of
 351:2 something to produce damage to DNA.
 351:3 Q. And there's another word that
 351:4 we've heard, mutagenicity. What is
 351:5 mutagenicity?
 351:6 A. Mutagenicity is -- gets
 351:7 sometimes -- some people will use it
 351:8 interchangeably with genotoxicity, but really
 351:9 it's a subset of genotoxicity where there are
 351:10 substitutions made in the genetic material.
 351:11 It's a form of damage that can occur.
 351:12 Q. So are you saying that
 351:13 mutagenicity is a subgroup within
 351:14 genotoxicity?
 351:15 A. Yes.

351:16 - 352:4

Heydens, William 01-24-2017 (00:00:27)

Heydens.204

351:16 Q. Okay. Did the EPA consider any
 351:17 mutagenicity studies when it evaluated the --
 351:18 when it reached its re-registration
 351:19 eligibility decision back in 1993?
 351:20 A. Yes, they did.

Page/Line

Source

ID

351:21 Q. Where did they get those
351:22 studies from; do you know?

351:23 A. At that time those studies
351:24 would have been ours.

351:25 Q. And do you know how many --
352:1 approximately how many studies on
352:2 genotoxicity they considered then?

352:3 A. It would have been probably 10
352:4 to 12.

352:5 - 352:8

Heydens, William 01-24-2017 (00:00:06)

Heydens.205

352:5 Q. Okay. Did EPA's CARC evaluate
352:6 mutagenicity data or genotoxicity data in
352:7 2015?

352:8 A. Yes, they did.

353:6 - 353:10

Heydens, William 01-24-2017 (00:00:12)

Heydens.206

353:6 Q. Were all 54
353:7 mutagenicity/genotoxicity studies referred to
353:8 by the CARC, were those all done by Monsanto?

353:9 A. There were -- some of them were
353:10 Monsanto. Some of them were done by others.

354:1 - 354:8

Heydens, William 01-24-2017 (00:00:20)

Heydens.207

354:1 Q. What do in vivo and in vitro
354:2 mean?

354:3 A. In vivo refers to a study that
354:4 was done in a whole living animal.

354:5 And an in vitro study refers to
354:6 a study where cells from an organisms are put
354:7 in a petri dish and then the test material is
354:8 directly administered to those cells.

354:1 - 354:8

Heydens, William 01-24-2017 (00:00:20)

Heydens.208

354:1 Q. What do in vivo and in vitro
354:2 mean?

354:3 A. In vivo refers to a study that
354:4 was done in a whole living animal.

354:5 And an in vitro study refers to
354:6 a study where cells from an organisms are put
354:7 in a petri dish and then the test material is
354:8 directly administered to those cells.

356:4 - 359:25

Heydens, William 01-24-2017 (00:03:57)

Heydens.209

356:4 Q. The products that Monsanto

356:5 sells that are glyphosate-based, do they only
356:6 contain glyphosate?
356:7 A. No. Monsanto's products,
356:8 glyphosate products, contain glyphosate --
356:9 some of them are glyphosate and water, some
356:10 of them are glyphosate, surfactant and water.
356:11 Q. Have you ever heard of the
356:12 phrase "the formulated product" or "the
356:13 formulation"?
356:14 A. Yes.
356:15 Q. What does that refer to?
356:16 A. That refers to the end product
356:17 that is put in a jug that is sold and used.
356:18 Q. Have you ever heard of the
356:19 phrase "inert ingredients" with respect to
356:20 glyphosate-based products?
356:21 A. Yes, I have.
356:22 Q. What is an inert ingredient?
356:23 A. An inert ingredient is anything
356:24 that is not the active ingredient; in this
356:25 case, anything that is not glyphosate.
357:1 Q. What are the purpose -- so what
357:2 are the inert ingredients in glyphosate-based
357:3 product?
357:4 Is there anything?
357:5 A. The main ingredient, inert
357:6 ingredient, other than water is the
357:7 surfactant.
357:8 Q. Now, does the use of the word
357:9 "inert ingredient" suggest that those
357:10 ingredients are not biologically active?
357:11 A. No, it does not. The term
357:12 "inert" is referring to it is inert of
357:13 herbicidal activity.
357:14 Q. What is the purpose of
357:15 including inert ingredients like surfactants
357:16 in glyphosate-based products?
357:17 A. The surfactant is there to
357:18 allow the -- when the product is sprayed on
357:19 the plant, it allows the product to spread

357:20 out over the leaf thereby aiding and getting
357:21 the pesticidal ingredient inside the plant.
357:22 Q. Do you know what kind of
357:23 surfactants are used in Monsanto's glyphosate
357:24 products in the United States, generally, not
357:25 specifically, but what sorts are in there?
358:1 A. Generally, yes.
358:2 Q. Okay. Can you tell the jury
358:3 what they are?
358:4 A. So the major classes that we
358:5 uses, we have the poly -- the tallow amine.
358:6 There's other alkyl amines. There's ether
358:7 amines. And then the most recent one that I
358:8 have had any experience with was something
358:9 called an APA, which was a propionic acid
358:10 surfactant.
358:11 Q. Have the surfactants that
358:12 Monsanto used in glyphosate-based herbicides
358:13 used in the United States been approved by
358:14 the EPA?
358:15 A. Yes, all of them have been.
358:16 Q. What type of toxicological data
358:17 does EPA require in order to approve a
358:18 surfactant?
358:19 A. EPA requires a battery of
358:20 studies on a surfactant which would include
358:21 acute toxicity and irritation, sensitization,
358:22 subchronic toxicity, genotoxicity and
358:23 developmental toxicity and some form of
358:24 reproductive toxicity.
358:25 Q. Is that sometimes referred to
359:1 as a six-pack?
359:2 A. The acute studies and -- acute
359:3 oral, dermal and inhalation study, the eye
359:4 irritation, skin irritation and guinea pig
359:5 dermal sensitization, those are the studies
359:6 that are referred to as the six-pack.
359:7 Q. Does Monsanto manufacture
359:8 surfactants?
359:9 A. No. Monsanto purchases

359:10 surfactants.

359:11 Q. Who is required to do the
359:12 regulatory testing on surfactants? The
359:13 manufacturer?

359:14 A. The manufacturer is only
359:15 required to do a small set of studies.

359:16 Q. So does Monsanto do studies on
359:17 the surfactants as well that it purchases?

359:18 A. Yes. So if Monsanto purchased
359:19 them and puts them in a herbicide
359:20 formulation, Monsanto has done the additional
359:21 toxicological testing that is needed.

359:22 Q. Do you know what alkyl amine
359:23 polyalkoxylates are?

359:24 A. It's another form of
359:25 surfactant.

356:4 - 360:3

Heydens, William 01-24-2017 (00:04:03)

Heydens.210

356:4 Q. The products that Monsanto
356:5 sells that are glyphosate-based, do they only
356:6 contain glyphosate?

356:7 A. No. Monsanto's products,
356:8 glyphosate products, contain glyphosate --
356:9 some of them are glyphosate and water, some
356:10 of them are glyphosate, surfactant and water.

356:11 Q. Have you ever heard of the
356:12 phrase "the formulated product" or "the
356:13 formulation"?

356:14 A. Yes.

356:15 Q. What does that refer to?

356:16 A. That refers to the end product
356:17 that is put in a jug that is sold and used.

356:18 Q. Have you ever heard of the
356:19 phrase "inert ingredients" with respect to
356:20 glyphosate-based products?

356:21 A. Yes, I have.

356:22 Q. What is an inert ingredient?

356:23 A. An inert ingredient is anything
356:24 that is not the active ingredient; in this
356:25 case, anything that is not glyphosate.

357:1 Q. What are the purpose -- so what

357:2 are the inert ingredients in glyphosate-based
357:3 product?

357:4 Is there anything?

357:5 A. The main ingredient, inert
357:6 ingredient, other than water is the
357:7 surfactant.

357:8 Q. Now, does the use of the word
357:9 "inert ingredient" suggest that those
357:10 ingredients are not biologically active?

357:11 A. No, it does not. The term
357:12 "inert" is referring to it is inert of
357:13 herbicidal activity.

357:14 Q. What is the purpose of
357:15 including inert ingredients like surfactants
357:16 in glyphosate-based products?

357:17 A. The surfactant is there to
357:18 allow the -- when the product is sprayed on
357:19 the plant, it allows the product to spread
357:20 out over the leaf thereby aiding and getting
357:21 the pesticidal ingredient inside the plant.

357:22 Q. Do you know what kind of
357:23 surfactants are used in Monsanto's glyphosate
357:24 products in the United States, generally, not
357:25 specifically, but what sorts are in there?

358:1 A. Generally, yes.

358:2 Q. Okay. Can you tell the jury
358:3 what they are?

358:4 A. So the major classes that we
358:5 uses, we have the poly -- the tallow amine.
358:6 There's other alkyl amines. There's ether
358:7 amines. And then the most recent one that I
358:8 have had any experience with was something
358:9 called an APA, which was a propionic acid
358:10 surfactant.

358:11 Q. Have the surfactants that
358:12 Monsanto used in glyphosate-based herbicides
358:13 used in the United States been approved by
358:14 the EPA?

358:15 A. Yes, all of them have been.

358:16 Q. What type of toxicological data

358:17 does EPA require in order to approve a
 358:18 surfactant?
 358:19 A. EPA requires a battery of
 358:20 studies on a surfactant which would include
 358:21 acute toxicity and irritation, sensitization,
 358:22 subchronic toxicity, genotoxicity and
 358:23 developmental toxicity and some form of
 358:24 reproductive toxicity.
 358:25 Q. Is that sometimes referred to
 359:1 as a six-pack?
 359:2 A. The acute studies and -- acute
 359:3 oral, dermal and inhalation study, the eye
 359:4 irritation, skin irritation and guinea pig
 359:5 dermal sensitization, those are the studies
 359:6 that are referred to as the six-pack.
 359:7 Q. Does Monsanto manufacture
 359:8 surfactants?
 359:9 A. No. Monsanto purchases
 359:10 surfactants.
 359:11 Q. Who is required to do the
 359:12 regulatory testing on surfactants? The
 359:13 manufacturer?
 359:14 A. The manufacturer is only
 359:15 required to do a small set of studies.
 359:16 Q. So does Monsanto do studies on
 359:17 the surfactants as well that it purchases?
 359:18 A. Yes. So if Monsanto purchased
 359:19 them and puts them in a herbicide
 359:20 formulation, Monsanto has done the additional
 359:21 toxicological testing that is needed.
 359:22 Q. Do you know what alkyl amine
 359:23 polyalkoxylates are?
 359:24 A. It's another form of
 359:25 surfactant.
 360:1 Q. And have you ever heard of the
 360:2 Joint Inert Task Force?
 360:3 A. Yes.
 360:24 Q. And was there a task force
 360:25 regarding alkyl amine polyalkoxylates?

360:24 - 361:4

Heydens, William 01-24-2017 (00:00:09)

Heydens.211

Page/Line	Source	ID
361:5 - 361:21	<p>361:1 A. Yes, there was. 361:2 Q. Okay. And was Monsanto a part 361:3 of that task force? 361:4 A. Yes, Monsanto was. Heydens, William 01-24-2017 (00:00:31)</p>	Heydens.212
	<p>361:5 Q. And did EPA reach a conclusion 361:6 regarding any health risk assessment related 361:7 to those surfactants? 361:8 A. Yes, they did. 361:9 (Heydens Exhibit 3-44 marked 361:10 for identification.) 361:11 QUESTIONS BY MR. JOHNSTON: 361:12 Q. Okay. I hand you what's been 361:13 marked as Exhibit 3-44. It's a document on 361:14 the United States Environmental Protection 361:15 Agency letterhead dated April 3, 2009. 361:16 Do you see that? 361:17 A. Yes, I do. 361:18 Q. And the subject is alkyl amine 361:19 polyalkoxylates, parentheses, JITF CST 4, 361:20 inert ingredients, correct? 361:21 A. That is correct.</p>	<p>4895.2 4895.2.1</p>
363:1 - 363:4	<p>Heydens, William 01-24-2017 (00:00:07) 363:1 Q. And is POEA part of this class 363:2 that's addressed by this report that we've 363:3 marked as 3-44? 363:4 A. Yes, it is.</p>	Heydens.213
364:2 - 364:8	<p>Heydens, William 01-24-2017 (00:00:17) 364:2 Q. And can you read the first 364:3 sentence of that section? 364:4 A. "There is no evidence that the 364:5 AAPs are carcinogenic." 364:6 Q. Do you agree with that finding 364:7 of EPA that's set forth in 3-44? 364:8 A. Yes, I do.</p>	<p>Heydens.214 4895.16.1</p>
364:8 - 364:8	<p>Heydens, William 01-24-2017 (00:00:00) 364:8 A. Yes, I do.</p>	Heydens.215
364:9 - 371:11	<p>Heydens, William 01-24-2017 (00:07:30) 364:9 Q. A few minutes ago you said that 364:10 most glyphosate formulations are composed of</p>	Heydens.216

364:11 glyphosate, surfactant and water, correct?
364:12 A. Yes, I did.
364:13 Q. And there's a variety of
364:14 formulations sold in the marketplace?
364:15 A. Yes, there are.
364:16 Q. Why are there different
364:17 formulations?
364:18 A. It basically depends on
364:19 different needs and different uses, so for a
364:20 particular crop or in a particular region
364:21 where you may need a different surfactant.
364:22 One example would be that some manufacturers
364:23 have what they call a rain-resistant
364:24 formulations, meaning they'll stay on the
364:25 leaf longer if it rains. And so that would
365:1 use a different surfactant system.
365:2 Q. Has Monsanto ever conducted any
365:3 research on the genotoxic potential of
365:4 glyphosate formulations?
365:5 A. Yes, we have.
365:6 Q. Were you involved in that
365:7 research?
365:8 A. Yes, I was.
365:9 (Heydens Exhibit 3-45 marked
365:10 for identification.)
365:11 QUESTIONS BY MR. JOHNSTON:
365:12 Q. Hand you what's been marked as
365:13 Exhibit 3-45.
365:14 Can you tell the jury what this
365:15 document is?
365:16 A. Yes. This is the results of
365:17 work that we conducted on formulated product
365:18 and this was published in the peer-reviewed
365:19 literature.
365:20 Q. It was published in the Journal
365:21 of Agricultural and Food Chemistry, correct?
365:22 A. That is correct.
365:23 Q. And it was published in 2008,
365:24 correct?
365:25 A. Yes, it was.

366:1 Q. And can you tell the jury the
366:2 title of this paper?
366:3 A. The title is, "Genotoxic
366:4 Potential of Glyphosate Formulations:
366:5 Mode-of-Action Investigations."
366:6 Q. And you were the first author
366:7 on this paper, correct?
366:8 A. Yes, that is correct.
366:9 Q. Why did Monsanto undertake to
366:10 write this paper?
366:11 A. We undertook this investigation
366:12 because there were some reports in the open
366:13 literature which suggested that glyphosate
366:14 formulations were genotoxic. And it was our
366:15 hypothesis that those studies had problems
366:16 with them, which led to improper conclusions,
366:17 and so we wanted to test to see if that was
366:18 true or not.
366:19 Q. Can you generally describe the
366:20 methods that you employed in doing this
366:21 study?
366:22 A. Yes. Basically what we did was
366:23 we selected two of the main studies that were
366:24 done in the open literature and then we
366:25 basically did the same study design as they
367:1 did. So we replicated the study design and
367:2 then went on to investigate in more detail
367:3 what the relevance of the findings were.
367:4 Q. And what were the results of
367:5 your experiments?
367:6 A. So the results of our
367:7 experiments were basically that we -- for the
367:8 most part, we could replicate what they had
367:9 done. There was one important difference.
367:10 There was one major finding that they
367:11 reported that we could not reproduce, but
367:12 basically we saw the same things that they
367:13 saw.
367:14 But what we did see moreover,
367:15 or more importantly, that the facts that they

367:16 were reporting were only seen under
367:17 conditions of extreme exposure and extreme
367:18 toxicity to the cells to the point where in
367:19 some cases they were actually killing cells.
367:20 And when you got to that level, then you saw
367:21 some of the responses that they were
367:22 referring to as genotoxicity, but really are
367:23 not direct genotoxicity but really are the
367:24 result of the fact that you're just killing
367:25 the cells.

368:1 The other thing that we found
368:2 was we added a component to the study -- in
368:3 the studies that they did, these were studies
368:4 where the test material was injected directly
368:5 into the abdomen of the animals, and in
368:6 some -- in one case, the study added a bunch
368:7 of additional material to those test material
368:8 that they injected. We added another
368:9 component where we exposed the animals to
368:10 that same test material with the additional
368:11 materials via the oral route of exposure,
368:12 which would be relevant for humans. And when
368:13 you do that, you don't see any of the effects
368:14 that they reported.

368:15 Q. And what conclusions can you
368:16 draw based on those results, those findings?

368:17 A. Our conclusion is that those
368:18 formulations do not produce genotoxicity.

368:19 Q. I'm going to hand you a
368:20 document that plaintiffs' counsel marked as
368:21 an exhibit yesterday as Exhibit 3-1.

368:22 Do you recall talking about
368:23 this document?

368:24 A. Yes, I do.

368:25 Q. And in this e-mail you
369:1 testified yesterday that you listed five
369:2 issues that Monsanto faced in the early
369:3 glyphosate days; is that correct?

369:4 A. Yes, that is correct.

369:5 Q. I want to talk about each of

369:6 these issues.
369:7 The first issue says, "Low
369:8 level presence of formaldehyde, parentheses,
369:9 carcinogen by inhalation, close parentheses,
369:10 in Roundup."
369:11 Do you see that?
369:12 A. Yes, I do.
369:13 Q. Can you tell the jury what that
369:14 issue is?
369:15 A. What that is is that there is a
369:16 very low level of formaldehyde that can be
369:17 detected in the product and that
369:18 formaldehyde, if inhaled at high quantities,
369:19 can be carcinogenic. But in the case here,
369:20 the levels of formaldehyde are so low,
369:21 they're at a level that don't produce any
369:22 adverse effects.
369:23 And the other thing to just
369:24 remember is that, you know, in all the
369:25 studies that we've done, formaldehyde would
370:1 be present and would be part of the test
370:2 material.
370:3 Q. Is formaldehyde a -- what is
370:4 it? Is it a surfactant? Is it water?
370:5 A. No. It's a very small
370:6 molecule. It just has carbon, hydrogen and
370:7 oxygen, so it's very small chemical. It's
370:8 just a reactant. Interestingly --
370:9 Q. But why is it in glyphosate?
370:10 A. It's not added. It's formed at
370:11 a very low level --
370:12 Q. So it's a byproduct?
370:13 A. -- in the solution.
370:14 The interesting thing is that
370:15 all of us manufacture formaldehyde in our
370:16 bodies every day, and so the levels that
370:17 you're talking about here are insignificant
370:18 compared to what our bodies are doing to us
370:19 every day.
370:20 Q. The second issue on here is,

Page/Line

Source

ID

370:21 "Low level presence of NNG, parentheses,
370:22 N-Nitroso-Glyphosate, close parentheses, in
370:23 Roundup - many N-Nitroso compounds are
370:24 carcinogenic."

370:25 Do you see that?

371:1 A. Yes.

371:2 Q. Can you tell me what you were

371:3 talking about on that point, second bullet

371:4 point?

371:5 A. Yes. So there is -- very low

371:6 level production of N-Nitroso-Glyphosate can

371:7 occur in the glyphosate test material. Now,

371:8 some N-Nitroso compounds are carcinogenic,

371:9 that is true. We believe that we have

371:10 information that says that

371:11 N-Nitroso-Glyphosate is not carcinogenic.

365:12 - 368:18

Heydens, William 01-24-2017 (00:03:36)

Heydens.217

365:12 Q. Hand you what's been marked as

365:13 Exhibit 3-45.

5142.1

365:14 Can you tell the jury what this

365:15 document is?

365:16 A. Yes. This is the results of

365:17 work that we conducted on formulated product

365:18 and this was published in the peer-reviewed

365:19 literature.

5142.1.1

365:20 Q. It was published in the Journal

365:21 of Agricultural and Food Chemistry, correct?

365:22 A. That is correct.

365:23 Q. And it was published in 2008,

365:24 correct?

365:25 A. Yes, it was.

366:1 Q. And can you tell the jury the

366:2 title of this paper?

366:3 A. The title is, "Genotoxic

366:4 Potential of Glyphosate Formulations:

366:5 Mode-of-Action Investigations."

366:6 Q. And you were the first author

366:7 on this paper, correct?

366:8 A. Yes, that is correct.

366:9 Q. Why did Monsanto undertake to

Page/Line

Source

ID

366:10 write this paper?

366:11 A. We undertook this investigation
366:12 because there were some reports in the open
366:13 literature which suggested that glyphosate
366:14 formulations were genotoxic. And it was our
366:15 hypothesis that those studies had problems
366:16 with them, which led to improper conclusions,
366:17 and so we wanted to test to see if that was
366:18 true or not.

clear

366:19 Q. Can you generally describe the
366:20 methods that you employed in doing this
366:21 study?

366:22 A. Yes. Basically what we did was
366:23 we selected two of the main studies that were
366:24 done in the open literature and then we
366:25 basically did the same study design as they
367:1 did. So we replicated the study design and
367:2 then went on to investigate in more detail
367:3 what the relevance of the findings were.

367:4 Q. And what were the results of
367:5 your experiments?

367:6 A. So the results of our
367:7 experiments were basically that we -- for the
367:8 most part, we could replicate what they had
367:9 done. There was one important difference.
367:10 There was one major finding that they
367:11 reported that we could not reproduce, but
367:12 basically we saw the same things that they
367:13 saw.

367:14 But what we did see moreover,
367:15 or more importantly, that the facts that they
367:16 were reporting were only seen under
367:17 conditions of extreme exposure and extreme
367:18 toxicity to the cells to the point where in
367:19 some cases they were actually killing cells.
367:20 And when you got to that level, then you saw
367:21 some of the responses that they were
367:22 referring to as genotoxicity, but really are
367:23 not direct genotoxicity but really are the
367:24 result of the fact that you're just killing

367:25 the cells.

368:1 The other thing that we found

368:2 was we added a component to the study -- in

368:3 the studies that they did, these were studies

368:4 where the test material was injected directly

368:5 into the abdomen of the animals, and in

368:6 some -- in one case, the study added a bunch

368:7 of additional material to those test material

368:8 that they injected. We added another

368:9 component where we exposed the animals to

368:10 that same test material with the additional

368:11 materials via the oral route of exposure,

368:12 which would be relevant for humans. And when

368:13 you do that, you don't see any of the effects

368:14 that they reported.

368:15 Q. And what conclusions can you

368:16 draw based on those results, those findings?

368:17 A. Our conclusion is that those

368:18 formulations do not produce genotoxicity.

368:19 - 371:11

Heydens, William 01-24-2017 (00:02:36)

Heydens.218

368:19 Q. I'm going to hand you a

368:20 document that plaintiffs' counsel marked as

368:21 an exhibit yesterday as Exhibit 3-1.

368:22 Do you recall talking about

368:23 this document?

368:24 A. Yes, I do.

368:25 Q. And in this e-mail you

369:1 testified yesterday that you listed five

369:2 issues that Monsanto faced in the early

369:3 glyphosate days; is that correct?

369:4 A. Yes, that is correct.

369:5 Q. I want to talk about each of

369:6 these issues.

369:7 The first issue says, "Low

369:8 level presence of formaldehyde, parentheses,

369:9 carcinogen by inhalation, close parentheses,

369:10 in Roundup."

369:11 Do you see that?

369:12 A. Yes, I do.

369:13 Q. Can you tell the jury what that

369:14 issue is?

369:15 A. What that is is that there is a
369:16 very low level of formaldehyde that can be
369:17 detected in the product and that
369:18 formaldehyde, if inhaled at high quantities,
369:19 can be carcinogenic. But in the case here,
369:20 the levels of formaldehyde are so low,
369:21 they're at a level that don't produce any
369:22 adverse effects.

369:23 And the other thing to just
369:24 remember is that, you know, in all the
369:25 studies that we've done, formaldehyde would
370:1 be present and would be part of the test
370:2 material.

370:3 Q. Is formaldehyde a -- what is
370:4 it? Is it a surfactant? Is it water?

370:5 A. No. It's a very small
370:6 molecule. It just has carbon, hydrogen and
370:7 oxygen, so it's very small chemical. It's
370:8 just a reactant. Interestingly --

370:9 Q. But why is it in glyphosate?

370:10 A. It's not added. It's formed at
370:11 a very low level --

370:12 Q. So it's a byproduct?

370:13 A. -- in the solution.

370:14 The interesting thing is that
370:15 all of us manufacture formaldehyde in our
370:16 bodies every day, and so the levels that
370:17 you're talking about here are insignificant
370:18 compared to what our bodies are doing to us
370:19 every day.

370:20 Q. The second issue on here is,
370:21 "Low level presence of NNG, parentheses,
370:22 N-Nitroso-Glyphosate, close parentheses, in
370:23 Roundup - many N-Nitroso compounds are
370:24 carcinogenic."

370:25 Do you see that?

371:1 A. Yes.

371:2 Q. Can you tell me what you were
371:3 talking about on that point, second bullet

371:4 point?

371:5 A. Yes. So there is -- very low

371:6 level production of N-Nitroso-Glyphosate can

371:7 occur in the glyphosate test material. Now,

371:8 some N-Nitroso compounds are carcinogenic,

371:9 that is true. We believe that we have

371:10 information that says that

371:11 N-Nitroso-Glyphosate is not carcinogenic.

371:15 - 374:9

Heydens, William 01-24-2017 (00:03:07)

Heydens.219

371:15 back to the 1980s, is they just said, "Look,

371:16 what we're going to do is we're going to say

371:17 that nobody can have N-Nitroso-Glyphosate in

371:18 any test material or any glyphosate product.

371:19 It has to remain below 1 part per million."

371:20 And if it's below 1 part per million, that is

371:21 a level that the Environmental Protection

371:22 Agency considered to be safe.

371:23 And so that's -- throughout

371:24 history, that's just what Monsanto and other

371:25 manufacturers do is just ensure that the

372:1 levels stay below that which EPA required and

372:2 considers to be safe.

372:3 Q. The next issue says, "Many tox

372:4 studies for glyphosate had been done at a

372:5 lab, parentheses, IBT - Industrial Biotest,

372:6 close parentheses, that FDA/EPA found to

372:7 generate fraudulent data back in the '70s."

372:8 Do you see that?

372:9 A. Yes, I do.

372:10 Q. What is that topic about?

372:11 A. What that topic is about is

372:12 back in approximately 1975, it was before my

372:13 time, but EPA -- or actually an FDA

372:14 reviewer -- kind of like what we were talking

372:15 about previously, an FDA reviewer actually

372:16 went into the study to do an audit and found

372:17 irregularities in the data. Subsequently,

372:18 that turned into -- the investigation found a

372:19 number of the studies had fraudulent data in

372:20 them.

372:21 For glyphosate -- you know, for
372:22 us and for glyphosate, that's not an issue
372:23 because some of the studies had been done on
372:24 glyphosate, but subsequently to this, all of
372:25 the studies that Monsanto had to support the
373:1 registration of glyphosate were repeated at
373:2 other laboratories. So there is -- none of
373:3 the data that could have been implicated
373:4 here, none of that data is ever used to
373:5 support the product.
373:6 And then you can even take that
373:7 further to say that a lot of -- or all --
373:8 well, obviously all of the additional studies
373:9 that we've been talking about for about the
373:10 past whatever time we've been talking about,
373:11 the other registrant studies, all their
373:12 studies have obviously been done at other
373:13 laboratories.
373:14 So there's huge databases for
373:15 glyphosate on non-IBT data so it's not an
373:16 issue.
373:17 Q. The next bullet point says,
373:18 "EPA seriously questioned if glyphosate
373:19 produced tumors in the chronic mouse study -
373:20 glyphosate was put in the Category D for
373:21 carcinogenicity for several years - our
373:22 detractors falsely spread the word that EPA
373:23 considered glyphosate to have carcinogenic
373:24 potential."
373:25 Do you see that?
374:1 A. Yes, I do.
374:2 Q. What did you mean when you
374:3 referred to that in this e-mail?
374:4 A. So there was -- back in the
374:5 '80s time frame, there was a result from that
374:6 mouse study which we -- that we discussed
374:7 previously where EPA was not sure whether
374:8 that was -- there was actually an effect in
374:9 kidney tumors or not.

371:15 - 374:9

Heydens, William 01-24-2017 (00:03:07)

Heydens.220

371:15 back to the 1980s, is they just said, "Look,
371:16 what we're going to do is we're going to say
371:17 that nobody can have N-Nitroso-Glyphosate in
371:18 any test material or any glyphosate product.
371:19 It has to remain below 1 part per million."
371:20 And if it's below 1 part per million, that is
371:21 a level that the Environmental Protection
371:22 Agency considered to be safe.
371:23 And so that's -- throughout
371:24 history, that's just what Monsanto and other
371:25 manufacturers do is just ensure that the
372:1 levels stay below that which EPA required and
372:2 considers to be safe.
372:3 Q. The next issue says, "Many tox
372:4 studies for glyphosate had been done at a
372:5 lab, parentheses, IBT - Industrial Biotest,
372:6 close parentheses, that FDA/EPA found to
372:7 generate fraudulent data back in the '70s."
372:8 Do you see that?
372:9 A. Yes, I do.
372:10 Q. What is that topic about?
372:11 A. What that topic is about is
372:12 back in approximately 1975, it was before my
372:13 time, but EPA -- or actually an FDA
372:14 reviewer -- kind of like what we were talking
372:15 about previously, an FDA reviewer actually
372:16 went into the study to do an audit and found
372:17 irregularities in the data. Subsequently,
372:18 that turned into -- the investigation found a
372:19 number of the studies had fraudulent data in
372:20 them.
372:21 For glyphosate -- you know, for
372:22 us and for glyphosate, that's not an issue
372:23 because some of the studies had been done on
372:24 glyphosate, but subsequently to this, all of
372:25 the studies that Monsanto had to support the
373:1 registration of glyphosate were repeated at
373:2 other laboratories. So there is -- none of
373:3 the data that could have been implicated
373:4 here, none of that data is ever used to

373:5 support the product.
 373:6 And then you can even take that
 373:7 further to say that a lot of -- or all --
 373:8 well, obviously all of the additional studies
 373:9 that we've been talking about for about the
 373:10 past whatever time we've been talking about,
 373:11 the other registrant studies, all their
 373:12 studies have obviously been done at other
 373:13 laboratories.
 373:14 So there's huge databases for
 373:15 glyphosate on non-IBT data so it's not an
 373:16 issue.
 373:17 Q. The next bullet point says,
 373:18 "EPA seriously questioned if glyphosate
 373:19 produced tumors in the chronic mouse study -
 373:20 glyphosate was put in the Category D for
 373:21 carcinogenicity for several years - our
 373:22 detractors falsely spread the word that EPA
 373:23 considered glyphosate to have carcinogenic
 373:24 potential."
 373:25 Do you see that?
 374:1 A. Yes, I do.
 374:2 Q. What did you mean when you
 374:3 referred to that in this e-mail?
 374:4 A. So there was -- back in the
 374:5 '80s time frame, there was a result from that
 374:6 mouse study which we -- that we discussed
 374:7 previously where EPA was not sure whether
 374:8 that was -- there was actually an effect in
 374:9 kidney tumors or not.

375:11 - 376:25

Heydens, William 01-24-2017 (00:01:30)

Heydens.221

375:11 Q. Okay. And the last bullet on
 375:12 this e-mail says, "It was falsely said that
 375:13 glyphosate is an organophosphate,
 375:14 parentheses, OP, close parentheses, molecule
 375:15 and OPs produce neurotoxicity, thus
 375:16 glyphosate is a neurotoxin."
 375:17 Do you see that?
 375:18 A. Yes, I do.
 375:19 Q. What about that do you recall?

375:20 A. Well, that one is something
 375:21 that is just flat out wrong, incorrect.
 375:22 Glyphosate is not an organophosphate. People
 375:23 would say that intentionally because it's
 375:24 true that glyphosate has a phosphorus
 375:25 molecule on it, but very clearly any chemist
 376:1 will tell you that glyphosate is not an
 376:2 organophosphate.
 376:3 Q. Do you remember yesterday
 376:4 counsel spent a long time discussing the
 376:5 Intertek expert panel papers with you,
 376:6 correct?
 376:7 A. Yes.
 376:8 Q. I just want to be clear about a
 376:9 few things about the Intertek papers.
 376:10 Can you tell the jury how many
 376:11 distinct publications came out of the
 376:12 Intertek expert panel's evaluation of
 376:13 glyphosate?
 376:14 A. There were five.
 376:15 Q. And what disciplines did each
 376:16 of -- well, tell me what each of those papers
 376:17 were.
 376:18 A. There was a paper on human
 376:19 exposure. There was a paper on genotoxicity.
 376:20 There was a paper on animal bioassays. There
 376:21 was a paper on epidemiology. And there was a
 376:22 summary paper which included the four --
 376:23 information from the other four papers.
 376:24 (Heydens Exhibit 3-46 marked
 376:25 for identification.)

375:11 - 376:23

Heydens, William 01-24-2017 (00:01:26)

Heydens.222

375:11 Q. Okay. And the last bullet on
 375:12 this e-mail says, "It was falsely said that
 375:13 glyphosate is an organophosphate,
 375:14 parentheses, OP, close parentheses, molecule
 375:15 and OPs produce neurotoxicity, thus
 375:16 glyphosate is a neurotoxin."
 375:17 Do you see that?
 375:18 A. Yes, I do.

375:19 Q. What about that do you recall?
 375:20 A. Well, that one is something
 375:21 that is just flat out wrong, incorrect.
 375:22 Glyphosate is not an organophosphate. People
 375:23 would say that intentionally because it's
 375:24 true that glyphosate has a phosphorus
 375:25 molecule on it, but very clearly any chemist
 376:1 will tell you that glyphosate is not an
 376:2 organophosphate.
 376:3 Q. Do you remember yesterday
 376:4 counsel spent a long time discussing the
 376:5 Intertek expert panel papers with you,
 376:6 correct?
 376:7 A. Yes.
 376:8 Q. I just want to be clear about a
 376:9 few things about the Intertek papers.
 376:10 Can you tell the jury how many
 376:11 distinct publications came out of the
 376:12 Intertek expert panel's evaluation of
 376:13 glyphosate?
 376:14 A. There were five.
 376:15 Q. And what disciplines did each
 376:16 of -- well, tell me what each of those papers
 376:17 were.
 376:18 A. There was a paper on human
 376:19 exposure. There was a paper on genotoxicity.
 376:20 There was a paper on animal bioassays. There
 376:21 was a paper on epidemiology. And there was a
 376:22 summary paper which included the four --
 376:23 information from the other four papers.

379:7 - 379:24

Heydens, William 01-24-2017 (00:00:35)

Heydens.223

379:7 Q. Dr. Heydens, did you receive a
 379:8 copy of the draft of Keith Solomon's paper
 379:9 that we've marked as Exhibit 3.46 prior to
 379:10 its publication?
 379:11 A. Yes, I did see a copy.
 379:12 Q. Did you review that draft?
 379:13 A. I did not.
 379:14 Q. Did you provide any substantive
 379:15 comments on Dr. Solomon's paper prior to

6016.1.1

Page/Line

Source

ID

379:16 publication?

379:17 A. I did not.

379:18 Q. Did you write any portion of

379:19 Dr. Solomon's paper?

379:20 A. I did not.

379:21 Q. Are you aware of anyone at

379:22 Monsanto that wrote any portion of

379:23 Dr. Solomon's paper?

379:24 A. I am not.

379:7 - 380:11

Heydens, William 01-24-2017 (00:01:15)

Heydens.224

379:7 Q. Dr. Heydens, did you receive a

379:8 copy of the draft of Keith Solomon's paper

379:9 that we've marked as Exhibit 3.46 prior to

379:10 its publication?

379:11 A. Yes, I did see a copy.

379:12 Q. Did you review that draft?

379:13 A. I did not.

379:14 Q. Did you provide any substantive

379:15 comments on Dr. Solomon's paper prior to

379:16 publication?

379:17 A. I did not.

379:18 Q. Did you write any portion of

379:19 Dr. Solomon's paper?

379:20 A. I did not.

379:21 Q. Are you aware of anyone at

379:22 Monsanto that wrote any portion of

379:23 Dr. Solomon's paper?

379:24 A. I am not.

379:25 Q. I want you to look at the

380:1 acknowledgements for Dr. Solomon's paper. Do

380:2 you see that he says, "I thank Monsanto,

380:3 Incorporated, for providing access to reports

380:4 from exposure studies for glyphosate

380:5 applicators."

380:6 Do you see that?

380:7 A. Yes, I do.

380:8 Q. So he acknowledges Monsanto's

380:9 provision of data in the acknowledgements to

380:10 this paper, correct?

380:11 A. Yes, he did.

Page/Line	Source	ID
379:25 - 380:11	Heydens, William 01-24-2017 (00:00:30)	Heydens.225
	379:25 Q. I want you to look at the 380:1 acknowledgements for Dr. Solomon's paper. Do 380:2 you see that he says, "I thank Monsanto, 380:3 Incorporated, for providing access to reports 380:4 from exposure studies for glyphosate 380:5 applicators." 380:6 Do you see that? 380:7 A. Yes, I do. 380:8 Q. So he acknowledges Monsanto's 380:9 provision of data in the acknowledgements to 380:10 this paper, correct? 380:11 A. Yes, he did.	6016.6.1
381:16 - 382:6	Heydens, William 01-24-2017 (00:00:35)	Heydens.226
	381:16 Q. Did you receive a copy of this 381:17 paper by Dr. Acquavella and the others prior 381:18 to its publication? 381:19 A. Yes, I did. 381:20 Q. Did you review that draft 381:21 paper? 381:22 A. No, I did not. 381:23 Q. Did you ever provide any 381:24 comments on the epidemiology paper drafted by 381:25 John Acquavella at all prior to publication? 382:1 A. I did not provide comments on 382:2 the epidemiology paper. 382:3 Q. Did you ever write any portion 382:4 of this paper by Dr. Acquavella that we -- 382:5 and others that we've marked as Exhibit 3-47? 382:6 A. I did not.	4037.1.1
381:16 - 382:9	Heydens, William 01-24-2017 (00:00:43)	Heydens.227
	381:16 Q. Did you receive a copy of this 381:17 paper by Dr. Acquavella and the others prior 381:18 to its publication? 381:19 A. Yes, I did. 381:20 Q. Did you review that draft 381:21 paper? 381:22 A. No, I did not. 381:23 Q. Did you ever provide any 381:24 comments on the epidemiology paper drafted by	clear

Page/Line

Source

ID

381:25 John Acquavella at all prior to publication?
 382:1 A. I did not provide comments on
 382:2 the epidemiology paper.
 382:3 Q. Did you ever write any portion
 382:4 of this paper by Dr. Acquavella that we --
 382:5 and others that we've marked as Exhibit 3-47?
 382:6 A. I did not.
 382:7 (Heydens Exhibit 3-48 marked
 382:8 for identification.)

382:9 QUESTIONS BY MR. JOHNSTON:

383:15 - 385:12

Heydens, William 01-24-2017 (00:01:36)

Heydens.228

383:15 Q. Dr. Heydens, did you receive a
 383:16 copy of this draft article by Dr. Williams,
 383:17 et al., that we've marked as Exhibit 3-48
 383:18 prior to its publication in the journal?
 383:19 A. Yes, I did.
 383:20 Q. Did you review that draft
 383:21 publication?
 383:22 A. No, I didn't.
 383:23 Q. Did you provide any substantive
 383:24 comments on this paper by Dr. Williams prior
 383:25 to its publication?

2156.2.1

384:1 A. No, I didn't.
 384:2 Q. Did you, Dr. Heydens, write any
 384:3 portion of this publication?
 384:4 A. No, I didn't.
 384:5 Q. Are you aware of anyone else at
 384:6 Monsanto who wrote any portion of this
 384:7 publication by Dr. Williams?

clear

384:8 A. I am not.
 384:9 (Heydens Exhibit 3-49 marked
 384:10 for identification.)

384:11 QUESTIONS BY MR. JOHNSTON:

384:12 Q. I hand you what we've marked as
 384:13 Exhibit 3-49. This is another paper from the
 384:14 Intertek panel, correct?
 384:15 A. Yes, it is.

4400.1.1

384:16 Q. And this is a paper by
 384:17 Dr. David Brusick, Marilyn Aardema, Larry
 384:18 Kier, David Kirkland and Gary Williams,

384:19 correct?

384:20 A. Correct.

384:21 Q. And it's titled "Genotoxicity

384:22 Expert Panel Review: Weight of evidence

384:23 evaluation of the genotoxicity of glyphosate,

384:24 glyphosate-based formulations and

384:25 aminomethylphosphonic acid," correct?

385:1 A. Aminomethylphosphonic acid.

385:2 Q. Correct?

385:3 A. I wasn't sure if I heard you.

385:4 Yes.

385:5 Q. Yeah, but that's the title,

385:6 correct?

385:7 A. That is the title, correct.

385:8 Q. And what discipline does this

385:9 paper address of the ones that you mentioned

385:10 that the Intertek panel had?

385:11 A. This addresses the

385:12 genotoxicity.

383:15 - 385:12

Heydens, William 01-24-2017 (00:01:37)

Heydens.229

383:15 Q. Dr. Heydens, did you receive a

383:16 copy of this draft article by Dr. Williams,

383:17 et al., that we've marked as Exhibit 3-48

383:18 prior to its publication in the journal?

383:19 A. Yes, I did.

383:20 Q. Did you review that draft

383:21 publication?

383:22 A. No, I didn't.

383:23 Q. Did you provide any substantive

383:24 comments on this paper by Dr. Williams prior

383:25 to its publication?

384:1 A. No, I didn't.

384:2 Q. Did you, Dr. Heydens, write any

384:3 portion of this publication?

384:4 A. No, I didn't.

384:5 Q. Are you aware of anyone else at

384:6 Monsanto who wrote any portion of this

384:7 publication by Dr. Williams?

384:8 A. I am not.

384:9 (Heydens Exhibit 3-49 marked

384:10 for identification.)
 384:11 QUESTIONS BY MR. JOHNSTON:
 384:12 Q. I hand you what we've marked as
 384:13 Exhibit 3-49. This is another paper from the
 384:14 Intertek panel, correct?
 384:15 A. Yes, it is.
 384:16 Q. And this is a paper by
 384:17 Dr. David Brusick, Marilyn Aardema, Larry
 384:18 Kier, David Kirkland and Gary Williams,
 384:19 correct?
 384:20 A. Correct.
 384:21 Q. And it's titled "Genotoxicity
 384:22 Expert Panel Review: Weight of evidence
 384:23 evaluation of the genotoxicity of glyphosate,
 384:24 glyphosate-based formulations and
 384:25 aminomethylphosphonic acid," correct?
 385:1 A. Aminomethylphosphonic acid.
 385:2 Q. Correct?
 385:3 A. I wasn't sure if I heard you.
 385:4 Yes.
 385:5 Q. Yeah, but that's the title,
 385:6 correct?
 385:7 A. That is the title, correct.
 385:8 Q. And what discipline does this
 385:9 paper address of the ones that you mentioned
 385:10 that the Intertek panel had?
 385:11 A. This addresses the
 385:12 genotoxicity.

386:6 - 386:23

Heydens, William 01-24-2017 (00:00:37)

Heydens.230

386:6 Q. Dr. Heydens, did you receive a
 386:7 copy of this paper in draft form prior to its
 386:8 publication in the journal?
 386:9 A. Yes, I did.
 386:10 Q. Did you review that draft?
 386:11 A. No, I did not.
 386:12 Q. Did you provide any substantive
 386:13 comments on this paper by Dr. Brusick, et
 386:14 al., prior to its publication?
 386:15 A. No, I did not.
 386:16 Q. Did you, Dr. Heydens, write any

Page/Line

Source

ID

386:17 portion of this publication?

386:18 A. No, I did not.

386:19 Q. Are you aware of anyone else at

386:20 Monsanto who wrote any portion of this

386:21 publication on genotoxicity that we've marked

386:22 as Exhibit 3-49?

clear

386:23 A. I am not.

386:6 - 388:11

Heydens, William 01-24-2017 (00:02:11)

Heydens.231

386:6 Q. Dr. Heydens, did you receive a

386:7 copy of this paper in draft form prior to its

386:8 publication in the journal?

386:9 A. Yes, I did.

386:10 Q. Did you review that draft?

386:11 A. No, I did not.

386:12 Q. Did you provide any substantive

386:13 comments on this paper by Dr. Brusick, et

386:14 al., prior to its publication?

386:15 A. No, I did not.

386:16 Q. Did you, Dr. Heydens, write any

386:17 portion of this publication?

386:18 A. No, I did not.

386:19 Q. Are you aware of anyone else at

386:20 Monsanto who wrote any portion of this

386:21 publication on genotoxicity that we've marked

386:22 as Exhibit 3-49?

386:23 A. I am not.

386:24 Q. Yesterday plaintiff's showed

386:25 you a document they marked as Exhibit 3-4.

387:1 Have you seen this document

387:2 before?

387:3 A. Yes.

387:4 Q. And this is a document titled

387:5 "A review of the carcinogenic potential of

387:6 glyphosate by four independent expert panels

387:7 in comparison to the IARC assessment."

387:8 Is that the title?

387:9 A. Yes.

387:10 Q. And it's by Dr. Gary Williams,

387:11 Marilyn Aardema, John Acquavella, Sir Colin

387:12 Berry, David Brusick, Michele M. Burns, Joao

Page/Line

Source

ID

387:13 Lauro Viana de Camargo, David Garabrant,
 387:14 Helmut Greim, Larry D. Kier, David J.
 387:15 Kirkland, Gary Marsh, Keith R. Solomon, Tom
 387:16 Sorahan, Ashley Roberts and Douglas L. Weed,
 387:17 correct?
 387:18 A. That is correct.
 387:19 Q. And you were asked several
 387:20 questions about this document yesterday,
 387:21 weren't you?
 387:22 A. Yes, I was.
 387:23 Q. Let me turn you to the
 387:24 abstract --
 387:25 A. Should I have a copy of it?
 388:1 Oh, I'm sorry. Do I have it?
 388:2 Q. No, you should have one
 388:3 somewhere, but here you can --
 388:4 MR. MILLER: Are you referring
 388:5 to 3:4, Counsel?
 388:6 MR. JOHNSTON: Yes, sir.
 388:7 THE WITNESS: You say this is
 388:8 3-4?
 388:9 QUESTIONS BY MR. JOHNSTON:
 388:10 Q. Correct, sir.
 388:11 A. Can I just write that on there?

386:24 - 387:22

Heydens, William 01-24-2017 (00:00:53)

Heydens.232

386:24 Q. Yesterday plaintiff's showed
 386:25 you a document they marked as Exhibit 3-4.
 387:1 Have you seen this document
 387:2 before?
 387:3 A. Yes.
 387:4 Q. And this is a document titled
 387:5 "A review of the carcinogenic potential of
 387:6 glyphosate by four independent expert panels
 387:7 in comparison to the IARC assessment."
 387:8 Is that the title?
 387:9 A. Yes.
 387:10 Q. And it's by Dr. Gary Williams,
 387:11 Marilyn Aardema, John Acquavella, Sir Colin
 387:12 Berry, David Brusick, Michele M. Burns, Joao
 387:13 Lauro Viana de Camargo, David Garabrant,

2155.2.1

Page/Line

Source

ID

387:14 Helmut Greim, Larry D. Kier, David J.
 387:15 Kirkland, Gary Marsh, Keith R. Solomon, Tom
 387:16 Sorahan, Ashley Roberts and Douglas L. Weed,
 387:17 correct?
 387:18 A. That is correct.
 387:19 Q. And you were asked several
 387:20 questions about this document yesterday,
 387:21 weren't you?
 387:22 A. Yes, I was.

388:12 - 389:2

Heydens, William 01-24-2017 (00:00:38)

Heydens.233

388:12 Q. What discipline does this paper
 388:13 relate to of the five that you mentioned
 388:14 earlier?
 388:15 A. This is the summary paper that
 388:16 I referred to that includes the other four
 388:17 disciplines.
 388:18 Q. So this is a summary paper that
 388:19 brought together all of the authors of the
 388:20 other four papers; is that correct?
 388:21 A. That's correct.
 388:22 Q. Did this paper reach
 388:23 independent scientific conclusions by the
 388:24 panel members?
 388:25 A. This represents the independent
 389:1 conclusions that we covered in the other four
 389:2 so, yes.

388:12 - 389:2

Heydens, William 01-24-2017 (00:00:39)

Heydens.234

388:12 Q. What discipline does this paper
 388:13 relate to of the five that you mentioned
 388:14 earlier?
 388:15 A. This is the summary paper that
 388:16 I referred to that includes the other four
 388:17 disciplines.
 388:18 Q. So this is a summary paper that
 388:19 brought together all of the authors of the
 388:20 other four papers; is that correct?
 388:21 A. That's correct.
 388:22 Q. Did this paper reach
 388:23 independent scientific conclusions by the
 388:24 panel members?

clear

389:9 - 390:3	<p>388:25 A. This represents the independent 389:1 conclusions that we covered in the other four 389:2 so, yes.</p>	Heydens.235
389:9 - 390:2	<p>Heydens, William 01-24-2017 (00:00:56)</p> <p>389:9 Q. Well, how did the other four 389:10 papers relate to this paper? 389:11 A. Well, the scientists that were 389:12 involved in those four groups, they did their 389:13 evaluations and they did their conclusions. 389:14 And then what was done in this paper was 389:15 those evaluations and those conclusions were 389:16 then brought into this overall summary paper. 389:17 Q. Now, did you provide any 389:18 substantive comments on this overall summary 389:19 paper that was marked as 3-4 prior to its 389:20 publication? 389:21 A. As we discussed yesterday, I 389:22 did provide some of the history text, and I 389:23 did provide some comments. 389:24 Q. And let me show you what we 389:25 marked -- what was marked yesterday by 390:1 plaintiffs as 3-10, which should be in that 390:2 stack there. 390:3 A. Oh, okay.</p> <p>Heydens, William 01-24-2017 (00:00:55)</p> <p>389:9 Q. Well, how did the other four 389:10 papers relate to this paper? 389:11 A. Well, the scientists that were 389:12 involved in those four groups, they did their 389:13 evaluations and they did their conclusions. 389:14 And then what was done in this paper was 389:15 those evaluations and those conclusions were 389:16 then brought into this overall summary paper. 389:17 Q. Now, did you provide any 389:18 substantive comments on this overall summary 389:19 paper that was marked as 3-4 prior to its 389:20 publication? 389:21 A. As we discussed yesterday, I 389:22 did provide some of the history text, and I 389:23 did provide some comments.</p>	Heydens.236

389:24 Q. And let me show you what we
389:25 marked -- what was marked yesterday by
390:1 plaintiffs as 3-10, which should be in that
390:2 stack there.

390:3 - 392:15

Heydens, William 01-24-2017 (00:02:35)

Heydens.237

390:3 A. Oh, okay.

390:4 Q. You remember talking about this
390:5 document that plaintiffs marked as 3-10
390:6 yesterday?

390:7 A. Yes, I do.

390:8 Q. And you say in the first
390:9 sentence, "Here are my suggested edits to the
390:10 draft combined manuscript."

390:11 Do you see that?

390:12 A. Yes, I do.

390:13 Q. What paper were you referring
390:14 to there?

390:15 A. I was referring to the summary
390:16 manuscript.

390:17 Q. And you see the attachment was
390:18 combined manuscript draft January 11, 2016 3
390:19 with review?

390:20 Do you see that in the
390:21 attachment identification on the e-mail?

390:22 A. Yes, I do.

390:23 Q. So what paper was that, the
390:24 combined manuscript draft January 11?

390:25 A. That's referring to the summary
391:1 manuscript.

391:2 Q. And you provided some comments
391:3 in the attached document, correct?

391:4 A. Yes, I did.

391:5 Q. And you talked about that
391:6 yesterday, right?

391:7 A. Yes, we did.

391:8 Q. Now, did you write any portion
391:9 of -- sorry, let me strike that.

391:10 Did you write any portion of
391:11 the paper that we had marked yesterday as
391:12 3-4, the summary -- what you call the summary

391:13 paper, did you write any portion of that
 391:14 paper?
 391:15 A. Let me just look at this.
 391:16 Q. No, put that aside. I want you
 391:17 to go back to 3-4, which is the published
 391:18 paper, and I want to ask you if you wrote any
 391:19 portion of that paper.
 391:20 A. So as we discussed yesterday,
 391:21 some of the history that's in the
 391:22 introduction is information that came from
 391:23 me.
 391:24 Q. How much -- how long was the
 391:25 material you prepared and provided related to
 392:1 this paper? How many pages?
 392:2 A. So actually, the -- I -- at a
 392:3 very early stage in this project I started
 392:4 the beginnings of what was -- what we thought
 392:5 would be a standalone -- it would be this --
 392:6 it would have been the sixth article that was
 392:7 going to be a standalone introduction, which,
 392:8 again, basically a standalone introduction,
 392:9 this is what happened and here's why we're
 392:10 doing this. I provided that early on. It
 392:11 was approximately four and a half pages
 392:12 double-spaced.
 392:13 Q. Who did you provide that to?
 392:14 A. I provided that to Ashley
 392:15 Roberts at Intertek.

390:4 - 391:7

Heydens, William 01-24-2017 (00:00:48)

Heydens.238

390:4 Q. You remember talking about this
 390:5 document that plaintiffs marked as 3-10
 390:6 yesterday?
 390:7 A. Yes, I do.
 390:8 Q. And you say in the first
 390:9 sentence, "Here are my suggested edits to the
 390:10 draft combined manuscript."
 390:11 Do you see that?
 390:12 A. Yes, I do.
 390:13 Q. What paper were you referring
 390:14 to there?

Page/Line

Source

ID

390:15 A. I was referring to the summary
 390:16 manuscript.
 390:17 Q. And you see the attachment was
 390:18 combined manuscript draft January 11, 2016 3
 390:19 with review?
 390:20 Do you see that in the
 390:21 attachment identification on the e-mail?
 390:22 A. Yes, I do.
 390:23 Q. So what paper was that, the
 390:24 combined manuscript draft January 11?
 390:25 A. That's referring to the summary
 391:1 manuscript.
 391:2 Q. And you provided some comments
 391:3 in the attached document, correct?
 391:4 A. Yes, I did.
 391:5 Q. And you talked about that
 391:6 yesterday, right?
 391:7 A. Yes, we did.

391:10 - 392:15

Heydens, William 01-24-2017 (00:01:34)

Heydens.239

391:10 Did you write any portion of
 391:11 the paper that we had marked yesterday as
 391:12 3-4, the summary -- what you call the summary
 391:13 paper, did you write any portion of that
 391:14 paper?
 391:15 A. Let me just look at this.
 391:16 Q. No, put that aside. I want you
 391:17 to go back to 3-4, which is the published
 391:18 paper, and I want to ask you if you wrote any
 391:19 portion of that paper.
 391:20 A. So as we discussed yesterday,
 391:21 some of the history that's in the
 391:22 introduction is information that came from
 391:23 me.
 391:24 Q. How much -- how long was the
 391:25 material you prepared and provided related to
 392:1 this paper? How many pages?
 392:2 A. So actually, the -- I -- at a
 392:3 very early stage in this project I started
 392:4 the beginnings of what was -- what we thought
 392:5 would be a standalone -- it would be this --

2155.2.1

clear

392:6 it would have been the sixth article that was
 392:7 going to be a standalone introduction, which,
 392:8 again, basically a standalone introduction,
 392:9 this is what happened and here's why we're
 392:10 doing this. I provided that early on. It
 392:11 was approximately four and a half pages
 392:12 double-spaced.

392:13 Q. Who did you provide that to?

392:14 A. I provided that to Ashley

392:15 Roberts at Intertek.

393:12 - 394:6

Heydens, William 01-24-2017 (00:00:27)

Heydens.240

393:12 Q. The four to five pages you're
 393:13 talking about that you provided, did any of
 393:14 that contain scientific conclusions?

393:15 A. It contained the history.

393:16 Q. Okay. Did any of it contain
 393:17 scientific conclusions?

393:18 A. No. No.

393:19 Q. Did any of it contain any
 393:20 scientific analysis --

393:21 A. No.

393:22 Q. -- of the materials

393:23 considered --

393:24 A. No.

393:25 Q. -- by the panel?

394:1 A. No.

394:2 Q. Let me finish my question.

394:3 A. Sorry.

394:4 Q. Did any of it contain any
 394:5 scientific analysis of the materials
 394:6 considered by the panels?

393:12 - 399:16

Heydens, William 01-24-2017 (00:05:56)

Heydens.241

393:12 Q. The four to five pages you're
 393:13 talking about that you provided, did any of
 393:14 that contain scientific conclusions?

393:15 A. It contained the history.

393:16 Q. Okay. Did any of it contain
 393:17 scientific conclusions?

393:18 A. No. No.

393:19 Q. Did any of it contain any

393:20 scientific analysis --
393:21 A. No.
393:22 Q. -- of the materials
393:23 considered --
393:24 A. No.
393:25 Q. -- by the panel?
394:1 A. No.
394:2 Q. Let me finish my question.
394:3 A. Sorry.
394:4 Q. Did any of it contain any
394:5 scientific analysis of the materials
394:6 considered by the panels?
394:7 MR. MILLER: Object to the form
394:8 of the question.
394:9 THE WITNESS: No.
394:10 QUESTIONS BY MR. JOHNSTON:
394:11 Q. Now, you were also shown
394:12 yesterday a document that was marked as 3-20.
394:13 And unfortunately, I've marked on my copy of
394:14 that, so --
394:15 A. You want me to dig mine out
394:16 here?
394:17 Q. You can try, yes.
394:18 It's a February 9, 2016 e-mail
394:19 from you. It's a fairly thick document with
394:20 a clip on it. May be getting close there.
394:21 That might be it.
394:22 A. 3-20.
394:23 Q. And yesterday you talked about
394:24 this document, correct?
394:25 A. Yes.
395:1 Q. And I want to know what paper
395:2 was attached to this e-mail of the five we
395:3 just discussed?
395:4 What draft?
395:5 A. This is a draft of the summary
395:6 paper.
395:7 Q. So if we look back behind this
395:8 e-mail to what was included with 3-20, your
395:9 testimony is that this paper was which paper?

395:10 A. The summary paper.
395:11 Q. Was that the epidemiology
395:12 paper?
395:13 A. No, it is not.
395:14 Q. And you provided some comments
395:15 on this paper, correct?
395:16 A. I did.
395:17 Q. And you provided the comments
395:18 on the summary paper, correct?
395:19 A. I provided comments on the
395:20 summary paper.
395:21 Q. Now, looking at this document,
395:22 the e-mail, at the beginning where you say
395:23 that you've gone through the document and
395:24 you've indicated what you think should stay,
395:25 what can go and in a couple spots I did a
396:1 little editing; you testified about that
396:2 yesterday, right?
396:3 A. Yes, I did.
396:4 Q. What paper were you referring
396:5 to when you wrote that sentence?
396:6 A. I'm referring to the summary
396:7 paper.
396:8 Q. Not the epidemiology paper?
396:9 A. Not the epidemiology paper.
396:10 Q. And you look down at the e-mail
396:11 from Ashley Roberts and it says, "Hi, Bill,
396:12 please take a look at the latest from the epi
396:13 group."
396:14 Do you see that?
396:15 A. That is correct.
396:16 Q. What was that about?
396:17 A. The epi group provided a few
396:18 comments on the summary paper.
396:19 Q. And how were your comments
396:20 related to that?
396:21 A. And so I went in and looked at
396:22 the comments that had come from the
396:23 epidemiologists and I offered my comments on
396:24 their comments on the summary paper.

396:25 Q. Put that aside.
397:1 (Heydens Exhibit 3-50 marked
397:2 for identification.)
397:3 QUESTIONS BY MR. JOHNSTON:
397:4 Q. I hand you what's been marked
397:5 as Exhibit 3-50.
397:6 Have you seen this document
397:7 before?
397:8 A. Yes, I have.
397:9 Q. This is an article drafted by
397:10 Gary William, Robert Kroes and Ian Munro?
397:11 A. Correct. That's correct.
397:12 Q. And this is titled "Safety
397:13 Evaluation and Risk Assessment of the
397:14 Herbicide Roundup and Its Active Ingredient,
397:15 Glyphosate, for Humans," correct?
397:16 A. That is correct.
397:17 Q. What is this document to your
397:18 knowledge?
397:19 A. So this document summarizes the
397:20 evaluations that were done by these three
397:21 authors on various aspects of the toxicology
397:22 of glyphosate and Roundup.
397:23 Q. Yesterday plaintiffs marked
397:24 Exhibit 3-29 as the Gary Williams, Robert
397:25 Kroes and Ian Munro paper, correct?
398:1 A. Yes.
398:2 Q. That document was only three
398:3 pages long, correct?
398:4 A. Correct.
398:5 Q. 3-50, how long is the document
398:6 that we marked as number 3-50?
398:7 A. This document -- well, it takes
398:8 up pages 117 through 165, so approximately 50
398:9 pages.
398:10 Q. And will you agree with me that
398:11 all of those pages are contained in the
398:12 document that I've marked as Exhibit 3-50?
398:13 A. Let me look. Yes.
398:14 Q. Why did this paper get written?

398:15 What caused this paper to be
 398:16 written?
 398:17 A. I think we talked a little bit
 398:18 about this yesterday, but so this -- prior to
 398:19 this project, there was really no -- not a
 398:20 lot of toxicology information in the open
 398:21 literature. Basically it's pretty
 398:22 uninteresting reading because the molecule is
 398:23 not toxic and journals aren't real enthused
 398:24 by getting data that doesn't really say --
 398:25 doesn't show any problems.
 399:1 But around -- in the late '90s,
 399:2 this is a point in time when some of the
 399:3 studies that we discussed yesterday, and
 399:4 actually discussed today, some of the studies
 399:5 with some problems, as it turns out, started
 399:6 to show up in the literature, primarily in
 399:7 the area of genotoxicity.
 399:8 So it was just thought at this
 399:9 point in time that it would be a good time to
 399:10 do a thorough review of all the information
 399:11 that was available on glyphosate at that
 399:12 point in time and just get that summarized in
 399:13 the open peer-reviewed literature, and that's
 399:14 what this project was about.
 399:15 Q. I want to ask you about the
 399:16 authors.

394:9 - 396:25

Heydens, William 01-24-2017 (00:02:23)

Heydens.242

394:9 THE WITNESS: No.
 394:10 QUESTIONS BY MR. JOHNSTON:
 394:11 Q. Now, you were also shown
 394:12 yesterday a document that was marked as 3-20.
 394:13 And unfortunately, I've marked on my copy of
 394:14 that, so --
 394:15 A. You want me to dig mine out
 394:16 here?
 394:17 Q. You can try, yes.
 394:18 It's a February 9, 2016 e-mail
 394:19 from you. It's a fairly thick document with
 394:20 a clip on it. May be getting close there.

394:21 That might be it.
394:22 A. 3-20.
394:23 Q. And yesterday you talked about
394:24 this document, correct?
394:25 A. Yes.
395:1 Q. And I want to know what paper
395:2 was attached to this e-mail of the five we
395:3 just discussed?
395:4 What draft?
395:5 A. This is a draft of the summary
395:6 paper.
395:7 Q. So if we look back behind this
395:8 e-mail to what was included with 3-20, your
395:9 testimony is that this paper was which paper?
395:10 A. The summary paper.
395:11 Q. Was that the epidemiology
395:12 paper?
395:13 A. No, it is not.
395:14 Q. And you provided some comments
395:15 on this paper, correct?
395:16 A. I did.
395:17 Q. And you provided the comments
395:18 on the summary paper, correct?
395:19 A. I provided comments on the
395:20 summary paper.
395:21 Q. Now, looking at this document,
395:22 the e-mail, at the beginning where you say
395:23 that you've gone through the document and
395:24 you've indicated what you think should stay,
395:25 what can go and in a couple spots I did a
396:1 little editing; you testified about that
396:2 yesterday, right?
396:3 A. Yes, I did.
396:4 Q. What paper were you referring
396:5 to when you wrote that sentence?
396:6 A. I'm referring to the summary
396:7 paper.
396:8 Q. Not the epidemiology paper?
396:9 A. Not the epidemiology paper.
396:10 Q. And you look down at the e-mail

Page/Line	Source	ID
	396:11 from Ashley Roberts and it says, "Hi, Bill, 396:12 please take a look at the latest from the epi 396:13 group." 396:14 Do you see that? 396:15 A. That is correct. 396:16 Q. What was that about? 396:17 A. The epi group provided a few 396:18 comments on the summary paper. 396:19 Q. And how were your comments 396:20 related to that? 396:21 A. And so I went in and looked at 396:22 the comments that had come from the 396:23 epidemiologists and I offered my comments on 396:24 their comments on the summary paper. 396:25 Q. Put that aside.	
397:1 - 397:11	Heydens, William 01-24-2017 (00:00:15)	Heydens.243
	397:1 (Heydens Exhibit 3-50 marked 397:2 for identification.) 397:3 QUESTIONS BY MR. JOHNSTON: 397:4 Q. I hand you what's been marked 397:5 as Exhibit 3-50. 397:6 Have you seen this document 397:7 before? 397:8 A. Yes, I have. 397:9 Q. This is an article drafted by 397:10 Gary William, Robert Kroes and Ian Munro? 397:11 A. Correct. That's correct.	6194.1
397:12 - 398:13	Heydens, William 01-24-2017 (00:01:07)	Heydens.244
	397:12 Q. And this is titled "Safety 397:13 Evaluation and Risk Assessment of the 397:14 Herbicide Roundup and Its Active Ingredient, 397:15 Glyphosate, for Humans," correct? 397:16 A. That is correct. 397:17 Q. What is this document to your 397:18 knowledge? 397:19 A. So this document summarizes the 397:20 evaluations that were done by these three 397:21 authors on various aspects of the toxicology 397:22 of glyphosate and Roundup. 397:23 Q. Yesterday plaintiffs marked	clear

397:24 Exhibit 3-29 as the Gary Williams, Robert
 397:25 Kroes and Ian Munro paper, correct?
 398:1 A. Yes.
 398:2 Q. That document was only three
 398:3 pages long, correct?
 398:4 A. Correct.
 398:5 Q. 3-50, how long is the document
 398:6 that we marked as number 3-50?
 398:7 A. This document -- well, it takes
 398:8 up pages 117 through 165, so approximately 50
 398:9 pages.
 398:10 Q. And will you agree with me that
 398:11 all of those pages are contained in the
 398:12 document that I've marked as Exhibit 3-50?
 398:13 A. Let me look. Yes.

Heydens, William 01-24-2017 (00:01:19)

398:14 Q. Why did this paper get written?
 398:15 What caused this paper to be
 398:16 written?
 398:17 A. I think we talked a little bit
 398:18 about this yesterday, but so this -- prior to
 398:19 this project, there was really no -- not a
 398:20 lot of toxicology information in the open
 398:21 literature. Basically it's pretty
 398:22 uninteresting reading because the molecule is
 398:23 not toxic and journals aren't real enthused
 398:24 by getting data that doesn't really say --
 398:25 doesn't show any problems.
 399:1 But around -- in the late '90s,
 399:2 this is a point in time when some of the
 399:3 studies that we discussed yesterday, and
 399:4 actually discussed today, some of the studies
 399:5 with some problems, as it turns out, started
 399:6 to show up in the literature, primarily in
 399:7 the area of genotoxicity.
 399:8 So it was just thought at this
 399:9 point in time that it would be a good time to
 399:10 do a thorough review of all the information
 399:11 that was available on glyphosate at that
 399:12 point in time and just get that summarized in

398:14 - 399:16

Heydens.245

Page/Line

Source

ID

399:13 the open peer-reviewed literature, and that's
399:14 what this project was about.

399:15 Q. I want to ask you about the
399:16 authors.

401:12 - 401:22

Heydens, William 01-24-2017 (00:00:27)

Heydens.246

401:12 passed away a few years ago as well.

401:13 Q. Do you know what data these
401:14 three experts -- expert authors reviewed in
401:15 preparing this paper?

401:16 A. They had access to all the
401:17 information that was available. All the
401:18 studies that Monsanto had. At the time those
401:19 were the only studies that existed as well as
401:20 studies that were out there in the
401:21 peer-reviewed literature of which at that
401:22 time there was not as much as there is now.

401:13 - 401:22

Heydens, William 01-24-2017 (00:00:25)

Heydens.247

401:13 Q. Do you know what data these
401:14 three experts -- expert authors reviewed in
401:15 preparing this paper?

401:16 A. They had access to all the
401:17 information that was available. All the
401:18 studies that Monsanto had. At the time those
401:19 were the only studies that existed as well as
401:20 studies that were out there in the
401:21 peer-reviewed literature of which at that
401:22 time there was not as much as there is now.

403:3 - 404:15

Heydens, William 01-24-2017 (00:01:50)

Heydens.248

403:3 Q. What was your role with respect
403:4 to this paper?

403:5 A. My role was I played a role
403:6 primarily -- in the middle of the process.
403:7 The way the process worked was that, you
403:8 know, the expert panel, obviously they
403:9 started with evaluation of all the data as
403:10 they say here in the paper. Then they made
403:11 their conclusions from there -- based on
403:12 their evaluations. Then all of that was
403:13 written up in a draft manuscript. That draft
403:14 manuscript was written by the next person

403:15 that's acknowledged there, Douglas W. Bryant.

403:16 Then at that point --

403:17 Q. Who did he work for?

403:18 A. I'm sorry, he worked for

403:19 Cantox.

403:20 Q. Okay. What -- continue with

403:21 your discussion of your role on the paper.

403:22 A. Yes.

403:23 So Douglas wrote the draft of

403:24 the evaluation, like I say, took what the

403:25 experts gave him, and he put that together in

404:1 a draft. And then I received that draft, and

404:2 that's the point in time where I made my

404:3 contributions. So I provided some editing

404:4 and rewriting. It was things like editing

404:5 relatively minor things, editing for

404:6 formatting, just for clarity, really just for

404:7 overall readability to make it easier for

404:8 people to read in a more organized fashion.

404:9 I then provided that back to

404:10 Douglas, and then it was up to Douglas and

404:11 Ian and the other authors to complete that

404:12 manuscript.

404:13 Q. Did your edits change any of

404:14 the authors' conclusions that they had

404:15 reached prior to you receiving that draft?

403:3 - 404:15

Heydens, William 01-24-2017 (00:01:50)

Heydens.249

403:3 Q. What was your role with respect

403:4 to this paper?

403:5 A. My role was I played a role

403:6 primarily -- in the middle of the process.

403:7 The way the process worked was that, you

403:8 know, the expert panel, obviously they

403:9 started with evaluation of all the data as

403:10 they say here in the paper. Then they made

403:11 their conclusions from there -- based on

403:12 their evaluations. Then all of that was

403:13 written up in a draft manuscript. That draft

403:14 manuscript was written by the next person

403:15 that's acknowledged there, Douglas W. Bryant.

Page/Line

Source

ID

403:16 Then at that point --
 403:17 Q. Who did he work for?
 403:18 A. I'm sorry, he worked for
 403:19 Cantox.
 403:20 Q. Okay. What -- continue with
 403:21 your discussion of your role on the paper.
 403:22 A. Yes.
 403:23 So Douglas wrote the draft of
 403:24 the evaluation, like I say, took what the
 403:25 experts gave him, and he put that together in
 404:1 a draft. And then I received that draft, and
 404:2 that's the point in time where I made my
 404:3 contributions. So I provided some editing
 404:4 and rewriting. It was things like editing
 404:5 relatively minor things, editing for
 404:6 formatting, just for clarity, really just for
 404:7 overall readability to make it easier for
 404:8 people to read in a more organized fashion.
 404:9 I then provided that back to
 404:10 Douglas, and then it was up to Douglas and
 404:11 Ian and the other authors to complete that
 404:12 manuscript.

404:13 Q. Did your edits change any of
 404:14 the authors' conclusions that they had
 404:15 reached prior to you receiving that draft?

404:18 - 404:22

Heydens, William 01-24-2017 (00:00:05)

Heydens.250

404:18 THE WITNESS: No, they did not.
 404:19 QUESTIONS BY MR. JOHNSTON:
 404:20 Q. Did your edits change any of
 404:21 the authors' evaluations that are set forth
 404:22 in this paper?

404:18 - 404:22

Heydens, William 01-24-2017 (00:00:05)

Heydens.251

404:18 THE WITNESS: No, they did not.
 404:19 QUESTIONS BY MR. JOHNSTON:
 404:20 Q. Did your edits change any of
 404:21 the authors' evaluations that are set forth
 404:22 in this paper?

404:25 - 405:1

Heydens, William 01-24-2017 (00:00:01)

Heydens.252

404:25 THE WITNESS: No, they do
 405:1 not -- did not.

404:25 - 407:13

Heydens, William 01-24-2017 (00:02:02)

Heydens.253

404:25 THE WITNESS: No, they do
405:1 not -- did not.
405:2 QUESTIONS BY MR. JOHNSTON:
405:3 Q. Yesterday you were shown a
405:4 document that was marked as Exhibit 3-3.
405:5 Just look on the screen.
405:6 Do you remember this was a
405:7 publication titled "Ghost Writing Initiated
405:8 By Commercial Companies," from the World
405:9 Association of Medical Editors?
405:10 Do you remember you were shown
405:11 that document?
405:12 A. Yes, I do remember that.
405:13 Q. And one of the things that was
405:14 read to you was that "ghost authorship exists
405:15 when someone has made substantial
405:16 contributions to writing a manuscript and
405:17 this role is not mentioned in the manuscript
405:18 itself."
405:19 Do you see that?
405:20 A. Yes, I do.
405:21 Q. Based on this definition, were
405:22 you a ghost author, in your opinion, of the
405:23 four substantive Intertek papers?
405:24 A. Of the Intertek papers?
405:25 Q. Yes.
406:1 A. No, I'm not.
406:2 Q. Were you under this definition
406:3 in your opinion an author of the summary
406:4 paper associated with Intertek?
406:5 A. I was involved in the paper.
406:6 Q. Well, do you think you qualify
406:7 as someone who's made a substantial
406:8 contribution to writing a manuscript whose
406:9 role is not mentioned?
406:10 A. No, not a substantial
406:11 contribution. A very minor contribution.
406:12 Q. Okay. What about the Williams
406:13 paper, does your contribution to the Williams

406:14 paper constitute a substantial contribution
 406:15 to writing a manuscript and your role was not
 406:16 mentioned in the manuscript itself?
 406:17 A. My role is actually mentioned
 406:18 in the manuscript.
 406:19 Q. Were your contributions in your
 406:20 view to the Williams paper substantial?
 406:21 A. No, they were not. As I said,
 406:22 they were editorial, just to make it easier
 406:23 to read.
 406:24 Q. And there's another part of
 406:25 this that was read starting with, "For
 407:1 example, a writer employed by a commercial
 407:2 company may prepare an article, then invite
 407:3 an expert in the field to submit the work
 407:4 perhaps with minor revisions under his or her
 407:5 own name."
 407:6 Do you see that?
 407:7 A. Yes, I do.
 407:8 Q. Did that happen with respect to
 407:9 any of the five Intertek papers?
 407:10 A. No, it did not.
 407:11 Q. Did it happen with respect to
 407:12 the Williams paper?
 407:13 A. No, it did not.

405:2 - 407:13

Heydens, William 01-24-2017 (00:01:56)

Heydens.254

405:2 QUESTIONS BY MR. JOHNSTON:
 405:3 Q. Yesterday you were shown a
 405:4 document that was marked as Exhibit 3-3.
 405:5 Just look on the screen.
 405:6 Do you remember this was a
 405:7 publication titled "Ghost Writing Initiated
 405:8 By Commercial Companies," from the World
 405:9 Association of Medical Editors?
 405:10 Do you remember you were shown
 405:11 that document?
 405:12 A. Yes, I do remember that.
 405:13 Q. And one of the things that was
 405:14 read to you was that "ghost authorship exists
 405:15 when someone has made substantial

405:16 contributions to writing a manuscript and
405:17 this role is not mentioned in the manuscript
405:18 itself."
405:19 Do you see that?
405:20 A. Yes, I do.
405:21 Q. Based on this definition, were
405:22 you a ghost author, in your opinion, of the
405:23 four substantive Intertek papers?
405:24 A. Of the Intertek papers?
405:25 Q. Yes.
406:1 A. No, I'm not.
406:2 Q. Were you under this definition
406:3 in your opinion an author of the summary
406:4 paper associated with Intertek?
406:5 A. I was involved in the paper.
406:6 Q. Well, do you think you qualify
406:7 as someone who's made a substantial
406:8 contribution to writing a manuscript whose
406:9 role is not mentioned?
406:10 A. No, not a substantial
406:11 contribution. A very minor contribution.
406:12 Q. Okay. What about the Williams
406:13 paper, does your contribution to the Williams
406:14 paper constitute a substantial contribution
406:15 to writing a manuscript and your role was not
406:16 mentioned in the manuscript itself?
406:17 A. My role is actually mentioned
406:18 in the manuscript.
406:19 Q. Were your contributions in your
406:20 view to the Williams paper substantial?
406:21 A. No, they were not. As I said,
406:22 they were editorial, just to make it easier
406:23 to read.
406:24 Q. And there's another part of
406:25 this that was read starting with, "For
407:1 example, a writer employed by a commercial
407:2 company may prepare an article, then invite
407:3 an expert in the field to submit the work
407:4 perhaps with minor revisions under his or her
407:5 own name."

Page/Line	Source	ID
	407:6 Do you see that?	
	407:7 A. Yes, I do.	
	407:8 Q. Did that happen with respect to	
	407:9 any of the five Intertek papers?	
	407:10 A. No, it did not.	
	407:11 Q. Did it happen with respect to	
	407:12 the Williams paper?	
	407:13 A. No, it did not.	
408:14 - 409:17	Heydens, William 01-24-2017 (00:01:08)	Heydens.255
	408:14 Q. He also included the ICJME	307.1.1
	408:15 guidelines on the conduct -- recommendations	
	408:16 for the conduct reporting, editing and	
	408:17 publication of scholarly work in medical	
	408:18 journals, correct?	
	408:19 A. That is correct.	
	408:20 Q. And that document says,	307.1.2
	408:21 "Authorship credit should be based on: 1,	
	408:22 substantial contributions to conception and	
	408:23 design, acquisition of data or analyses and	
	408:24 interpretation of data; 2, drafting the	
	408:25 article or revising it critically for	
	409:1 important intellectual content; 3, final	
	409:2 approval of the version to be published; and,	
	409:3 4, agreement to be accountable for all	
	409:4 aspects of the work ensuring that questions	
	409:5 related to the accuracy or integrity of any	
	409:6 part of the work are appropriately	
	409:7 investigated and resolved. Authors should	
	409:8 meet conditions 1, 2, 3 and 4," correct?	
	409:9 A. Correct.	
	409:10 Q. Do you meet those requirements	
	409:11 for authorship credit for any of the five	
	409:12 Intertek papers?	
	409:13 A. I don't meet any of those.	
	409:14 Q. Do you meet those five	
	409:15 requirements for authorship on the Williams	
	409:16 2000 paper?	
	409:17 A. No, I do not.	
408:14 - 409:17	Heydens, William 01-24-2017 (00:01:09)	Heydens.256
	408:14 Q. He also included the ICJME	

408:15 guidelines on the conduct -- recommendations
 408:16 for the conduct reporting, editing and
 408:17 publication of scholarly work in medical
 408:18 journals, correct?
 408:19 A. That is correct.
 408:20 Q. And that document says,
 408:21 "Authorship credit should be based on: 1,
 408:22 substantial contributions to conception and
 408:23 design, acquisition of data or analyses and
 408:24 interpretation of data; 2, drafting the
 408:25 article or revising it critically for
 409:1 important intellectual content; 3, final
 409:2 approval of the version to be published; and,
 409:3 4, agreement to be accountable for all
 409:4 aspects of the work ensuring that questions
 409:5 related to the accuracy or integrity of any
 409:6 part of the work are appropriately
 409:7 investigated and resolved. Authors should
 409:8 meet conditions 1, 2, 3 and 4," correct?
 409:9 A. Correct.
 409:10 Q. Do you meet those requirements
 409:11 for authorship credit for any of the five
 409:12 Intertek papers?
 409:13 A. I don't meet any of those.
 409:14 Q. Do you meet those five
 409:15 requirements for authorship on the Williams
 409:16 2000 paper?
 409:17 A. No, I do not.

410:9 - 410:23

Heydens, William 01-24-2017 (00:00:20)

Heydens.257

410:9 Q. Dr. Heydens, good morning.
 410:10 A. Good morning.
 410:11 Q. How are you today, sir?
 410:12 A. I'm doing good.
 410:13 Q. Very good.
 410:14 Now, we've been here a couple
 410:15 hours this morning, and you've had an
 410:16 opportunity to answer questions for
 410:17 Monsanto's attorneys, right?
 410:18 A. That is correct.
 410:19 Q. And I just want to follow up on

Page/Line	Source	ID
412:12 - 412:14	<p>410:20 a few of those points and then I think we'll 410:21 be able to close this deposition. 410:22 Okay? 410:23 A. Yes.</p> <p>Heydens, William 01-24-2017 (00:00:07)</p> <p>412:12 Let's go back and look at 412:13 Exhibit 3-14 produced to us in discovery from 412:14 Monsanto.</p>	<p>Heydens.258</p> <p>HW14.1</p>
413:5 - 413:9	<p>Heydens, William 01-24-2017 (00:00:14)</p> <p>413:5 Okay. Now, we're going to talk 413:6 to you about an e-mail that you sent, 413:7 produced to us by Monsanto. It's from Bill 413:8 Heydens to Donna Farmer and others concerning 413:9 IARC planning, right?</p>	<p>Heydens.259</p> <p>HW14.1.1</p>
413:11 - 413:14	<p>Heydens, William 01-24-2017 (00:00:11)</p> <p>413:11 Q. And going to the bottom 413:12 paragraph, "For overall plausibility paper 413:13 that we discussed with John" -- 413:14 That's John Acquavella, right?</p>	<p>Heydens.260</p> <p>HW14.2.9</p>
413:17 - 414:1	<p>Heydens, William 01-24-2017 (00:00:19)</p> <p>413:17 THE WITNESS: John Acquavella. 413:18 QUESTIONS BY MR. MILLER: 413:19 Q. Yes, sir. 413:20 -- "I'm still having a little 413:21 trouble wrapping my mind around that. If we 413:22 went full-bore involving experts from all 413:23 major areas, epi, tox, genotox, mechanism of 413:24 action, exposure" -- now, let me stop there. 413:25 That's what you did with the 414:1 Intertek panel, right?</p>	<p>Heydens.261</p>
414:8 - 414:18	<p>Heydens, William 01-24-2017 (00:00:36)</p> <p>414:8 A. So I described just earlier 414:9 what the panel did, and the panel -- there 414:10 was four groups of science, and there was the 414:11 summary. 414:12 Q. And you go on to say that, "A 414:13 less expensive, more palatable approach might 414:14 be to involve experts only for the areas of 414:15 contention, epidemiology and possible MOA, 414:16 depending on what comes out of the IARC</p>	<p>Heydens.262</p> <p>HW14.2.10</p>

Page/Line	Source	ID
415:1 - 415:8	414:17 meeting, and we ghostwrite the exposure tox 414:18 and genotox sections." Heydens, William 01-24-2017 (00:00:25)	Heydens.263 clear
415:1	A. It is not what happened, no. I	
415:2	described this morning, and I described	
415:3	yesterday, this was written -- as indicated,	
415:4	this was written prior to anything even	
415:5	happening. This was when we were still in an	
415:6	evaluation process of things that could be	
415:7	done. And that's what's reflected here are	
415:8	some thoughts.	
415:25 - 416:2	Heydens, William 01-24-2017 (00:00:05)	Heydens.264
415:25	Q. Dr. Heydens, a term that you	
416:1	and I agreed under your definition is	
416:2	dishonest and unethical?	
416:9 - 416:10	Heydens, William 01-24-2017 (00:00:05)	Heydens.265
416:9	A. We agreed earlier on a	
416:10	definition, and that is not what happened.	
417:5 - 417:9	Heydens, William 01-24-2017 (00:00:14)	Heydens.266
417:5	Q. When counsel showed you this	
417:6	morning Exhibit 3-51 and you testified under	HW50.1
417:7	oath that you didn't ghostwrite this article,	
417:8	it's the article by Williams, Kroes and	HW50.1.1
417:9	Munro, isn't it, sir?	
417:12 - 417:25	Heydens, William 01-24-2017 (00:00:45)	Heydens.267
417:12	Q. Excuse me, Munro.	
417:13	A. I didn't ghostwrite anything.	
417:14	What I said was I made some	
417:15	minor editorial contributions to that 2000	
417:16	paper that do not mount to the level of a	
417:17	substantial contribution or an intellectual	
417:18	contribution and, thus, I was only recognized	
417:19	in the acknowledgements and not as an author,	
417:20	and that was appropriate for that situation.	
417:21	Q. When you say "we ghostwrote	HW1450.1.1
417:22	the" -- recall -- excuse me, when you say	
417:23	"recall this is how we handled Williams,	
417:24	Kroes and Munro," those are the three authors	
417:25	we're talking about in Exhibit 3-51, right?	
418:5 - 418:8	Heydens, William 01-24-2017 (00:00:09)	Heydens.268

Page/Line	Source	ID
418:21 - 418:25	<p>418:5 THE WITNESS: My answer that I 418:6 just gave relates to that 418:7 50-or-so-page document that is 418:8 authored by Williams, Kroes and Munro. Heydens, William 01-24-2017 (00:00:10)</p>	Heydens.269
419:3 - 419:19	<p>418:21 And you had gone through the 418:22 entire document before it was published, 418:23 indicated what I think should stay, what can 418:24 go and in a couple spots did a little 418:25 editing, right? Heydens, William 01-24-2017 (00:00:44)</p>	HW20.1.3
443:2 - 443:5	<p>419:3 THE WITNESS: That is when you 419:4 put different documents in front of 419:5 me. I just want to take a look -- 419:6 QUESTIONS BY MR. MILLER: 419:7 Q. Yes, sir, we have put different 419:8 documents. Take your time and look for 3-20 419:9 and then I'll ask you about it. 419:10 A. Yes. So as I testified this 419:11 morning, this is the summary document, and I 419:12 also testified on this yesterday as well. On 419:13 this summary document late in the process the 419:14 epidemiologists made some comments on some 419:15 things in this summary document. I then went 419:16 and looked at what the epidemiologists had 419:17 offered, and I made my comments on their 419:18 comments that they recently made on the 419:19 summary document. Heydens, William 01-24-2017 (00:00:16)</p>	clear Heydens.271
443:9 - 443:13	<p>443:2 Q. Dr. Heydens, here is 443:3 Exhibit 3-51. A copy for you and counsel. 443:4 You've seen this before, 443:5 haven't you? Heydens, William 01-24-2017 (00:00:08)</p>	Heydens.272
443:19 - 445:1	<p>443:9 A. Well, let me take a look. 443:10 Yes. 443:11 Q. Okay. Now, this is IARC 443:12 Monograph on the Evaluation of Carcinogenic 443:13 Risk to Humans, Volume 112, right? Heydens, William 01-24-2017 (00:01:16)</p>	Heydens.273

443:19 THE WITNESS: This document is
 443:20 around participants. It's who
 443:21 participated, who the observers are,
 443:22 and some of the other staff that were
 443:23 involved.

443:24 QUESTIONS BY MR. MILLER:

443:25 Q. That's absolutely right, sir.

444:1 Concerning that evaluation of
 444:2 the carcinogenic risk to humans, glyphosate
 444:3 being one of the chemicals that was looked at
 444:4 during that period, March 3 to March 10,
 444:5 2015, right?

444:6 A. That's correct.

444:7 Q. All right. And I just want to
 444:8 walk through.

444:9 You're aware that Aaron Blair
 444:10 from the National Cancer Institute was one of
 444:11 the people who decided that glyphosate was a
 444:12 probable human carcinogen for non-Hodgkin's
 444:13 lymphoma, right?

444:14 A. I'm aware that Aaron Blair was
 444:15 on this panel, yes.

444:16 Q. And you're aware that Matthew
 444:17 T. Martin, an employee of the US
 444:18 Environmental Protection Agency, was on the
 444:19 panel that concluded that glyphosate was a
 444:20 probable human carcinogen for non-Hodgkin's
 444:21 lymphoma, right?

444:22 A. I'm aware that his -- he's
 444:23 listed as a participant. Excuse me, a
 444:24 member.

444:25 Q. Lots of folks from the United
 445:1 States are on that panel; is that fair?

445:6 - 445:20

Heydens, William 01-24-2017 (00:00:37)

Heydens.274

445:6 A. I see -- as I look down at the
 445:7 list, I see USA, you know, on a handful of
 445:8 occasions.

445:9 Q. Matthew K. Ross from
 445:10 Mississippi State, right? He's a member of
 445:11 the panel, right?

Page/Line

Source

ID

445:12 A. That's correct, he is.

445:13 Q. And Ivan Rusyn from Texas A&M

445:14 is the sub-chair of the mechanism section,

445:15 right?

445:16 A. That's what it says there, yes.

445:17 Q. And Lauren Zeise from the

445:18 California Environmental Protection Agency,

445:19 right?

445:20 A. Yes.

459:15 - 459:20

Heydens, William 01-24-2017 (00:00:12)

Heydens.275

459:15 This is an e-mail from Tom

459:16 Sorahan to Donna Farmer and copied to you,

459:17 right, sir?

459:18 A. Are you talking about page 1?

459:19 Q. Yes.

459:20 A. Yes.

460:2 - 461:8

Heydens, William 01-24-2017 (00:01:44)

Heydens.276

460:2 Q. And in it Dr. Sorahan says, "I

460:3 do know of instances where observers at IARC

460:4 felt they had been treated rudely or

460:5 brusquely at monograph meetings. That was

460:6 not the case for me at Volume 112. I found

460:7 the chair, sub-chairs and invited experts to

460:8 be very friendly and prepared to respond to

460:9 all comments I made. Indeed, I think

460:10 questions the epi panel" -- I am sorry, "the

460:11 epi subpanel asked me about my recently

460:12 multiple myeloma paper were instrumental in

460:13 not having multiple myeloma included on the

460:14 charge sheet."

460:15 He sent you that in March

460:16 of 2015, right, sir?

460:17 A. Yes, that is correct.

460:18 Q. And he told you in March

460:19 of 2015, just days after the IARC ruling,

460:20 quote, "In my opinion, the meeting followed

460:21 the IARC guidelines. Dr. Straif -- Dr. Kurt

460:22 Straif, the director of the monograph's

460:23 program, has an intimate knowledge of the

460:24 IARC rules and insists that these are

Page/Line

Source

ID

2156
307
4037
4400
4895
4939
5142
6016
6194
HW1
HW10
HW14
HW1450
HW15
HW18C
HW20
HW21
HW26
HW28
HW30
HW31
HW36C
HW4
HW5
HW50
HW6
HW9