SUPERIOR COURT OF CALIFORNIA

COUNTY OF ALAMEDA

BEFORE THE HONORABLE WINIFRED Y. SMITH, JUDGE PRESIDING

DEPARTMENT NUMBER 21

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COORDINATION PROCEEDING SPECIAL TITLE (RULE 3.550) ROUNDUP PRODUCTS CASE THIS TRANSCRIPT RELATES TO: Pilliod, et al. vs. Monsanto Company, et al.	**JCCP No. 4953** **Case No. RG17862702** **Pages 4604 - 4798** **Volume 28**

Reporter's Transcript of Proceedings

Tuesday, April 30, 2019

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I N D E X

Tuesday, April 30, 2019

Tuesday, April 30, 2019 9:08 a.m.

P R O C E E D I N G S

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(Proceedings commenced in open court in the presence of the jury:)

THE COURT: Good morning, everybody. Good morning, ladies and gentlemen.

We're going to continue with the next witness presented by Mr. Evans for the defense.

You may proceed.

MR. EVANS: Good morning. Thank you, Your Honor.

Good morning, ladies and gentlemen of the jury.

The defense calls Dr. Robert Phalen.

THE CLERK: Sir, would you remain standing for one second and raise your right hand.

ROBERT PHALEN,

called as a witness for the defendant, having been duly sworn, testified as follows:

THE WITNESS: I do.

THE CLERK: Thank you. Please be seated.

And would you please state and spell your name for the record.

THE WITNESS: Robert Phalen. Spell the last

name?

THE CLERK: Yes, sir.

THE WITNESS: P, as in Peter, H-A-L-E-N.

THE COURT: All right. You may proceed, Mr. Evans.

MR. EVANS: Thank you, Your Honor.

DIRECT EXAMINATION

BY MR. EVANS:

Q. Good morning, Dr. Phalen. How are you?

A. Good.

Q. First time in court today?

A. Yes, first time ever.

Q. Well, I think I may have been here a day or two more than you, so let's see if we can struggle through today; okay?

A. Sounds good.

Q. All right. So could you introduce yourself to the ladies and gentlemen of the jury, please.

A. My name is Robert Phalen. I'm an associate professor in industrial hygiene and safety at the University of Houston Clear Lake.

Q. All right. And when you say you're an associate professor, what are you associate professor of?

A. Well, my primary area of expertise is

industrial hygiene.

Q. Okay. And what does industrial hygiene mean?

A. We're the ones that go out into the workplace, into the homes, into the communities, and we assess exposures. And we determine whether or not they're acceptable. And if they're not acceptable, then we work to control them.

Q. All right. And the term "industrial hygiene," we talked about this before, is that a -- is it limited to what you do, to actually what goes in industry or in a factory?

A. No, it's not. We have been trying to change the name for about 20 years now. So generally when we try to explain what we do, it's occupational safety, it's like occupational and environmental safety and health. So we're -- it's not limited. What we do in the workplace also applies to the community and people's homes.

A lot of what we do is things like indoor air quality in people's homes.

Q. All right.

MR. EVANS: Permission to publish his CV?

MR. WISNER: No objection, Your Honor.

THE COURT: Granted.

(Document published.)

BY MR. EVANS:

Q. And I'd like to just talk about -- starting out by talking a little bit about your educational background. Tell us where you got your education.

A. I have a bachelor's degree in biology from Cal State Fullerton. And then also a doctorate in environmental health science from UCLA.

Q. And it says there on the top that you're a Ph.D. in environmental health science industrial hygiene. And then your dissertation, why don't you tell the ladies and gentlemen of the jury about your dissertation?

A. My dissertation was focused on pesticides, looking at methods to evaluate pesticide exposures, and also chemical permeation of pesticides, primarily focused on protective clothing, but with the main emphasis that you're protecting the skin.

Q. And what is -- it says here surface analysis for the permeation of captan. What is captan?

A. Captan is a fungicide. So it's a common fungicide used with strawberries and apples.

Q. Okay. Now, if you could turn to the next page and let's look a little bit about your employment. Where -- you said -- where are you currently employed?

A. I'm at the University of Houston in

Clear Lake. It's a bay area right adjacent to the Johnson Space Center, NASA.

Q. And it says here --

THE COURT: I think there may be a problem with the screen.

MR. ISMAIL: Does yours work, Your Honor?

THE COURT: Mine is fine.

(Pause in the proceedings.)

MR. WISNER: For some reason, the output here isn't working. It's not communicating.

Mr. Evans, do you prefer to just keep going and use the big screens?

MR. EVANS: Does it work for looking this way or that way? Or do we need to take a break and fix that?

(Discussion off the record.)

THE COURT: All in favor of going forward without the screen, raise your hand?

All right. Sounds good.

(Laughter.)

MR. EVANS: Shall I proceed, Your Honor?

THE COURT: I think we should go ahead and proceed. If you don't mind just looking left or right until we can figure it out.

MR. EVANS: Thank you, Your Honor.

Q. So it says here you're teaching industrial hygiene courses.

A. Correct.

Q. Who do you teach and what do you teach?

A. Well, I teach undergraduate and graduate level. We have a ABET-accredited bachelor's program in both industrial hygiene and safety, and that's one of the reasons why I came to University of Houston, for the ABET accreditation.

And then also graduate level. And I'm also there for the opportunity to work with grad students to do meaningful research and to advance the field.

Q. If you look at page 12 of the CV, does it have your teaching experience there?

A. Yes.

Q. And do any of those courses relate to topics that you're going to be talking to us about today?

A. Yes. I mean, the first course there, industrial health and hygiene, we cover exposure assessment in there. Noise, not so much.

Moving down, number 6, industrial hygiene sampling analysis, that's directly related to exposure assessment. Statistical analysis, that's a part of exposure assessment. The recognition occupational diseases, it's more of a path of physiology, but that's

important to understand the body and how things interact with the body. So that's related.

The air pollution class has some exposure assessment, more related to air pollution, so in this case not much relationship because inhalation is not of concern here.

And then the last one, that graduate level analytical methods class, that is related to exposure assessment.

Q. All right. And let's go back, if we could, to page 2. And prior to working at the University of Houston, where did you work?

A. I was at Cal State San Bernardino, Inland Empire, just in from Los Angeles, for about nine years. I was also the director of the Palm Springs Institute for Environmental Sustainability for several of those years. And we had a satellite campus in Palm Springs.

Q. All right. And what types of courses did you teach during those years?

A. Similar. A little more public health, more environmental health science, some industrial hygiene courses, some of the air pollution, some of the exposure assessment, but definitely more public health-based.

Q. And then if you move down, it looks like you were an assistant professor before you became associate

professor?

A. Yeah, just general progression. Start out as assistant and then if you prove yourself, you go to associate, and then onto full.

Q. Now, before working in academia, did you actually work as an industrial hygienist?

A. I did, yeah.

Q. All right. Let's turn the page. And 1997 to 2001, four or five years you worked as an industrial hygienist?

A. Yes. I was at the Stockman Group for about -- for five years. And that's where I did a lot of exposure assessment in these industries that you see there.

So a number of clients, hundreds actually, of different work sites, and also residential work that was done there. And so -- and each one of these listed, those are areas where I've done exposure assessment.

Q. All right. And I think the jury is probably a little tired of hearing about one study after another. So let's do a little CSI.

Have you had some cases where you were out investigating, you know, what's going on and why someone was getting sick or not sick?

A. Yeah, that's kind of what we do. That's the

enjoyable part of the field is the CSI aspect. We are doing investigations so...

Q. Do you have some examples of those that you found interesting?

A. Yeah. I had one where the person was -- Wilshire district, high-rise.

Q. Was that Los Angeles?

A. Los Angeles, yeah. So a broker. He -- the only way he could explain it was he felt like he was being possessed. So after an hour or two sitting there at his desk doing his job, there was nothing else around, he felt this feeling coming over him, tingling and numbness, and he was concerned that there was something in his workplace.

He went to an occupational physician to try to figure out what was the problem. They couldn't figure it out. The physician called us. I went out there and did an evaluation.

That one I couldn't find anything. It was a pretty clean environment. The only thing that coincided with this feeling was he was drinking some water. So he had some water, and soon after he was drinking that water he had this rush come over him.

Turns out that the water was coming from his house. His wife was preparing it for him. And sent him

back to the doctor to do some testing, some biological monitoring testing for heavy metals because that's what I suspected. Came back positive for arsenic.

So that would be one example of when --

Q. And did your investigation stop at that point?

A. Pretty much. He wouldn't talk to me after that point. You know, tried to do some follow-up testing. But I did tell him that he really needed to look at this water carefully and what he was drinking.

Q. And did you have other examples in your working as an industrial hygienist where there were situations where people were just trying to understand what's going on with respect to their work situation, for example?

A. Yeah. There's a lot of them. I've had cases where people were opening shipping containers and they were throwing up, they were going to the hospital, didn't know what to suspect.

Physicians, the company -- they thought that it was possibly some kind of fumigant, some kind of pesticide on the pallets that were coming over in these shipments from China.

And I just followed normal investigation principles. And one of those is to find out as much information as I can ahead of time. I simply asked one

of the main persons there that received that shipment what was different. They said that the main thing was different was that they were on pallets, they had never received these shipments on pallets. And the other was that they're wet.

So I still investigated that fumigant, that pesticide exposure, but I was pretty confident it was mold. And sure enough, it was mold. And it was the highest mold spore counts I've ever seen in my experience.

Q. All right. Let's shift gears for a minute and look at your publications.

And have you published peer-reviewed articles?

A. Yes.

Q. And what are some of the topics that you've addressed in those peer-reviewed articles?

A. Chemical permeation of pesticides. A lot with protective clothing and as it relates to dermal exposures. And I've also done some exposure assessment-type monitoring for air pollutants.

MR. EVANS: All right. At this point, Your Honor, we tender Dr. Phalen as an expert with respect to dermal absorption and exposures.

MR. WISNER: Very brief voir dire, Your Honor.

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VOIR DIRE EXAMINATION

BY MR. WISNER:

Q. You got your Ph.D. from UCLA?

A. Correct.

Q. Do you agree UCLA is one of the greatest schools in the world?

A. I'd agree it's pretty good. Yeah, I enjoyed my time there.

Q. It's my college.

Second point, Doctor. You don't intend to offer any opinions about whether or not Roundup caused Mr. or Mrs. Pilliod's cancer?

A. That's not something I evaluated.

Q. Great.

MR. WISNER: No objection, Your Honor.

THE COURT: Proceed.

MR. EVANS: All right. And, Your Honor, I shared with counsel the PowerPoint slides --

MR. WISNER: No objection.

MR. EVANS: -- that the witness helped us prepare and he didn't have any objection.

So go ahead and publish the first PowerPoint slide.

THE COURT: Do I have a copy?

MR. EVANS: May I approach, Your Honor?

THE COURT: Yeah. Thanks.

(Demonstrative published.)

DIRECT EXAMINATION (resumed)

BY MR. EVANS:

Q. Could you just describe for the ladies and gentlemen of the jury what you did in this case, at a very general level?

A. Very generally it's standard industrial hygiene practice to do an investigation, collect as much information that I can on the exposure scenario.

What I'm looking at is essentially what would be the route of exposure, how is it going to get on the body, and if any, how is it going to get in the body. And because that's the key thing is the dose, what get's in the body if we're talking about health effects.

And so that's what I did here was did a thorough review of the literature to see what's out there. There's actually quite a bit. I ended up reviewing over 100 articles and documents, and I'm sure you've heard about many of them.

And then the next part of that is to see how they were using it, how would that influence their exposure, how would it get on their skin.

So I reviewed the depositions of Mr. and Mrs. Pilliod. And I also did a site visit at their

primary residence to gather information on how they would be using it and how those exposures would occur.

Used all that information to do my assessment and determine what their doses were, what would get into the body.

Q. Okay. And I guess I'm the one with the clicker here.

Could you describe to the ladies and gentlemen of the jury what this slide demonstrates.

A. I mean, this is showing you how exposure would occur. It could start with purchasing of the product and having the product. But the key thing here is not necessarily how much product you purchase or how much you spray on the weed, it's what gets on the skin.

And so that's the critical thing in doing an exposure assessment is, in this case, with the Roundup, it's not inhalation exposure concern, it's primarily skin contact. And that's what I evaluated is how much would be getting on the skin. And then of that, what would get into the body.

Because that's really the critical thing we need to know. We need to know what is in the body because if it's not in the body, then we can't -- it's not even worth talking about the effects that could potentially be there.

And another critical thing, the last thing, is how quickly it's eliminated from the body. So, you know, it's critical to understand that once it gets in the body, is it going to stay there or -- and accumulate, or is it going to be rapidly eliminated and not accumulate.

Q. Okay. And with respect to the first point here with regard to analyzing exposure and absorption literature on glyphosate and Roundup, let's first start by talking a little bit about just what is in Roundup. I know the jury has heard this so we'll not spend a lot of time on this, but what's in -- for example, this is a jug of Roundup; correct?

A. Yes.

Q. And is this the same, maybe a little bit different looking, but is this the same type of Roundup that you saw when you actually went out to the Pilliods' house?

A. Yes. And this is what Mr. and Mrs. Pilliod reported applying most of the time. I think 85 percent of the time they reported using this 2 point -- I'm sorry -- 2 percent glyphosate in Roundup.

Q. All right. And so in that type of a bottle of Roundup, what is the vast majority of what's in the bottle?

A. It's mostly water.

Q. All right. And there's -- it says on here 2 percent surfactant and then trace impurities; right?

A. Correct.

Q. And the jury heard some from Dr. Sawyer about some of the trace impurities that may be in a bottle of Roundup. Have you looked at what's in there?

A. I've looked at, you know, the main components, but it's difficult when you're talking about trace impurities.

Q. Why is that?

A. Because they're trace. They're not measurable amounts. And if they are, they're so small, it's been determined that they're not a hazard or concern.

And so we get into this trace realm, we'll find these types of impurities and everything in our bodies, in the food we eat. And same type of things that Dr. Sawyer is talking about. Formaldehyde, our body produces it.

Q. All right. So let's talk about formaldehyde.

A. Yeah.

Q. That was one of the examples that he used. Is formaldehyde something that if I had an apple here that I bought from Whole Foods or Trader Joe's, it's completely organic, never exposed to any sort of an

herbicide or pesticide or anything, would that actually have formaldehyde in the apple?

A. It would have trace amounts of formaldehyde. It's a natural by-product of degradation of alcohol.

Q. And are trace impurities in Roundup, like other products, regulated, the amounts that can be in any of those -- any products, those regulated by the EPA?

A. Those are regulated and controlled and so, yes.

Q. Okay. Now, this is a chart that the jury saw when Dr. Sawyer was here. And this contains some overview of the results from some of the studies.

Do you recognize this chart?

A. Yes.

Q. And is this a chart that you reviewed from his report?

A. I did.

Q. Okay.

MR. EVANS: And if it's okay, Your Honor, could the witness just point to the exhibit?

Q. Can you just point to the jury which of the results there are actually not from human skin when you're talking about absorption rates.

A. The Maibach and the TNO. So this is a rodent

and this one's a monkey.

Q. Okay. And if you're looking at absorption rates in human skin, is it important to look at human data?

A. Yes.

Q. Why?

A. Why is it important?

Q. Yes.

A. Because we know that especially rodent data is going to be higher. And we also see some differences in monkeys. A little bit closer to humans. But definitely this would be expected, you would see higher values with rodent data.

Q. And the Wester 1991 exposure data, is all of that human data, or is some of that not human?

A. No. Some of this is data in monkeys as well.

Q. Okay. And in the Franz 1983 study, there's an asterisk there and there was a footnote on the original that I accidentally cut off in making this. But the -- Dr. Sawyer talked about that 4 percent. That's not actually a number that was in the reported outcome, but it is something that was found where?

A. That 4 percent was what was found in the epidermis, the outer layer of the skin. And the authors did not report that as being going in through the skin.

It was on that outer later. The actual amount of dermal absorption was .15 percent, but Dr. Sawyer thought that he should add this 4 percent in there.

Q. Okay. Now, have you reviewed the -- all of the data with respect to human absorption -- well, absorption of glyphosate in human skin?

A. Yes. I've reviewed quite a few. This is about 12 studies that I reviewed that would most closely relate to Mr. and Mrs. Pilliod's use. These are for formulations of Roundup with glyphosate in them, different concentrations, and this is spanning 30 years.

There's actually quite a bit of information on normal absorption. This is for human skin. This is how much gets through skin.

Q. All right.

A. And so it doesn't include all of it. I just want to say that there are some with gels that I didn't include here.

Q. All right. Because why not?

A. They're not using the gels. And it seemed like a weird product.

Q. Okay. So these are the 12 studies that you think are most relevant to the Pilliods' exposure and usage; is that fair?

A. Yes.

Q. Okay. And with respect to the study names are in green versus black, what's the difference between those two?

A. The ones that are in green represent those where we have data on the formulation. And in many cases we have it non-formulated versus formulated, which means these studies do it without the surfactants and with the surfactants.

Q. So you have data on both glyphosate by itself and glyphosate in combination with surfactants and how quickly it moves through the skin?

A. Correct.

Q. And as a general matter, does glyphosate readily absorb through skin?

A. No. It's a very low rate. It's kind of a little misleading looking at percentages here. The rate is very low, I can tell you.

The skin repels water. It repels glyphosate. And these rates with many of these studies are -- we call 10 to the minus 6 type amounts, a millionth of a milligram per centimeter squared per hour. Just very low amounts are going to get through the skin. The skin actually repels glyphosate.

Q. All right. Now, you said percentage absorbed, which is what this is representing, is different than

rate of absorption. What does that mean? Can you explain that?

A. Percentage is just the measure of how much was on the outside of the skin versus how much gets inside. And so these can be represented how much was actually -- how much did they actually put on the outside of the skin. They could put a large volume. And so that percentage, you know, it's going to be related to how much is outside the skin versus how much is in.

The rate is actually how much and how fast goes through the skin. That's more important when doing an exposure assessment and a dose assessment.

Q. So just so I make sure I understand, if you're -- I think the example that when Dr. Sawyer was here, he talked about if you put a piece of paper between two glasses of water and you turn it upside down, the question is how much goes through that skin if the piece of paper is water. Are you with me so far?

A. Yes.

Q. Okay. And when you're talking about percentage absorbed, if you put a very little amount on top of the paper and then you look at what's underneath the paper, it could result in a higher percentage; is that fair?

A. That would be fair to say.

Q. And if you put a lot on top of it, but you only got a small amount through, what would result -- what would the result be?

A. The percentage would show smaller, but the rate would still be the same.

Q. All right.

A. And I would just like to point out. So like something here, like the Wester study where it shows it looks higher, they actually only put in this one measure here 2.6 micrograms. 2.6 millionths of a gram. It was such a small amount. And that's why it shows a higher percentage.

Q. And so let's talk a little bit about just glyphosate. And you talked about it a little bit, but let's talk about --

A. Do you want me to keep standing?

Q. No, you can sit down. Thank you.

I mean, unless you want to.

A. I don't mind either way. I stand for my job typically.

Q. So let's talk about what explains the low absorption rate of glyphosate. Why -- why is that the case? What is it about glyphosate?

A. Yeah. It's strongly what we call hydrophilic. It loves water. We measure this as log K_{OW}. It's a

octanol water proficient. It's -- if you had two layers, you got a layer of octanol which is represented like oil, more like kerosene, and a layer of water, it's going to go in the water a thousand times more than it's going to go in the oil. It's not soluble in oil.

And that's really critical when we're talking about the human skin. The human skin is waxy and oily. It repels water. It's the reason why if we're taking a bath, we don't just swell up like a sponge.

It's the same thing if glyphosate gets -- or Roundup, a water-based product gets on the outer skin, it's not just going to swell in there. It's not just going to -- you know, the skin is not going to absorb like a sponge. It's actually repelling it.

And so in that repelling it, the outer skin is kind of waxy, oily, and it's like bricks and mortar. And so the bricks are made of cells filled with keratin. And in between them is oils and waxes. And it has to go try to go around those cracks. And that's really what limits glyphosate from getting in through the skin.

Q. Now, compare that to something that's called -- that's lipophilic, or soluble in fat or oil, what is -- how does that work?

A. If it was lipophilic, then it can go right into those cells. And the cells, they're made of

lipids. And the membranes of our cells have lipids in them. And so that's where we really are concerned when we're talking about chemical exposures, is something that's highly lipophilic and oil soluble and it will readily go through the cells. And it can even absorb in them and be what we call sometimes a reservoir, it can absorb into the fat tissues and in the cells and it's going to go through much faster.

Q. Now, does the presence of a surfactant in effect cut through the wax and oil and allow the glyphosate to just go streaming in?

A. It would depend. There's a lot of different types of surfactants so it would depend on the surfactant.

Q. Well, if you looked at the surfactants that are actually in the Roundup, did you see that in the results from the surfactant studies?

A. I did not. I did not see evidence with the surfactants that they'd have in there that, you know, that it was having an effect on the rate it was going through the skin. And you could see these are all studies with and without surfactants.

Q. Now, one of the things that Dr. Sawyer talked about was that some of the later studies involved, I think he said -- and I'm not going to try to quote here,

right -- but basically it involved freezing and then heating up the skin and that somehow changed the complexion of the skin such that you wouldn't get absorption through skin like you would live skin.

Have you -- do you have any views about whether that's the reality?

A. I would disagree.

Q. Why?

A. Well, specifically with glyphosate, the main barrier to glyphosate getting in the skin is the outer part of the skin. It doesn't have any vascular tissues. It's largely nonliving. And so if you damaged it, if you damage that, you will see higher rates.

And Nielson actually did that in one of the studies where damaged the skin more like a chemical burn rather than an actual burning. But the rates were higher.

So if you damage that outer layer, it's going to be higher. I haven't seen anything in the literature that would point elsewhere with that.

Q. And are those studies, the 2010 going forward studies, are those all done pursuant to standards?

A. Yes. There's -- you see a little more consistency after the Nielson because those studies are following some specific guidelines for consistency. We

have OECD guidelines to make sure we get more consistent results.

Q. All right. Let's go forward and talk about glyphosate and its absorption into the body and the excretion out of the body. And let's talk -- you talked already about the hydrophilic nature of glyphosate and that it's highly hydrophilic. But with respect to that actually resulting in it coming out of the body, does that have an effect on that?

A. Yes. It's important for it getting out of the body rapidly too. It's water soluble so you will find it in the blood. And its size and its structure molecularly make it -- just looking at it, I can tell you that it's going to go in the urine pretty rapidly, that it's going to be excreted through the kidneys into the urine. And that's the case. I reviewed the literature, and literature shows that once it goes into the blood, it's going to be excreted rapidly. And majority of that predominantly is going to be in urine from dermal absorption.

Q. And could some of that end up in feces?

A. Yes. I mean, it's -- it's in the -- it's going to be in the bloodstream and some of that blood flow goes to the liver and you might seen some small percentage in the feces.

Q. And the question whether it comes out through the urine or the feces, how quickly is it out of the body totally?

A. It's out of the body fairly rapidly. Especially human studies I've reviewed. Connolly 2018 is one that I reviewed where they looked at excretion in the urine, and it peaked at three hours. So with exposures and so -- and the half-life was somewhere between five and ten hours. So that means every five or ten hours, it's being -- half of it's left in the body, it's going into the urine that quickly.

And then looking at some of the primate studies like Wester, they evaluated was it accumulated in the body, how fast was it excreted. At the end of seven days, they sacrificed a couple of the monkeys and didn't find it in any of the tissues.

Q. All right. And I actually want to -- want to spend a minute to talk -- and we're not going to get into very many studies today, but the Wester study is one that I did want to talk a minute about.

MR. EVANS: So Exhibit 6177, do you have any objection to that?

MR. WISNER: No. I have a copy as well.

MR. EVANS: May I approach, Your Honor?

THE COURT: Yes.

MR. WISNER: No objection.

(Exhibit published.)

BY MR. EVANS:

Q. And so let's talk a little bit. Can you just tell the ladies and gentlemen of the jury what the Wester study involved.

A. There was several components to the study. And -- and so they did some testing with human skin, some dermal absorption studies. They looked at binding in the stratum corneum, that outer layer of the skin that I was telling you about that's a primary barrier to glyphosate. And then they also did some studies with primates, looking at dermal absorption through monkeys.

Q. So they looked at both absorption through human skin; right?

A. Yes.

Q. And they also had absorption that they were monitoring with respect to monkeys?

A. Correct.

Q. Live monkeys?

A. Yes.

Q. The skin was removed from a cadaver; correct?

A. Yes. The skin they had was cadaver skin for humans.

Q. Right, of course.

And so let's just look at the abstract. And about halfway down there's a sentence that starts "In vitro percutaneous absorption."

What does that tell me, sir, with respect to the results of the human skin absorption?

A. Sorry. I'm not following here. Oh, in vitro --

Q. It's on the screen in front of you too, Doctor. You can look the other way if you want.

A. Thank you.

This was just saying that dermal absorption with the human skin, the cadaver skin, that it wasn't over 2 percent. That means the amount on the outside of the skin versus the amount inside, there not more than 2 percent went through the skin.

Q. All right. And I want to shift down to page 729. And I want to talk specifically about the part of this that analyzed the monkeys that they sacrificed at the end of the study.

So can you just tell the ladies and gentlemen of the jury what they did with respect to they exposed monkeys to Roundup.

A. Yes. The Roundup was radiolabeled, and so they use a carbon 14 radiolabel, very sensitive, so they can use that to detect very, very minute amounts of the

glyphosate.

And so they were evaluating that radiolabel in the tissues of these monkeys after seven days. So they can see if there was any even very, very small amounts in the bone, in any of the organ systems, and the tissues and the skin.

Q. And the monkeys were exposed to glyphosate both through IV injection and also dermal; is that right?

A. Correct.

Q. And so they were -- had two different sets, one they were administering directly into the blood and one was going through the skin?

A. Yes. And I think you can see for what was going into the blood in Table 3 there, that in urine you can see once it gets into the blood, which we expect to see after it gets through the skin, that 95 to about 99 percent is going into the urine. And you do see a small fraction that would be in the feces there.

Q. All right. And the Table 4 is the topical or dermal absorption number; right?

A. Correct.

Q. And what is this showing?

A. It's showing that upon that dermal absorption, how much was -- that we found in the urine, a very small

amount; right? So that was in one dose group about 2.2 percent in urine. And then the other dose group .8 percent in the urine.

Q. And in this study, was there, again, in both the IV administered and the dermal administered, some was coming out in the feces?

A. Yes.

Q. All right. And then at the end of the study, and if you can just go down below that to that two monkeys from each, at the end of the study they sacrificed monkeys; right?

A. Correct.

Q. And I just want to walk through this next paragraph. Could you go ahead and read that for us, please?

A. Yes.

> Two monkeys from each topical dose level (a total of four monkeys) were euthanized after the seven-day excretion period and tissues were assayed for carbon 14 content. No radioactive was detected in spleen, ovaries, kidney, brain, liver, abdominal fat, bone marrow, upper spinal column, or central nervous system fluid. Skin that contained the applied dose for

12 hour ending with washed with soap and water contained .006 plus or minus .0007 percent of the applied dose.

Q. Let's go on the next page, please.

A. (Reading from document:)

Untreated skin contained levels of .0012 plus or minus .0002 percent. Therefore there was no residual tissue -- no residual dose in tissues or the skin.

Q. And why don't we go ahead and finish out that paragraph.

A. (Reading from document:)

Thus, the 75 to 80 percent accountability for topical application (Table 4) and no residual compound in tissues or skin suggests that the missing 20 to 25 percent dose was lost during procedure. Such a loss of 20 to 25 percent of the topically applied dose is not unusual. Similar losses occurred in previous studies. And it cites some studies there.

In vivo skin undergoes exfoliation, a continual shedding of the top layer of the stratum corneum. This process will

scatter microscopic tissues and bound chemical to the atmosphere making total accountability impossible to achieve.

Q. All right. And so what does it -- what does it mean that the top -- the continual shedding of the top layer of the stratum corneum; what does that mean?

A. It means we're continually shedding skin cells so we're -- we're losing that in those skin cells that are being shed from the outer layer of the skin.

Q. And does that happen in humans as well as monkeys?

A. It does, but I've -- I've seen this issue more with the monkey studies.

Q. All right. Now, let's shift topics and talk a minute about the actual Mr. and Mrs. Pilliod's use.

And did you actually analyze that?

A. Well, I evaluated how they were using the products and -- and evaluated, you know, dermally -- how it would be dermally absorbed and used all that information to calculate their dose. But part of that was to evaluate their -- what they report in their deposition and also do a site visit.

Q. All right. So you looked at what they said about how they used the product, and you also did a site visit to the Agate Court, their residence?

A. Yeah, standard practice is to -- to try to do a site visit, you know, collect as much information as possible. It's investigation that they were doing trying to gather facts.

Q. And if you look on -- and these are photographs that have already been admitted into evidence. But if you look on the left photograph, do you see the Pilliods' residence?

A. Yes, the one on the left there.

Q. Okay. And then is the overhead, is that -- have you seen that before?

A. Yes.

Q. And do you know how big that lot is in total?

A. I think it's approximately about a quarter of an acre.

Q. Okay. And is this representative of when you actually went out and looked at the property? Is this what it looked like when you were there?

A. Pretty close. I mean, there were some weeds growing around the cracks and in the area. But, yeah.

Q. Okay. And this is again an admitted photo. It's a little dark in the front, but does this look like the backyard?

A. Yes.

Q. And the part that's kind of dark, do you see

in this photograph, is that lawn there?

A. Yes, the darkened part is lawn. There's quite a bit of lawn back there.

Q. And in reading their deposition, do you have an understanding of how they were using Roundup at their Agate property, both in their front yard -- let's talk about the front yard first.

A. That they would be applying it on weeds around the walkways, around the fence line, and it would be consistent with what we call like spot-type treatments.

Q. And when you talk about spot treatment, is that as compared to just some other type of treatment?

A. Yeah. In agriculture, might see where they're continuous spraying. So they're just continually spraying. And so spot spraying is kind of more like see a weed, spray a weed.

Q. And what's this a photograph of?

A. This is one of the products that was there on site. And that's one of the reasons why I like to do the site visits is to see the products. Just make sure if I'm going to do an assessment that I've got the concentration right and that the type of application that they're applying is correct.

Q. And what's this a photograph of?

A. This was on the day of my visit. This was

just a picture of -- I think that's me holding the wand out so you could see what type of an applicator they're using.

Q. And how about this photograph?

A. These are some of the other products that were out there. This one on the left is a Super Concentrate that the Pilliods reported using. And it was at 50.2 percent. And then the one in the middle is one they did report using kind of occasionally, it's a hand sprayer but not much at all.

And one of the things that, you know, I'm looking at is information on the dates and label claims for use so that I can gather that information on how they'd be using it and then matching it up to concentrations. But all the concentrations I found on the bottle. So the year wasn't as critical here.

Q. All right. And with respect to the Roundup Concentrate, was that -- how big a Roundup Concentrate was that?

A. You can see my hand there. It was just a free sample that -- it didn't -- I don't think it had a date on it or anything like that. It just was like a free sample, is what it said.

Q. And was it full or was it empty?

A. It had product in it. It seemed like it was

pretty full.

Q. All right. And in these photographs where you are actually handling the Roundup containers, I don't see you wearing a glove. Did you wear a glove?

A. No. It doesn't appear to be that I was wearing a glove there.

Q. And you're a trained industrial hygienist and trained in protective gear; correct?

A. Correct.

Q. And why did you not think it necessary to wear a glove when you were handling the Roundup bottle?

A. It's -- it has a low hazard, low toxicity profile. I know it's safe. And I'm handling it in accordance to the label.

And that's what I'd recommend to anyone that would be using these products. There's been a full evaluation that's been done. The EPA has evaluated. A lot goes into these labels. And so I'm confident that there's no hazard there.

Q. All right. And with respect to the Stabulis Road property -- and you -- as I understand it, you did not go out and look at the additional properties that they owned for a shorter period of time; is that fair?

A. No. Yeah, that's fair. One of the main goals was to see what products they're using just -- you know,

that's important and to get an idea how they might be using it at their primary residence. But there's plenty of pictures of the other investment properties.

Q. And so this is the Stabulis Road property that the jury has seen before. And the Gabor Street; right?

A. Correct.

Q. And the Hartvickson?

A. Correct.

Q. Now, in your assessment, did you actually look at the deposition of Mr. and Mrs. Pilliod to see what they wore when they were applying Roundup?

A. Yes, and that's an important part of the assessment.

Q. Why?

A. Clothing, that skin contact, that's going to be important in determining how much gets in the body.

Q. And what's here on the screen?

A. For -- well, Mr. Pilliod, he reported wearing tennis shoes, jeans, long-sleeved shirts, and some type of a sun hat. He was very protective of his skin, it appeared from the deposition.

Q. All right. And what about Mrs. Pilliod?

A. Mrs. Pilliod reported most often wearing shorts, flip-flops, tank top or a T-shirt, and maybe on occasion probably some longer clothes.

Q. All right. And with respect to the factors other than the clothing they wore, did you also consider additional factors in their use of Roundup?

A. Yes. I pulled as much information as I could out from their depositions and from the site visit. And in my assessment I'm doing with what we call retrospective assessment, trying to determine what those exposures would be going back in time, and when we do that, standard practice is to do a highest possible exposure scenario.

So I'm going to determine what that highest exposure is so I can confidently say that on any given day of their spraying, it's going to be below that. And -- and that's kind of important in doing these types of assessments. And that's what I did. So --

Q. And so let's break this down a little bit. So Mr. Pilliod reported that he had some exposure both while mixing Roundup; correct?

A. Right.

Q. And did he also report exposure with respect to spraying?

A. Yes.

Q. Okay. And let's just walk through those different issues then. With respect to when he spilled it while he was mixing, what factors or what assumptions

are you using for your calculations?

A. I mean, one of the main assumptions here is that he spilled it on his hand, that he wasn't wearing gloves, it sounded like. So that would be no protective gloves. So that would be a spill of a small amount. He mentioned half a cup.

You know, the little mixing thing is about a two-and-a-half-inch little cap. So I figured if it was about half of that, about an ounce that he spilled some of that concentrate directly on his hand. And that would have been to one side of his hand, and cover at least -- at least half of that skin area, about 4 inches by 4 inches.

Q. All right. And he also reported, I think in his deposition, that he may have spilled it on his arm or his pants or his shoe. When you're trying to do this, you know, sort of conservative estimate so you can get to the highest dose, why are you focusing on exposure to the hand versus if he spills it on his sleeve or pants or his shoes?

A. Because in this case, it's going to be higher if it's directly on the skin. Cotton, there's been studies out there show that cotton can absorb Roundup, can absorb those products pretty effectively. Nielson did a study on that and found it was ninefold. So I

know that on bare skin, it's going to be higher.

Q. All right. And with respect to when he was actually spraying the product, what did you put into your calculation with respect to him?

A. Once again, this is a very conservative approach, highest possible day. I assumed that based on other studies where they've done similar spraying, that the exposures are to the lower legs and that there would be some residual exposure, but I assumed that the full front of his legs was exposed to the Roundup.

Now, he had clothing. So I did apply clothing protection factor of 50 percent to account for the clothing. So that would reduce it a little bit.

Q. All right. So just let me make sure I understand. So when he's spraying and he's got long pants on with shoes and he's getting some on his -- your calculation is based from knee to his shoe?

A. Correct.

Q. And you're assuming that it got on his skin, but then you're reducing it by 50 percent because of the presence of pants; is that right?

A. Yeah. We know that even just normal cotton and other types of fabrics will reduce that exposure. I would expect that it would be more than that. But in the Nielson study, they looked at the effects of sweat,

and so if you included a lot of sweat and those jeans were soaked, then that would only provide about 50 percent protection.

Q. Okay. And then with respect to how long the glyphosate stayed on the skin, what were you using for that?

A. I'm assuming that they sprayed it early morning. The highest possible scenario would be they sprayed it early morning and that it sat on their skin until the end of the day.

And actually that was one -- well, that was the main assumption there.

Q. All right. And with respect to -- and we didn't look at the study specifically, but with respect to if you spray something on right now on your skin, is the absorption going to just continue forever until you wash it off? Or is it going to be, you know, sort of a peak absorption and then a period of diminishing absorption?

A. There is a peak absorption and a point of diminishing, just as you stated it. And in fact, this is one of my areas of expertise is Fickian diffusion, chemical permeation. A lot of my research is in that area.

Glyphosate follows -- it's kind of a little

boring of a topic here, I know, but for me it's exciting. But it follows Fickian diffusion. So all of those dermal absorption studies they've -- we've put up there, those what you can see is even though it's sitting on the surface of the skin for 24 or some of them even longer, 48 hours, it's gone through the skin and we see no more after about 12 hours.

So it's following fixed laws of diffusion based on concentration gradients. But -- I know it sounds technical, but essentially it's a law. And it's predictable. And everything I've seen shows that it's predictable and consistent.

Q. All right. And now with respect to Mrs. Pilliod, what factors did you apply in making your calculations with her?

A. So she was not -- she was not mixing it. And -- and so she was just spraying the diluted ready-to-mix most of the time I think 85 percent of the time, so that was a higher percentage. I just accounted for the higher percentage. And since she wasn't wearing long pants and shoes, I accounted for the full front of both of her legs exposed skin, as well as the top of her feet. So the larger surface area.

Q. Okay. So from, again, below the knee all the way down to the end of the toes?

A. Correct.

Q. Okay. So and the same 12-hour assumption with respect to the absorption?

A. Correct.

Q. All right. Now, when you take that information, those factors in, then what did you -- what formula, what calculations did you do?

A. Well, and it's one that's important here to follow with something that's highly hydrophilic. EPA, they have guidelines to -- and also in my profession, the American Industrial Hygiene Association, we have guidelines and there's some specific guidelines there, if it's hydrophilic, if it's strongly water-loving, we call it. And so I used those guidelines.

I also made sure that I used dermal absorption data for formulations that were similar to what Mr. and Mrs. Pilliod used. That means the Super Concentrate when mixing for Mr. Pilliod, and then also the ready-to-use when they were spraying.

Q. All right. And you just talked about the skin exposure. Do you actually calculate that in square centimeters?

A. Yeah. For here I'm talking about the Fickian diffusion, how important it is. And skin surface is important when we're talking about diffusion. And the

time is important. But the flux. And that's the rate.

So that outer skin is limiting how much is getting through. It's this waxy layer that's repelling it, some will get through, but we call that the flux.

Q. All right. And these calculations don't mean anything to me, but can you explain what they mean to you.

A. Well, the top one there, the dose, it's just a function of the rate, the flux. The flux is how much and how fast it goes through the skin. And that's also going to be a function of how long that event is going to occur, how long is that exposure. And then also the surface area is important.

And you put those all together and that will tell us and tell me how many milligrams would be in their body after a certain exposure to their skin over a certain amount of time.

Q. All right. And did you actually do those calculations with respect to Mr. and Mrs. Pilliod?

A. I did.

Q. And why don't you walk the ladies and gentlemen of the jury through your calculations. It's a little algebraic for me, but go ahead.

A. Okay. So for Mr. Pilliod, you look there at the top, for mixing, that is the flux over -- I carried

everything out over a 12-hour period. That ensures that I'm going to account for everything that would get into their body. Like I was telling you before, Fickian diffusion, 12 hours is important. And in the case of glyphosate.

So that's the movement. So 2.94 times 10 to the minus 4 milligrams per square centimeter of skin is, over that 12-hour period, is how much we'd see come through the skin. And then the 105 square centimeters, that would be the surface area of a quarter of the hand.

Q. All right. So is that square centimeters, is that -- if you convert that to inches, is that roughly 4 inches by 4-inch area of skin?

A. Yes.

Q. Okay. And so you're taking -- just see if I can restate this in terms that I understand. You're taking the rate of absorption, which is the 2.94 times 10 to the minus 4.

A. Correct.

Q. And then that -- and then you have to have the time, that's the 12 hours?

A. It's included in there, yes.

Q. Okay. And then you're looking at the surface area of exposure?

A. Correct.

Q. And when you do that on an event where Mr. Pilliod spilled it on his hand, what would the total amount that would get into his bloodstream be?

A. For that event, that would be .031 milligrams. It's a very small amount.

Q. Okay. And with respect to spraying, walk through that when Mr. Pilliod was spraying Roundup.

A. First thing I'd like to point out is if you look at between Mr. and Mrs. Pilliod, you'll notice that that flux for Ms. Pilliod is twice. That's because she wasn't wearing clothing.

So the 1.25 times 10 to the minus 5, that is the rate, the flux rate, for a 2 percent type concentration, taking into account a 50 percent clothing factor.

And the 100 -- or sorry. The 1,035 square centimeters, that's roughly the surface area of the front of Mr. Pilliod's legs based on some EPA tables that we used.

Q. All right. So, again, from a math perspective, is that roughly how many inches? Can you convert to centimeters to inches for us?

A. Could be about 4 inches by 25, sounds about right.

Q. Okay. Now let's -- sorry. And then you

combine those together. So on a day where Mr. Pilliod spilled it on his hand plus sprayed his legs and left it for 12 hours, is that what you're calculating?

A. Yes. That would be the highest possible dose I would -- could imagine would occur on a given day of spraying. And I can confidently say that it would be lower than that on any regular day. There's not many occasions where I would see full coverage of lower legs with this type of application.

Q. And that's a good point. You're -- the jury's heard testimony about the number of days that the Pilliods sprayed. You're not offering any opinion about that one way or the other; right?

A. No.

Q. Okay. This is just on a day when he's spilling and spraying and covering his legs so his pants are wet, that's the calculation with respect to how much would actually be absorbed into his body?

A. Correct.

Q. Okay. Now what about Mrs. Pilliod?

A. So she wasn't mixing. So just you have the flux there. And this is coming from dermal absorption data, using a formulation of 2.5 times 10 to the minus 5 milligrams per centimeter squared over 12 hours. And then you can notice that the surface area is higher here

because I'm accounting for the top of her feet as well because she wasn't necessarily wearing shoes, she was wearing flip-flops. And so that times 1,458 square centimeters, that area gives a dose of .036 milligrams in the body.

Q. Okay. Now, this is, I think, just a summary of what we just looked at, but then what's the additional calculation here you've got?

A. Well, the additional calculation is normalizing it for body weight. You know, everyone pretty much has their own body weight and so it's normalized.

When they do rodent bioassay studies, they normalize it in milligrams per kilogram. So this is just normalizing it in a systemic dose of amount would be in the body per kilogram body weight.

Q. All right. Now, you talked about that the flux rates, the actual rate where glyphosate, when sprayed in formulated product, is going through human skin, when we go back to those tables, we have the Wester which was -- you know, had the 2.2 percent sometimes looked like the highest percentage, but when you look at the actual rate, the flux that you're talking about, did it actually result in it being higher than the calculation they used?

A. No. And that was one of the key points I was talking about earlier, is how much they put on the outside, that percentage is going to be dependent on pretty much how much they put on the outside.

The difference in flux between the Wester study, which shows this higher percentage, versus the Franz study is about three times. And so if I was to use the Wester flux that was related 2 percent, my estimate is going to be three times higher.

However, I would say the only reason why I didn't use Wester is I couldn't necessarily be sure of the concentration in the formulation. It was a little ambiguous. It was hard to tell. I suspected it was three times higher which would explain why the flux is three times higher.

Q. All right. And let me just make sure I understand. Whether you use the calculations that you did based upon the studies that you relied upon that you thought were most equivalent to the Pilliods' product or the Wester study, are both of those very low absorption?

A. Yes. You can see here. I mean, the systemic doses are very low. And, you know, if you compare those to, like, rodent bioassays, you'll see that they're extremely low. And that's just a function of the fact that the skin is an exceptional barrier for glyphosate

and water. It's not going to let much through.

Q. Now, I want to talk just a minute more about this. There are other models of looking at potential absorptions, and I think the jury has heard something about a model called the POEM, the POEM out of UK.

Have you heard of that before?

A. Yes.

Q. And can you explain the difference between what you're doing here versus what is going on with respect to a POEM modeling?

A. What I'm doing here is I'm doing a precise estimate based on skin contact and the actual rate going in through the skin that would get into the body. This is the most precise method. And this would be my choice.

The POEM model, as far as from what I've seen, it's one that's designed for more like farming where they're spraying massive amounts of acres. It's based on how many acres you apply and, you know, how long you're spraying these acreages.

And so it's not based on these factors of the amount of skin surface that's exposed, the rate. And so I would say that the model I used is more precise, going to give a better estimate.

Q. And so just so I understand, when you're doing

spot spraying like the Pilliods are doing over the course of 30 years, is that the same as when you're going out as a farmer and spraying acres at a time?

A. No, it's not the same. And in fact when I went to the website for the POEM model, they have one for residential. And so it's more for residential use for spot spraying. And I don't remember, but it was giving much lower estimates than the POEM model.

Q. All right. And what the POEM model was not actually looking, like you did in this case, which is looking at the actual Pilliods' use, how much got on their skin, what the actual rate of absorption; is that right?

A. Correct.

Q. Now, just finishing up here. Again just looking at your assessment here, did you look at the amount that Mr. Pilliod mixed and sprayed of Roundup?

A. I did. I remember seeing in their deposition they were talking about how much they were mixing and spraying.

Q. Right, and we went through that earlier.

And then you analyzed based upon their testimony how much got on their clothes and skin; correct?

A. Correct.

Q. And then from that, based upon the formulas and calculations, you determined the amount was actually absorbed; is that right?

A. Yes. And that was -- once again just that's the highest possible amount that would be in the body on a given day.

Q. Now, .044 milligrams, how does that convert into something that, you know, maybe the ladies and gentlemen of the jury are familiar with? Can you talk about that in the context of teaspoons? What percentage of a teaspoon that would be?

A. Yeah. Sugar is probably similar density. Well, probably. It's -- sugar is near the density of glyphosate. So you could look at it like a teaspoon of sugar.

Q. Okay. And -- but from just from a weight perspective; right?

A. From a weight perspective.

Q. Okay. And so what does that calculate to with respect to what percentage or a fraction of a teaspoon is actually being absorbed on this highest day?

A. For Mr. Pilliod, that's about 1 ninety-fifth -- 1 over 95 thousandths of a teaspoon. It's a very small amount.

Q. And with respect to Mrs. Pilliod, same thing,

you went through all the process that you talked about. And what was the result with respect to her with respect to the highest dose?

A. Well, .036, a little bit lower because she wasn't mixing the concentrate with that direct skin contact. So her exposure is a little more dilute. But still pretty close.

Q. What is that converted to with respect to teaspoons?

A. So 1 in 115 thousandths of a teaspoon. So these are -- these are very small amounts.

Q. Now, again, are you testifying that this is what they were exposed to every day they sprayed?

A. No. This is a retrospective assessment. And, you know, the best we can do in these types of scenarios is establish what the highest possible systemic dose would be on a day and knowing so I can confidently say that it's going to be below this on any given day.

Q. All right. And did you compare these -- the dosage that the Pilliods would have received on the highest day, did you compare that to what the dosing is of rodents in cancer studies, for example?

A. Yes.

Q. And what does that comparison look like?

A. So normalizing it to milligrams per kilogram,

this Pilliod dose that you see there, that represents the higher dose for Mr. Pilliod, .00048 milligrams per kilogram in a day. We compare that to one of the rodent study doses that would be related to -- this one is related to thymus effects, you can see in that rodent dosing study of 1,000 milligrams per kilogram per day that the Pilliod dose is about 2 million times lower. It just -- these amounts that get in the body from dermal exposures are just -- typically they're small.

Q. All right. Thank you very much, Dr. Phalen.

I would just like to ask, have the opinions you offered today been to a reasonable degree of scientific certainty?

A. Yes.

Q. And are they to the same degree of scientific certainty that you teach in your classroom?

A. Yes.

Q. And that you've done when you go out and do absorption or exposure studies outside of court?

A. Definitely.

MR. EVANS: All right. Thank you very much.

THE COURT: All right. This is a good time for our morning break.

Ladies and gentlemen, we'll start up at 10:30. Thank you.

(Recess taken at 10:18 a.m.)

(Proceedings resumed in open court in the presence of the jury at 10:32 a.m.)

THE COURT: Mr. Wisner, cross-examination.

MR. WISNER: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. WISNER:

Q. Good morning, Dr. Phalen. How are you?

A. Good.

Q. My name is Brent Wisner. I spoke to you casually a second ago. I'm an attorney who represents the Pilliods in this lawsuit.

A. Okay.

Q. Before today we've actually never met; right?

A. No.

Q. But I understand that you are a paid expert for Monsanto; right?

A. I'm being compensated, yes.

Q. And it's on an hourly rate; is that right?

A. Correct.

Q. What is your hourly rate for testifying in court?

A. 345 an hour.

Q. Okay. And do you have an hourly rate for preparing reports and stuff?

A. 245 an hour.

Q. Okay. And about how many hours have you worked on preparing your -- for this testimony today?

A. I've submitted some billing. I'd have to -- I'm still a little behind on some of that. But I know I've worked on it many days. I've reviewed hundreds of articles and documents. And so I know it's -- it's quite a number of days.

Q. My colleague took your deposition in February; right?

A. Yes.

Q. And at that time, you'd worked approximately 40 hours on the Pilliod case?

A. Yeah. Probably about right.

Q. How many more hours since then?

A. I would say -- I'd have to give you a rough estimate, but I would say more than double that.

Q. Okay. So 80?

A. Yeah, probably more than 80. Probably more like over a hundred.

Q. Okay. So we have over 100 since February. And at February when your deposition was taken it's about 40?

A. Yeah.

Q. So conservatively 120 hours?

A. Conservatively.

Q. And my understanding is correct, this case isn't the only case you're an expert; is that right?

A. Correct.

Q. In fact, you've consulted with Monsanto on other Roundup NHL cases?

A. There was one other case.

Q. Just one?

A. Just one case, yes.

Q. Okay. How many hours have you worked on that case?

A. Not as many. I'd have to go back and look to recall. But not as many as here.

Q. Well, as of February when your deposition was taken, you said it was around 40 hours for that case; right?

A. Yeah.

Q. Have you worked on that case at all since then?

A. No.

Q. Okay. So 120, we're up to about 160 now conservatively; is that right, total time spent?

A. Okay, yeah.

Q. Okay. And is it your expectation to continue working for Monsanto in the future?

MR. EVANS: Objection, Your Honor.

THE WITNESS: I couldn't say.

THE COURT: Sustained.

THE WITNESS: I couldn't say.

THE COURT: Strike the answer.

BY MR. WISNER:

Q. Well, let me ask you a separate question. Would you like to continue working for Monsanto in the future?

A. I enjoy doing exposure assessments, and if there was an opportunity where my expertise could be used. If it was an area that wasn't my area of expertise, I wouldn't be offering my services.

Q. Okay. And is there ever a scenario, based on your review of the literature, where you would think that dermal exposure from spraying Roundup would ever be high?

A. I guess you'd have to define "high," but in my review of the literature, if we're looking at comparing it to like the rodent bioassay studies, all very, very low, all consistently near where I have Mr. and Mrs. Pilliod's highest possible dose.

Q. You mentioned the rodent bioassays. You understand how a rodent bioassay is done; right?

A. I'm familiar with it, yeah.

Q. You have about 50 animals per sex per group?

A. Sometimes, yeah.

Q. That's what they were in these cases; right? In fact, the Atkinson study that you referenced was that?

A. Correct.

Q. All right. And because you have such a limited number of animals, you have to use very high doses to see if there's actually an oncogenic effect of a compound; right?

A. Yes.

Q. And that's actually the standard model for rodent studies; right?

A. Pretty standard. We see pretty high doses with the rodent studies.

Q. And in fact, you have to do a rodent study before you can even sell a product in the United States; right?

MR. EVANS: Objection, Your Honor. Beyond the scope.

THE COURT: If he knows. Overruled if he knows.

THE WITNESS: I'm familiar with some of the legal requirements that the EPA has requiring some testing, level of testing, but I don't know exactly all

the intricacies of that testing.

BY MR. WISNER:

Q. Okay. Well, you understand at least for glyphosate there were rodent studies done before it came on the market; right?

MR. EVANS: Objection, Your Honor. Beyond the scope.

THE COURT: Overruled. If he knows.

THE WITNESS: Can you restate the question?

BY MR. WISNER:

Q. Sure. You understand that before Roundup came on the market, there were rodent studies done; right?

A. I would have to go back and look. I don't know exactly what the dates were.

Q. Okay. But you would agree, then, using rodent studies as a way of comparing a human in the real world exposure, it's not really a fair comparison; right?

A. I don't know if -- I don't think I would agree with that statement.

Q. Let me walk you through it. Okay. For example, in some of these mouse studies, these mice were exposed and 20 percent of the mice got lymphoma. All right. For us to see 20 percent of human beings getting lymphoma from Roundup, we'd have to use those high doses; right?

MR. EVANS: Objection, Your Honor. Beyond the scope. Speculation.

THE COURT: Sustained.

Why don't you approach, counsel.

(Sidebar held but not reported.)

BY MR. WISNER:

Q. So because of rodent studies, they have limited animals, they're trying to induce tumors by using various high doses; right?

A. I think that's one objective, yeah. They're looking for the effects and -- but other than that, I can't really comment much on their methodologies.

Q. Fair enough. But for example, in epidemiological studies, right, they're looking at potentially millions or hundreds of thousands of people; right?

MR. EVANS: Your Honor, beyond the scope. We didn't talk about epidemiology at all.

THE COURT: Sustained.

MR. WISNER: It's in his report, Your Honor.

MR. EVANS: He didn't talk about it.

THE COURT: I don't have his report in front of me.

MR. WISNER: I can show Your Honor, if you'd like. It's in the binder, Your Honor.

Your Honor, I could just lay the foundation right now quickly with a question.

THE COURT: Well, to the extent if it's beyond the scope of direct examination. So I think that you need to have a sidebar conversation to the extent you're going to go into that.

MR. WISNER: We'll lay some foundation.

Q. You reviewed the epi in this case?

A. I reviewed some epi studies as they relate to exposure assessment.

Q. Specifically Roundup epi studies?

A. Yeah.

Q. And you relied on those epi studies in forming your opinions in this case; right?

MR. EVANS: Objection, Your Honor. Beyond the scope of what he testified to today.

THE COURT: All right. Let's have one more sidebar.

(Sidebar held but not reported.)

MR. WISNER: Please reask my question. Thanks.

(The record was read back by the court reporter as follows:

"Q. And you relied on those epi studies in forming your opinions in this case; right?")

THE WITNESS: In my report, I think I referenced an epi study in rebuttal to Dr. Sawyer's statement in his report that I thought was incorrect.

BY MR. WISNER:

Q. Okay. And this is all leading up to a very simple question which is in your report, I don't think this is controversial, but in the epi studies that you have reviewed, Mr. and Mrs. Pilliod fall in the highest dosing categories; correct?

A. Based on what they provided in their deposition, if I was to put them in the similar category in that Agricultural Health Study, as Mr. -- or Dr. Sawyer did, yes, I would agree.

Q. Okay. Now I want to go to some of the slides that you presented to the jury here. I want to talk about first this slide. It was this Pilliod dose calculation slide. Do you recall that?

A. Yes.

Q. I want to talk about Mr. Pilliod first. Your calculation is based solely upon -- well, let me break it down. In the mixing, that's based upon this idea that he got some on his hands while he was mixing; is that right?

A. Correct.

Q. So if, for example, when he was mixing he got

some on his leg, that wouldn't account for that; right?

A. Well, it would account if it was on the leg versus the hand as the hand is going to be higher. So I'm taking conservative approach.

Q. Sorry, that didn't answer my question.

My question was: If it got on his leg, this wouldn't account for it; right?

A. It would because it would be lower if there was that small ounce that was spilled on the leg, of a concentrate, I would say that that would be lower.

Q. Sir, again not my question.

So you're assuming here, this is the mixing analysis, is looking at exposure to the hand; right?

A. It's looking at exposure to the skin. I picked the hand because that would be one that from a highest possible exposure scenario would be not covered by clothing.

Q. Okay. And then of the hand, you said, what, 25 percent of the hand would be covered by it; is that right?

A. Yes.

Q. Where did you get that from?

A. Had to come up with some assumptions there. Spilling it on the hand, it's going to be one side. It wouldn't fully -- he's not dipping his hand so it's --

you know, it's a conservative approach.

Q. So you just kind of made it up?

A. Well, we have to make some assumptions. And I have to figure out, you know, some type of surface area. I wasn't there. So we're going back and recreating it and using conservative assumptions. But not too conservative as to where it wouldn't be realistic.

Q. So these assumptions then that we're using to construct this model has a 25 percent exposure to the hand; is that right?

A. Yes.

Q. So by definition then, it wouldn't include any potential exposure to his leg; right?

A. For the -- for the concentrate?

Q. Yeah, for the mixing.

A. Well, it potentially could because if it spilled on his leg, it's going to be absorbed into his jeans. And so I can tell you that on the hand without any gloves or clothing covering, it's going to be higher.

Q. Well, I understand it would be higher on the hand. I'm not disputing you with that, sir. But what I'm talking about is because you're focusing on 25 percent exposure on the hand, you're by definition excluding any other exposures to other parts of the

body; right?

A. No.

Q. What am I missing here? I mean, you said just a second ago that 25 percent of the hand is what you're using for the mixing. And I'm saying if that's the case, then if it got on his hand and it got on his leg and it got on his foot and it got on -- and it splashed on his face a little bit, let's say, none of that other exposure would be captured by that mixing calculation?

A. For the mixing, I'm taking an approach of the highest possible daily exposure. Yeah, I'm not assuming that he spilled it on his hand, and then I don't know how he would necessarily reabsorb it into a container and then spill it on his leg. I'm assuming that he's spilling it once, not spilling it three times. He's only applying an amount of product that -- he's not doing multiple mixings and loadings on these days, from what I saw. It was always --

So I would say that my calculation takes into account the highest possible where he spilled some concentrate on his skin and he was spraying and it covered the full front of his legs. And in my opinion, that represents a highest possible daily exposure and potential dose.

Q. All right. Sir, I really didn't ask you any

of that. So let's go back to my question.

A. Okay.

Q. I'm sorry if my questions are not clear. I apologize if I'm not being clear here. But let's stick to the mixing, which is what we're talking about here, okay?

A. Okay.

Q. So the scenario where he's mixing and he spills on his hand, but at the same time, you know, spilling is spilling, he gets it on his leg, maybe on his foot, the exposures on the leg and the foot wouldn't be captured in your assumptions for the mixing; right?

A. They would be accounted for -- for some part of it, yeah. I mean, I would say I'm still accounting for complete coverage of his legs with the Roundup so...

Q. That's for spraying; right?

A. Right.

Q. We're not talking about spraying here. We're talking about mixing. Let's focus in on my question here. Okay?

A. Okay.

Q. So we're talking about the mixing calculation. He puts in the Roundup and he gets some on his hand --

A. Okay.

Q. -- and he gets some on his leg. Your

assumption is that he didn't get any on his leg, it's just 25 percent of his hand. That's what forms the basis of that calculation.

A. The hand is going to be higher, the exposed skin is going to be higher. If it gets on his leg with his pants, it's going to be much, much lower.

So all I can say is there's a lot of scenarios where I could assume that maybe he spilled it some multiple times on different areas, but the hand is going to be the highest and that amount that spilt on his pants that might be residual after he spilled on his hand, I can say that that's going to be much lower than the skin absorption.

Q. All right. Let's move on to spraying then. For spraying, you were calculating just the exposure that would have occurred on his legs assuming he's wearing pants; right?

A. Yes.

Q. Okay. So, for example, if Mr. Pilliod, when he was spraying it, the thing leaked a lot and got all over his hands and dripped into his skin, that wouldn't be captured in this calculation?

MR. EVANS: Objection. Foundation, Your Honor.

THE COURT: Overruled. He can answer.

THE WITNESS: I didn't see any indication in the deposition where they said it was leaking on their hands.

BY MR. WISNER:

Q. Okay.

A. But I can just say that that surface area is -- isn't critical. And so if there was a little bit on the surface area of the skin, I'm taking account for it in that large surface area of the whole bottom part of their front legs.

Q. I'm sorry. The spraying is based on leg exposure wearing pants; right?

A. Yes.

Q. So it doesn't contemplate exposure to the hand; right?

A. If it was leaking. I'm just saying I didn't see any indication that they said it was leaking on their hands.

Q. Sir, I didn't ask you if you saw any indication. I'm asking you if your calculation considers that?

A. It does consider these other types of exposures that might occur from some incidental exposure to parts of the skin. And the reason is, is I'm overcompensating on full coverage of the bottom part of

the legs, which is like a thousand square centimeters, it's a large area. I wouldn't expect to see that. And that's accounting for these other small exposures that might occur on the hand, on the arm, as you're saying.

Q. You know he didn't wear gloves; right?

A. From what I recall in the deposition saying that he didn't wear gloves.

Q. He sometimes wore gloves and sometimes didn't?

A. Right.

Q. You also -- this doesn't contemplate drift, right, that comes off and gets on your face; this doesn't contemplate that, does it?

MR. EVANS: Objection. Speculation.

THE COURT: Overruled. He can answer.

THE WITNESS: They reported not using it under windy conditions. And they reported using in the early morning and evening to avoid some of those windy conditions.

And I visited their site. And so it's a fenced-in area, their primary site, and so I would say that wind and drift is -- is a minimal effect.

BY MR. WISNER:

Q. Sir, I'm asking you a question, and you're answering something else. I didn't ask you about what they reported or even what you did when you went to look

at the Livermore house. I asked you a question about an assumption.

My question about the assumption is straightforward. Your calculation doesn't consider drift; correct?

MR. EVANS: Objection. Argumentative.

THE WITNESS: It does.

THE COURT: Overruled.

Go ahead. He can answer.

THE WITNESS: It does.

BY MR. WISNER:

Q. It does? So you calculated the surface area of the face, the arms that might have been exposed, the hands, the rest of the torso, you considered all of that potential exposure in coming to this calculation?

A. No. I based my assessment on the paths of dissymmetry studies that exist that show that a majority of it is going to go onto the lower legs and the drift is going onto the lower legs. The drift is not going all over the torso and the body.

And it's pretty clear in the studies where pesticide applicators using similar types of equipment, that it's going on the lower legs. They're spraying the ground, it's going on the lower legs. And I mean, that's what I based my assumptions on and my

calculations.

Q. Sure. And that's because you said that they did something called spot spraying; right?

A. Yeah. I did mention that it appeared that they would be doing more spot spraying than continuous spraying.

Q. Okay. And that's based -- let's back up a couple steps. Just quickly for Mrs. Pilliod, that's the same sort of calculation, you just looked at exposure to the legs and with her you also contemplated feet; right?

A. Yes.

Q. Okay. Now you said you went and visited the sites. You actually only visited one site; right?

A. Yes, their primary residence where they reported spraying it the most.

Q. Well, you didn't look at those sort of rural properties where they were spraying large acres of land; right?

A. I looked at pictures of the properties and the layout of the properties.

Q. Well, a second ago you said you went there and you saw that it wasn't windy.

MR. EVANS: Objection, Your Honor.

THE COURT: Sustained.

///

BY MR. WISNER:

Q. Okay. So you have no idea what the wind conditions were of those other places, those three other sites that you didn't visit; right?

A. What I know is from their deposition that they reported not applying it under windy conditions.

Q. Well, I mean, sometimes the wind picks up; right?

MR. EVANS: Objection. Speculation, Your Honor.

THE COURT: Sustained.

BY MR. WISNER:

Q. Okay. Now, in this dose calculation that you came up with here for the Pilliods, you've actually reviewed Dr. Sawyer's report; right?

A. Yes.

Q. And he did a dose calculation using the POEM model; right?

A. Correct.

Q. And he actually got that POEM model from Monsanto; right?

A. I don't know.

Q. Well, he says it in his report.

A. I know he mentioned something about Monsanto and POEM model.

Q. Okay. And when he did the calculation, for just one of the properties he had a systemic dose for Mr. Pilliod of 12 milligrams, didn't he?

MR. EVANS: Objection. Your Honor, speculation. It's not evidence of record.

THE COURT: Sustained.

BY MR. WISNER:

Q. I'm sorry. Did you review his report?

A. I did, but I'd have to probably go back and review it to see a specific number.

MR. WISNER: Permission to approach?

THE COURT: Yes.

BY MR. WISNER:

Q. I'm handing you Exhibit 1243. That is a copy of Dr. Sawyer's report; right?

A. It appears to be, yeah.

Q. And this is one you carefully reviewed as part of your expert report; right?

A. I did. I think last time I reviewed it was several months ago.

Q. Okay. And if we turn to page 22 -- if you use the bottom right number, that's what I'm using for simplicity -- that's Dr. Sawyer's POEM modeling for Mr. Pilliod at the Stabulis Road property; right?

MR. EVANS: Your Honor, I'm just going to

object. Dr. Sawyer was here and did not offer this testimony and did not allow me an opportunity to cross-examine him on it. And so this is an inappropriate way to try to use Dr. Sawyer's calculations that you asked that we not tell the jury about.

THE COURT: So approach because I don't want any speaking objections.

MR. WISNER: Yeah.

(Sidebar held but not reported.)

BY MR. WISNER:

Q. So, Doctor, isn't it true under the POEM model, if you applied it to Mr. Pilliod at Stabulis Road, that his exposure would be about 12 milligrams?

A. I --

MR. EVANS: Same objection, Your Honor.

THE COURT: Overruled. He can answer.

THE WITNESS: I wouldn't agree that it's -- that it's an accurate assessment.

BY MR. WISNER:

Q. Sir, I didn't ask you if you thought it was accurate. I asked if that was the number, 12.9 milligrams?

A. Well, you're asking me what the number that Dr. Sawyer --

Q. No. I'm asking you what the POEM model would do. If it just so happens to be what Dr. Sawyer did, fine. But I'm asking you, sir.

A. I would have to go in and probably use -- spend some time with this POEM model and see what type of calculation it would give. I'd have to check all the numbers.

Q. And you didn't do that when you criticized Dr. Sawyer's report?

A. I reviewed --

MR. EVANS: Same objection, Your Honor.

THE WITNESS: I reviewed --

THE COURT: Wait.

Overruled. He can answer that question.

THE WITNESS: I reviewed the use of this, and so I did look at the POEM model. I mean, I did notice that they had one for residential. It seemed a little bit more appropriate.

But I'm still using the guidelines that are in my profession that we use. So I would still say that if you're going to ask me to give you a number and to confidently say what that number is, I'd probably have to spend some time researching what goes into this model, what goes in, what goes out. And all I can say is this number you're giving me is -- I think it's tens

and hundreds of times higher than we've seen reported with any, like, pesticide applicators. So I don't trust it.

BY MR. WISNER:

Q. That number or that model that you're referring to, that's Monsanto's model?

MR. EVANS: Objection, Your Honor.

THE COURT: Sustained.

THE WITNESS: I don't know if that's --

THE COURT: Sustained.

BY MR. WISNER:

Q. That's all right. Don't answer.

All right. Well, let's go back to your calculations here. And one of the things that I noticed was that you talked about -- you actually brought in Dr. Sawyer's report during your direct; do you recall that?

A. I don't recall bringing --

Q. You remember this slide? You actually showed the jury --

A. Oh.

Q. -- a figure from Dr. Sawyer's report; right?

A. Yes.

Q. So just to be clear, you carefully analyzed this figure but not the other ones; is that right?

A. I did look at the POEM model. And so -- and I looked at this. This POEM model isn't relevant to my exposure assessment. So I did my exposure assessment done on using methods that I've been trained on and that I know. I -- that's about all I can say.

Q. Okay. So these DTL studies that were here at the very end, right, from Dr. Sawyer, you understand in those studies they used -- it was all the same laboratory; right?

A. I assume so. There's some different authors there, but I would assume -- I'd have to check.

Q. The "L" in "DTL" is "laboratory"; right?

A. Right.

Q. Okay. So all of these studies at DTL between 2010 and 2017, they used human skin; right?

A. Yes.

Q. And the human skin was -- the way it was treated is it was frozen -- sorry, it was heated to about 140 degrees Fahrenheit and then it was frozen before it was used; right?

A. I think I recall reading 60 degrees Celsius -- I'd have to do the conversion -- for 45 seconds in one of them, and I reviewed that in comparison with the OECD guidelines and they said for that type of -- if they're preparing the skin, that it shouldn't be more than one

to two minutes. And so 45 seconds appeared to be within that criteria.

Q. I didn't ask you about OECD or any guidelines. I asked if they'd cook it and freeze it, and they did; right?

A. I -- I would disagree with the cooking. 45 seconds would not be considered cooking.

Q. 60 degrees Celsius, do you have any sense how that is in Fahrenheit?

A. I'd have to do the conversion.

Q. Okay. In any event, did these other studies that are earlier and even in the human -- like the Franz one, that was a human skin study?

A. Yes.

Q. In fact, that's what you used to form the basis of your calculations in this case; right?

A. I did. It gave a little bit higher flux than one of the DTL studies. So I'm taking a conservative approach so I did use the one with the higher flux.

Q. Okay. And in the Franz study, they didn't heat and cool the skin; right?

A. My understanding is fresh human skin.

Q. Right. Fresh human skin. Didn't have any of that getting hot and then cold stuff that we had at the DTL laboratories; right?

A. Correct.

Q. Okay. Then if we go to your chart where you showed -- these are just human skin studies; is that right?

A. Well, I would like to go back at least a statement. They were --

MR. WISNER: Your Honor.

THE COURT: Why don't you just answer the question that's pending.

THE WITNESS: Okay.

BY MR. WISNER:

Q. So this is your other chart that you used; right?

A. Yes.

Q. Okay. And here, these are the human skin studies, you said; right?

A. Yes.

Q. And all these ones that are green, all these ones right here, those are all DTL studies; right?

A. I believe so, yes.

Q. Okay. And we know that -- and you said that there was multiple authors. So what you've done here is you actually broke it out in multiple results by author and date; right?

A. Yes.

Q. So Ward 2010a; right?

A. Yeah.

Q. Is it your opinion that -- let me back up here.

You agree it's a bit interesting that the exposures that were observed prior to the DTL laboratories were much higher than later on?

A. I'm a little confused on the question of exposures.

Q. That's fine. All right.

So I want to go through some of these studies. I know, you know, everyone hates the studies, but I personally love them for some reason.

All right. I want to talk to you about the biomonitoring studies that you reference in your report and actually are part of those studies that we just looked at; right?

A. Okay.

Q. In the biomonitoring studies, they primarily examine exposure in urine; right?

A. That is -- yes.

Q. And the way that works is we have some form of exposure and then we measure the specimen's urine to see how much was actually absorbed into the family or creature; right?

A. Yeah, we call that a biomarker. We can -- we can -- urine is a common biomarker.

Q. Sure. So for example, there was a biomonitoring study done by Monsanto in 2004; are you familiar with that one?

A. The authors?

Q. It was by John Acquavella.

A. Okay, yeah.

Q. And what they did there is they looked at a couple families who were spraying glyphosate and they measured how much glyphosate was in their urine; right?

A. I would like to at least see a copy of the --

Q. The Farm Family Health Study; do you recall the general specifics of that study?

A. Yeah, I do recall it, yes.

Q. Okay. And they measured the content of absorption by looking at the urine; right?

A. I believe so.

Q. Okay. You'd agree with me, though, when it comes to dermal absorption, the vast majority of glyphosate actually isn't excreted in the urine, it's excreted in the feces; right?

A. I would not agree.

Q. Okay.

A. For dermal absorption.

Q. Yeah, for dermal absorption. You disagree?

A. I would disagree that with dermal absorption, that predominantly we would see it excreted in the urine.

Q. Okay. Let's look at some studies. Go back to the first study that you mentioned. You actually covered it on direct. It's the Wester study, Exhibit 1445 in your binder, if you want to take a look at it.

And this is that Wester study that you showed the jury on direct; right?

A. Yes.

Q. Okay. If we go through the study, there's a chart here. And what we have here is a photograph of a sort of silhouette of a rhesus monkey; is that right?

A. Yes.

Q. And what they're showing here is how they dermally applied the glyphosate, or in this case Roundup, to their bellies; right?

A. Yes.

Q. And they put them on, what, 1-inch or 1-centimeter square, sort of patches on their abdomen; is that right?

A. Yeah.

Q. Okay. And then they actually looked at how

much was excreted from their body over the next seven days; right?

A. Yes.

Q. Okay. And we have dose C and dose D. These are two different doses for which they did that dermal absorption test; right?

A. Correct.

Q. And we have here that, for example, the lower dose, so dose D, it says right here it's dose 100 UG. And look at the comparison between urine and feces. Nearly four to five times as much of it is coming out in the feces than the urine; right?

A. Okay.

Q. So this is a clear example of dermal absorption coming out in the feces, not necessarily the urine?

A. I would say it's contradictory to the dose C group. So there's some evidence that there's some issues there between those two dosings. You have two groups. You have some conflicting evidence. And if you go to the Figure 3, you know, you can see these error bars --

Q. You mean Table 3?

A. No, I think it's Figure 3. It's down at the bottom.

Q. Oh, okay.

A. So as a scientist, one of the things we look at is variation. And I'm seeing huge variation here in the results. It means that likely with this small group of monkeys, that one of them has higher fecal amount than the other. So -- and that's these large error bars showing lots of variation.

So I look at this and so I -- I don't know, there's some contradiction there. And I wouldn't base -- I wouldn't base my opinion saying that it's all going -- or it's not all, but that the majority of it is going in the feces.

Q. Okay.

A. I mean, we see it -- we see it go to the urine. I mean, we look at the biomonitoring studies. We see it go into the urine with humans. We see it in the Table 3 going to the urine once it's in the blood.

So there's that one anomaly, and that wouldn't leave me to believe that it's predominantly going into the feces.

Q. All right. Let's unwind some of the things you just said.

A. Okay.

Q. First of all, these two bars aren't reflecting two monkeys, they're reflecting dosing groups; right?

A. Correct.

Q. So this is -- dose C had a much higher dose; right?

A. Yes.

Q. A hundred times higher dose?

A. Yeah.

Q. So you'd expect to see a higher amount of dose coming out on the early portions than you would in dose D; right?

A. Yeah, I agree.

Q. And that's what this bar graph is actually showing?

A. Well, I'm actually pointing to the little bars on top of those bars showing the variation. And so if we're looking at dose D, there's a lot of variation. That means that bar is representing an average between probably a couple monkeys. And so that means one of them was really low and the other one was really high. So that tells me that there is even some conflicting evidence in dose D.

I don't know exactly what that explanation is. All I can say is it doesn't give me compelling evidence that what you're saying it going predominantly in the feces is true. Everything that I've -- everything else that I've seen other than that anomaly points that it

will go into the urine.

Q. All right. So this also shows that even after seven days of dermal exposure, there's still excreting at the end of the study, of glyphosate; correct?

A. At the end of seven days, they -- we'd end up -- prior testimony, they evaluated what was remaining in several monkeys, four monkeys, and didn't find it remaining in any of the tissues.

Q. I'm sorry?

A. It was being excreted -- yes, you can see predominantly from this figure that most of it was excreted within the first 24 hours and it's being excreted. And at the end of seven days, in this study, they sacrificed those four monkeys, and they didn't see any remaining glyphosate in the tissues.

Q. So, again, sir, I'm not trying to argue with you. I really would like to get you out of here before lunch, and really if you could just answer my questions yes or no, that would be great.

A. Okay.

Q. And I didn't ask you about any of that.

A. I'll do my best.

Q. I asked you a very simple question. This shows that at the seventh day, they're still excreting glyphosate; correct?

A. There's some small amount being excreted there, according to that figure. I don't -- I don't know. That could be zero on one of them and slightly above zero in the other.

Q. And I want to talk to you about in your report, you actually have an explanation as to why you think that there's dosing in the feces; right?

A. Yes. I mean, there's some possibilities there.

Q. In your report you talk about how you think that there was cross-contamination where the animals were picking at their stomachs and then eating it; right?

A. Yes.

Q. And one of the concerns you raise in your report is that there wasn't any belly plates?

A. Well, an upper plate, yes.

Q. Well, I find that interesting because it says right here, it's talking about the dose and it specifically mentions a belly plate. Do you see that?

A. Right.

Q. So in fact, they weren't able to do that, that's just not true.

A. Well, there's a covering over the actual area. So there's a top plate, there's a belly plate. I didn't

see in the report where that full area of the belly was covered.

Q. It says belly plate right here; right?

A. Right. But that's not necessarily covering the full belly into where they have access to their skin.

Q. Well, that's where they applied glyphosate, to their belly; right?

A. Okay.

Q. That's what the picture shows; right?

A. Show that they're applying it to the belly, yes.

Q. So when you say that they were able to access it, there's actually no basis of that in the study.

A. Oh, I believe I was looking at some pictures in Dr. Sawyer's report that showed that, and it looked like there was some access to the skin in those pictures regarding this type of study.

Q. So your opinion about whether or not they had access to it is based on what you saw in Dr. Sawyer's report?

A. All I can say regarding this is this isn't something that I considered in my assessment of dose. So everything I've seen with humans is once it's in the bloodstream, it's going to be excreted in the urine,

that, from a chemical standpoint, it makes sense. From a physiological point, it makes sense.

If it's getting into the bloodstream, it's going to be excreted in the urine. We see that with IV dosing in the blood.

Dermally, once it goes to the skin, it's going to go into the bloodstream. We see this consistently with exposures to pesticide applicators. And, yes, some will go into the feces. And if they ingested it, then I would expect to see more of it go into the feces.

MR. WISNER: Your Honor, I would ask you to instruct the witness to answer my questions. He's going literally on diatribes.

THE COURT: Okay. So --

MR. EVANS: Object to that.

THE COURT: Yeah, that's argumentative.

Just listen to the question and answer directly what he's asking.

THE WITNESS: Okay.

BY MR. WISNER:

Q. So it says right here the animals were placed in metabolic chairs for the first 12 hours of the study dosing period and then housed individually in metabolic cages. Do you see that?

A. Yes.

Q. And then it says right underneath that a belly plate and apron were positioned on the metabolism chair under the skin dosing site. Do you see that?

Do you see that?

A. Okay.

Q. Okay. So to be clear, this study, at least when it was done on the dermal absorption for rhesus monkeys, shows that for the lower dose there was in fact more excreted in the feces than in the urine; correct?

A. As a percentage, yes.

Q. All right. Now, you think this is an anomalous result; is that right?

A. Yeah, I do see that as anomalous result.

Q. I'm going to show you Exhibit 34. This is an evidence. And this is an e-mail written from a Monsanto scientist dated 2008.

I want to draw your attention to the bullet point down to these bullet points right here. It says:

> The movement of glyphosate in the blood flow from dermal contact is different to that through oral or intravenous exposure. The little data we have suggests that the excretion is significantly more through the feces than the urine.

Do you see that?

A. I see it.

Q. So a Monsanto scientist, in 2008, says you're wrong, that in fact when you have dermal absorption, it's mostly excreted through the feces; right?

MR. EVANS: Objection, Your Honor.

THE COURT: Sustained.

MR. WISNER: Let me rephrase.

Q. A Monsanto scientist in 2008 is saying that when you have dermal absorption, because of the way blood flow works you have more excretion through the feces than the urine; right?

A. I don't know if I can really -- I mean, this is an e-mail. I don't know the context. I don't know what the reply was. I don't think I could really comment on what they were thinking. I don't know what the reply was to this.

Q. Okay. If you read the next bullet point, it says:

> Dermal exposure is the greatest risk of exposure for operators.

Do you see that?

MR. EVANS: Beyond the scope, Your Honor.

THE COURT: Overruled as to this question.

THE WITNESS: I see it.

BY MR. WISNER:

Q. You agree with that, don't you?

A. I agree that dermal exposure is a primary route of exposure. So I would disagree with the statement about greatest risk.

Q. All right. I want to turn to Exhibit 1433. This is the Brewster study.

You're familiar with that study; right?

A. Yes.

MR. WISNER: Your Honor, this has been previously published a couple times.

(Exhibit published.)

BY MR. WISNER:

Q. This is a publish -- from 1991; do you see that?

A. What tab is this again?

Q. It's Exhibit 1433.

A. Okay.

Q. My question pending is: Do you see that's from 1991, sir?

A. Yes.

Q. Okay. And then it says here that it was done by Monsanto Company. Do you see that?

A. Yes.

Q. All right.

A. Or people at Monsanto.

Q. And it says down here this was an oral study; right?

MR. EVANS: What is the exhibit number again? I'm sorry, counsel.

MR. WISNER: 1433.

MR. EVANS: Thank you.

THE WITNESS: Yes, this is oral dosing of rats in this case.

BY MR. WISNER:

Q. Okay. And this is one of the studies you relied upon; correct?

A. It's one of them.

Q. And they actually talk about whether or not they're finding excretion through the feces, don't they?

A. Yes.

Q. And they actually specify that they are in fact finding excretion through the feces; correct?

A. Yeah, that makes perfect sense.

Q. But it doesn't say one is better than the other. It says right here: Urine and feces were equally important routs of elimination. Do you see that?

A. I see that and it's relative to oral administration --

Q. Okay.

A. -- not dermal.

Q. And then if we go to one of the tables in here, and this is I think the jury saw this previously. This is -- it's showing where they're finding the glyphosate seven days after exposure; right?

A. Okay.

Q. And we have right here, when they eat it, it originally was two hours out, the vast majority of the dose is in the small intestines; right?

A. Yes, this is tissue blood ratios. Doesn't Table 1 show it a little bit better of the amounts in the tissues?

Q. I want to talk about Table 4.

A. I know, but you're asking me how much is in the tissues. And in Table 1, I can see it a lot clearer what you're asking.

Q. Sir, I don't know what's in Table 1, I don't really care. I asked you about Table 4. And my question was: The vast majority of the dose is in the small intestines; correct?

A. It says here tissue to blood ratios of glyphosate-derived radioactivity in selected times after oral administration. So I would assume that that's a measure of glyphosate in that tissue. So it shows small

intestine two hours is the highest value.

Q. Thank you.

And then if you move on, as we go through longer time periods, six hours, 28 hours, 96 hours, 168 hours, you see that the dose in the small intestine goes down pretty dramatically after six hours?

A. Yes.

Q. Okay. But we see a sort of different effect in the bone; right?

A. Okay.

Q. In fact we see the inverse. There's very little exposure two hours in. But as we get to the seven-day mark, the vast majority of the glyphosate dose goes to the bone; right?

A. I'd say the problem with this is this is the tissue to blood ratio, and as I stated before, Table 1 shows what's actually in the tissue more appropriately.

So I don't think I can answer your question looking at this table.

MR. WISNER: Please reask my question.

THE COURT: Go ahead and read it back.

And answer the question that's being asked.

(The record was read back by the court reporter as follows:

"Q. In fact we see the inverse. There's very

little exposure two hours in. But as we get to the seven-day mark, the vast majority of the glyphosate dose goes to the bone; right?")

MR. EVANS: Objection, Your Honor. Asked and answered.

THE COURT: Overruled. He hasn't answered that question.

THE WITNESS: I can't answer that looking at this table, knowing what I know in Table 1.

BY MR. WISNER:

Q. Okay. Let's take a look at Table 1.

Sir, Table 1 doesn't even mention bone, does it?

A. Oh, sorry. Table 3.

Q. Table 3, okay. Let's look at Table 3.

Look at the bone concentration. I don't see how this talks about the distribution at all of the dose.

A. Table 3 says tissue distribution, percent of administered dose of glyphosate-derived radioactivity at selected time intervals after oral administration.

Q. Exactly. So this doesn't answer the question that I asked. Because I'm asking you, sir: Where does the glyphosate go after seven days? And this tells us that of the glyphosate that's remaining, the vast

majority of it goes to the bones; correct?

MR. EVANS: Objection. Asked and answered, Your Honor.

THE COURT: Well, actually not. Overruled.

THE WITNESS: As I said before, going back to Table 3, I can answer that question appropriately. So...

BY MR. WISNER:

Q. So you refuse to answer my question, sir?

A. I'm just saying based on this, I can't answer your question based on this Table 4. This is a tissue to blood ratio, and it's not a measure of the percent of absorbed dose in the tissue.

Q. So my question was actually slightly different, and that may be why you're confused, sir.

Of the remaining dose at seven days, of the remaining dose most of it is in the bones; correct?

A. Of the remaining dose, yes, after seven days in this study, we do see that the highest amount is in the bones. And that's about 1 percent in Table 3.

Q. Fair enough. I wasn't fighting you about the percentage.

So of the absorbed dose, 1 percent after seven days gets in the bones; right?

A. They measured 1 percent in the bones after

seven days.

Q. And you talked about this concern about accumulation; right?

A. Yes.

Q. You talked about that on direct, remember?

A. Yes.

Q. And we don't know how much of that stays in the bones after seven days, do we?

A. I can say from my review of this paper and review of Table 3, I see it -- I see it clearly not accumulating in the bones.

Q. Okay. The study ends at seven days; right?

A. Correct.

Q. So we don't know what happens on day eight; right?

A. I can predict it, looking at Table 3.

Q. Okay. Because the study ended at seven days, we actually don't know day eight; right?

A. As I said, by looking at Table 3, I can see the pattern. It goes -- it goes up and peaks at about six hours, I think, somewhere around there. And then it starts going down and down and down.

And so, yes, at seven days, it's at 1 percent. But that is decreasing over time. And so if we're looking at that pattern, it's decreasing. It's not

accumulating. It's actually decreasing. That's why I said that this Table 4 is a little misleading.

Q. Well, I didn't write Table 4, did I?

A. No.

Q. Okay. So when you were calculating the exposures for Mr. and Mrs. Pilliod, you contemplated weekly exposure; right?

A. Yeah. I mean that -- and I contemplated, I looked at this study and I looked at Wester to look at this effect of accumulation.

Q. Okay. And so week after week, they're being exposed dermally to glyphosate. Is it fair to say then that during the time period when they were spraying, they had at least a 1 percent, whatever the dose was, in their bones?

A. This is a rat study, an oral feeding, very high dose. The Wester study, dermal absorption, after seven days nothing in any of the tissues, nothing in the bone.

And based on glyphosate and its properties, I'm telling you it's going to be going into the urine. It's going to be excreted very rapidly.

If you look at the evidence in the biomonitoring data, Connolly is a big one. Three hours is the peak, it's excreted in the urine, and it's

dropping off fairly rapidly.

So I would say that I didn't see any evidence that it's accumulating in the body or the bones.

Q. I'll show you another exhibit that's in evidence. This is the Maibach study from 1983.

Do you see that?

A. Yes.

Q. And this is Exhibit, if you want to look at the hard copy, sir, Exhibit 27.

Do you agree, sir, this is from 1983; right?

A. Yes.

Q. And as we go down here, we see there's a discussion of purpose and methods; do you see that?

A. Okay.

Q. Do you see that, sir?

A. In the methods? I see that there's methods.

Q. Okay. So that's a "yes"?

A. Yes.

Q. Great.

And it goes on here talking about how they're collecting the dose amounts and they're using urine; correct?

It's just a yes-or-no question.

A. Okay, yes, I see that.

Q. All right. They did not look at feces;

correct?

Another yes-or-no question.

A. I don't re -- I don't think they were, no.

Q. Okay. And if we look down here, we have the results. And there's a conclusion written. And you can see down here, it's actually authored by Richard C. Dirks, Ph.D. toxicologist; right?

A. That's what it says.

Q. Monsanto Company employee; right?

A. It says Monsanto.

Q. All right. And in here they talk about the total recovery was very low. Do you remember reading this?

A. Yes.

Q. It says: The total percent recovery (percent label removed by washing plus total percent label contained in urine) was low, i.e., 16 percent.

Do you see that?

A. Yes.

Q. And what kind of study was this? Was this a dermal? Was this an injection? What kind of study was this?

A. I believe the main part of the study was they were injecting it and then they had a topical dose.

Q. Okay. And in all of the living species

studies that you relied upon for calculating Mr. and Mrs. Pilliod's exposure, you were looking at IV studies; right, not dermal application studies?

A. Can you restate that again?

Q. What about my question was confusing, sir?

A. I'm just processing it.

Q. Okay. Let me know when you're ready to answer and go ahead and answer.

MR. EVANS: Your Honor, he asked that he restate the question.

THE WITNESS: I was just asking you to restate the question.

BY MR. WISNER:

Q. Oh, I thought you were asking me to restate it in a different way. I'm sorry.

THE COURT: No, he didn't.

Read the question, please.

MR. WISNER: Yeah, absolutely.

(The record was read back by the court reporter as follows:

"Q. And in all of the living species studies that you relied upon for calculating Mr. and Mrs. Pilliod's exposure, you were looking at IV studies; right, not dermal application studies?")

THE WITNESS: I mean, I reviewed a lot of studies on dermal absorption, that would be with human skin. I reviewed a lot of the biomonitoring data in humans, looking at -- so it seems to be a complicated question. You might have to break it down a little bit.

BY MR. WISNER:

Q. You know what, we'll just move on. I don't want to get lost in this contemplated question.

So it says here:

> A definitive explanation for the low recovery is not provided in the report, but the author does state that previous experience would suggest that much of the test material may in some way bind to or in the skin and cannot be removed by washing.

Do you see that?

A. Yeah.

Q. And what they're saying here is that when they did this dosing study, they only recovered 16 percent; right?

A. Correct.

Q. And actually if we go back to the methods of this one, I actually think this was a dermal absorption study. It says right here "For this dermal penetration

phase of the study." Do you see that?

A. Okay.

Q. So they actually were applying Roundup specific -- or glyphosate, sorry, specifically to rhesus monkeys here; right?

A. Yes.

Q. And they only recovered 16 percent of it. But again here, Doctor, they actually weren't measuring the feces, were they?

A. Nope.

Q. So it's possible, consistent with the Wester study, that the vast majority of the excretion was actually happening in the feces, they just didn't catch it?

A. I would disagree there.

Q. Okay.

It says down here that -- the author state that previous experience would suggest that much of the test material may in some way may bind to the skin.

Is it your understanding that a large percentage, 20 percent or so, of glyphosate actually stays in the skin?

A. No.

Q. That's not your understanding?

A. That 20 percent of it stays in the skin?

Q. Up to 20 percent, yeah.

A. My understanding in review of the literature is that it's readily washed from the outer surface of the skin and so the amount that's actually retained in the skin is very small.

Q. So where it says right here, "Previous experience would suggest that much of the test material may in some way bind to or in the skin and cannot be removed by washing," you don't agree with that?

A. No. That was later evaluated by Wester. And it looked at the skin binding and determined that it's not binding to the skin.

Q. And when was that study by Wester?

A. It was like '91 or something like that.

Q. Okay. Well, I'm going to take a look at an e-mail. It's in evidence. Exhibit 25. It's up here on your screen, sir. And as you see here, this is dated February 2003; right?

A. Okay.

Q. So this would be after that study that you said confirmed it didn't absorb in the skin; right?

A. Well, that was just one. I can give you other examples.

Q. Well, here's what this person Fabrice says. He says: And we know now five to 20 percent of the dose

of glyphosate could be stored in the skin.

Do you see that?

A. That's what it says.

Q. Okay. Are these Monsanto scientists wrong?

A. This is an e-mail. I don't know -- I just -- I don't if I can really answer. I don't know the context. I don't know what the replies were. I don't know, you know, did the next e-mail say you're crazy. I don't know.

Q. Okay.

A. I'm just telling you that in my review of the literature and studies, even in the peer-reviewed literature, I don't see this 20 percent binding and retained in the skin.

Q. Well, let's look at the response since you wanted to look at it.

A. I don't want to look at it.

Q. You brought it up, sir. It says right here: 20 to 50 percent of the dose was found in the dermis.

Dermis, that's skin; right?

A. Okay. So they're referring to a Franz study, and I --

Q. My question was: Is dermis skin?

A. Dermis is the lower layer of the skin.

Q. Right. That's the part that things absorbed

into the body; right?

A. Yes.

Q. Okay. All right. Now, part of your calculations assumed about a 1 percent dermal absorption; right?

A. My calculations are based on the flux. So it's the rate.

Q. 1 percent?

A. It depend on the concentration. Like I said, in a percent, it's going to vary on concentration and on the study. So --

Q. You used the Franz study; right?

A. I've used -- I used Franz and I think I used data from the Davies as well.

Q. Okay. And in the Franz study, I actually think the diluted absorption rate was around .5 percent; right?

A. For the dilution, I think it was .15 percent, was --

Q. .15 percent.

A. .15 percent.

Q. Okay. You would agree 10 percent is much, much higher than .15 percent; right?

A. I would not agree.

Q. You wouldn't agree?

A. No. You have to specify what that is percent of. 10 percent of a very small amount could be very different than 1.5 percent of a very large amount. So I'm just -- this is the problem with percents.

Q. I think this is probably the least controversial question I've asked you.

10 is bigger than .15; right?

A. I would agree.

Q. All right. We agree on something.

So let's look at the TNO study. That's one of the studies you actually did look at; correct?

A. It's -- it's one I looked at, yes.

Q. And this is actually a document.

MR. WISNER: Actually is this in evidence?

Your Honor, permission to publish Exhibit 800.

Q. Sir, take a look at Exhibit 800 in your binder. And that's a copy of the TNO study; right?

A. It appears to be, yes.

Q. Okay. And this is what you reviewed?

A. I did review it.

Q. Okay.

MR. WISNER: Permission to publish, Your Honor?

MR. EVANS: No objection.

(Exhibit published.)

BY MR. WISNER:

Q. So if we go to this TNO study, you look at the very bottom of this. And was this a rodent study, sir?

A. Yes, rodent study.

Q. All right. We look at the discussion and conclusions. And in the conclusion it says right here: An eight hour exposure to MON35012.

I'll stop right there. You understand that that number refers to a formulated glyphosate product?

A. Yes.

Q. It says: Resulted in a penetration of CA.

I'll stop right there. What is CA?

A. It's like approximate concentration.

Q. All right. Penetration of approximately 10 percent concentrate or 2.6 percent field dilution over a period of 48 hours in viable rat skin membranes.

Do you see that?

A. Okay.

Q. Do you see that?

A. Yes.

Q. Okay. And I just want to be clear, sir, when you did your dose calculations for the Pilliods, you used a .15 percent absorption rate, not 10 or 2.6; right?

A. I used a -- I used a flux. I used the actual

rate through human skin. I did not -- you know, there are percentages based on these. But this is a rat study. I didn't base my calculations on a rat study knowing that there's 12-plus studies on human skin. So I used flux.

Q. You understand what happened around this study and Monsanto, or no?

A. I reviewed the study from a scientific standpoint, and I saw some methodological issues that the authors did report. And so they obviously had some issues with their study. And I would agree that there was issues with the study.

Q. Do you know if Monsanto ever gave this study to regulators?

A. I don't know.

MR. EVANS: Objection, Your Honor, outside the scope.

THE COURT: Sustained.

BY MR. WISNER:

Q. All right. One of the studies that you cite to pretty regularly in your report is the Solomon review, do you recall that?

A. Yes.

Q. That was from 2016; right?

A. Sounds about right.

Q. And that was part of a 2016 Intertek expert panel; right?

A. I don't know. I was just reviewing it for the science. I wasn't -- I just -- it was a review paper on passive dissymmetry and biomonitoring data, and I also reviewed the papers it reviewed.

Q. Sorry. That doesn't answer my question.

A. Okay. So I don't know.

Q. You don't know. Okay. Thank you.

You didn't read the -- who wrote it when you looked at the study?

A. I do recall reading it. I just -- do you have a copy of it here?

Q. Sure. Let's take a look at it. It's Exhibit 2144 in your binder.

MR. WISNER: Permission to publish, Your Honor?

THE COURT: Any objection?

MR. EVANS: No, Your Honor.

(Exhibit published.)

BY MR. WISNER:

Q. You see this is the article by Dr. Solomon, sir? It's on the screen in front of you.

A. Yes.

Q. Actually if we just go to the last part of it,

there's a discussion, disclosure of interests. Right here it talks about -- oh, sorry. Acknowledgment, sorry. Here we go.

Acknowledgments. It talks about how it's part of the Intertek panel. Do you see that?

A. Okay.

Q. All right. In any event, did you follow the subsequent developments related to this article after you relied on it?

A. I don't know. I used this article because it provided a review of biomonitoring and passive dissymmetry data. And I also reviewed the relevant articles that this used.

So beyond that scope, I don't -- I'm not sure I understand what you're asking.

Q. Are you aware one way or the other if the journal subsequently issued an expression of concern about this publication?

MR. EVANS: Objection, Your Honor. Beyond the scope.

THE COURT: Overruled. He can answer.

THE WITNESS: I don't know.

BY MR. WISNER:

Q. You don't know?

I just need an oral answer.

A. I don't know.

Q. When did you first read this study, do you recall?

A. Probably in the past three or four months.

Q. Okay. So it would have been after November 2017?

A. No. I probably -- I'd have to look at it. When I first reviewed it, it probably was somewhere around November.

Q. Yeah, 2017?

A. Oh, not 2017.

Q. So it was definitely after that; right?

A. Yes.

Q. And when you pulled up the article online and you looked at it, did you see that there was an expression of concern that had been issued?

A. I may have. I just don't recall.

Q. Did you read it?

A. I don't recall.

Q. Okay. All right. Well, let's just go to -- basically I'm coming to the end here, sir.

During your deposition that you had, you talked about something called the safety data sheet; right?

A. Yes.

Q. Okay.

A. I imagine.

Q. And you actually said that you recommend as part of your work as an industrial hygienist, you recommend that people read the safety data sheet; right?

A. In the workplace?

Q. Sure.

A. In the workplace, it's something that is required under OSHA requirements. You know, you have to provide safety data sheets. And if I'm working in a workplace with large amounts of chemicals, it's good to know about what -- you know, about the potential hazards. And so I would agree.

Q. And you actually said that you recommended -- you recommend people follow the safety data sheet even in the residential context; right?

MR. EVANS: Your Honor, it's beyond the scope.

THE COURT: Sustained.

BY MR. WISNER:

Q. You relied upon both the label and the safety data sheet in forming your opinions in this case, didn't you?

MR. EVANS: Beyond the scope, Your Honor.

THE COURT: Overruled. You can answer.

THE WITNESS: If I relied on the -- for my

calculations?

BY MR. WISNER:

Q. For coming to your opinions.

A. Oh, for coming to my opinions.

The label was primary in determining the concentration. If the label didn't provide the concentration, I would have gone to a technical sheet or safety data sheet only for concentration. So that's necessary for my assessment.

Q. And on direct examination, Mr. Evans asked you about you physically handling a Roundup bottle, remember?

A. Yes.

Q. Remember that?

A. Yes.

Q. And you said, "Well, I read the label and I followed it"; right?

A. Correct.

Q. But the label on the safety data sheet is different than the label that consumers get; right?

MR. EVANS: Beyond the scope, Your Honor.

THE COURT: Sustained.

BY MR. WISNER:

Q. You are an expert in protective gear; right?

A. Yes.

Q. And you would agree that wearing protective gear generally reduces one's exposure?

A. Generally, yes.

Q. So if in fact Mr. and Mrs. Pilliod had worn chemical-resistant gloves, they would have had reduced exposure; right?

A. That would make sense.

Q. If they had a chemical-resistant apron when they were spraying, they would have had less exposure; right?

A. That makes sense.

Q. None of the Roundup labels that you specifically relied on ever recommended wearing any of that; right?

A. Right. And that's why we do risk assessments and we do hazard assessments. We determine if there's no hazard, why would we put somebody in a chemical suit. It's actually quite dangerous.

Q. You actually have the opinion that both of the Pilliods' exposures were essentially equivalent to what you would expect an operator's exposure to be; right?

MR. EVANS: Objection, Your Honor. Same issue we talked about earlier.

THE COURT: I'm sorry, I can't hear your objection.

MR. EVANS: I'll just withdraw the objection.

THE WITNESS: I would agree, yes. They weren't wearing as much chemical protective clothing so they weren't applying it as much as you would see in those studies where they're applying it for seven-hours-plus at a time. So I do put their exposures in that range.

BY MR. WISNER:

Q. And you agree because they were in that high range of exposure, it would have been a good idea for them to have been told to wear protective gear; correct?

MR. EVANS: Objection, Your Honor.

THE COURT: Sustained.

MR. WISNER: No further questions.

THE COURT: Redirect?

MR. EVANS: Briefly, Your Honor.

Can you pull up slide number 6, please.

(Counsel confer off the record.)

(Demonstrative published.)

REDIRECT EXAMINATION

BY MR. EVANS:

Q. And counsel asked you some questions about some of the later studies and whether again this whole concept of, you know, freezing and I think he said cooking or whatever. The rate calculation, the flux

calculation that you looked at, did it actually come from one of those studies or did it come from the Franz study?

A. I was using flux with the Franz study for the ready spray dilution mix.

And for the concentrate, I did use the -- one of the Davies because I was being a little conservative there and taking the higher measurement than one that was closest to the percentage they were using. That's important. If we're going to be applying flux, the concentration that they're using and the concentration associated with that flux is critical.

Q. Now in the Pilliods' case --

MR. EVANS: If we can go to slide 3.

(Demonstrative published.)

BY MR. EVANS:

Q. In the Pilliods' case, you were asked some questions about this issue of if Mr. Pilliod in particular --

MR. EVANS: This is Mrs. Pilliod. I want you to go back to Mr. Pilliod one or two slides before.

(Demonstrative published.)

BY MR. EVANS:

Q. If Mr. Pilliod actually spilled it on his hand and his pants and his shoe, wouldn't it actually be more

than if he just spilled it on his hand? I'm trying to understand that.

What is your assumption based upon with respect to trying to get the highest amount of exposure?

A. The assumption there is that a spill to the -- directly to the skin would give the highest possible dose. And so in that case, a spill to the hand would represent a highest -- to a concentrate would represent a highest possible exposure. And having it absorbed into the pants is going to be much lower.

Q. Okay. When you reviewed the deposition testimony, are you trying to analyze again what the highest exposure is as opposed to some theoretical exposure? Is it based on what they testified to?

A. It's based on what they testified to.

Q. Okay. And but when you spill an amount, you don't keep -- well, I'm just -- in your calculation did you consider what if he just kept pouring over his hand onto his leg and then onto his foot, would that be something that you saw in his deposition?

A. No.

Q. And you're trying again --

MR. EVANS: Let's go to slide 25, please.

(Demonstrative published.)

///

BY MR. EVANS:

Q. When you're using the surface area, this is the 105 centimeters squared, the thousand centimeters squared, and the 1,500 centimeters squared, does it matter where that centimeter squared is, if it's on the hand or it's on the shoe or on the pants or the sleeve?

A. Not in those areas of the body, no.

Q. Well, if in reality one of -- part of the centimeter that you applied to the hand had actually been on his pants, there would have been a protective factor against that; right?

A. Correct.

Q. So less than you calculated?

A. It would be less.

Q. But let's just assume for the sake of argument that, again, there was let's say twice as much square surface centimeters. Okay?

A. Okay.

Q. So he spilled it on his hand and then he also spilled an additional amount on his leg. Or let's assume for the sake of argument it wasn't just the front of the pants or legs, but let's assume it was, you know, the whole leg front and back. Okay?

A. Okay.

Q. Does -- would that result in the Pilliods

receiving a high dose of glyphosate being absorbed into their body?

A. No. Even if you doubled these doses, it's still going to be very small. You're going to go from .044 to .088 milligrams for Mr. Pilliod. And from .036 to .072. It's a very small amount.

Q. And so you quantified that into teaspoons. For Mr. Pilliod it would be 1/95 thousandths of a teaspoon. Is that less than like one speck of sugar?

MR. WISNER: Objection. Beyond the scope.

THE COURT: Sustained.

BY MR. EVANS:

Q. Okay. Well, if you -- if you double it, do you just end up with 2/95 thousandths; is that how the calculation works?

A. Yes.

Q. Now you were shown some -- a study, the Brewster study, that was talking about exposure in rodents who were actually fed the product.

A. Yeah. They were fed 10 milligrams per kilogram body weight.

Q. Okay. But -- and I don't want to be graphic -- when you talk about your basis for concluding that after seven days there's nothing in the body from a dermal absorption, that was based upon the Wester study;

right?

A. Correct. In primates.

Q. Right. And --

A. With dermal absorption.

Q. What did they do to the primates to make sure that in fact there was no glyphosate? That by the way had been marked, as you said earlier, with the radioactive labels; right?

A. Correct.

Q. And do they actually literally -- I mean, they're taking the monkeys apart and looking at every part of them; right?

A. Yes.

Q. Including the bones?

A. Yes.

Q. Including the skin?

A. Yes.

Q. Including the bone marrow?

A. Yes.

Q. Every part of it?

A. Yes.

Q. And the Wester study that we read earlier shows they didn't find any anywhere; is that true?

A. That's true.

Q. Now your calculations, as I understood them,

were based upon, as we talked about here, the surface area, the actual rate of absorption, and how much gets into the blood. And then talked about it's eliminated after seven days at the outside. You think it's actually quicker than seven days?

A. Yes. I mean, in humans when we look at it, definitely the evidence shows that it's excreted in the urine very rapidly. And the half-life is somewhere probably around seven hours.

That means if you took a half-life, if you went out 10 half-lives you wouldn't expect to see much. So within 70 hours, I wouldn't expect to see much. And that's substantiated in the biomonitoring studies where in cases, some cases they do the biomonitoring the next day, they don't see anything in the urine.

Q. But back to the Wester study. Whether it's being removed from the monkeys in their feces or through their urine, after seven days, when they actually went, you know, sacrificed the monkeys, there wasn't anything there. So it's out of the body one way or the other?

A. Correct. And it doesn't actually affect my calculations at all. I'm just determining how much got in the body, not -- not how much was in the feces.

Q. And that was really my question, which is this whole line of questions regarding how it actually gets

out of the body. You're here talking about how much gets into the body?

A. Correct.

MR. EVANS: That's all the questions I have. Thank you.

RECROSS-EXAMINATION

BY MR. WISNER:

Q. Doctor, you calculated how much comes into the body by seeing how much comes out?

A. They do evaluate in the biomonitoring studies how much comes out, you know. I've looked at this, does it -- is it excreted from the body effectively.

Q. That's how we figure out how much is absorbed; right? We see how much was put on and we look at how much comes out. So if you're not looking at all the stuff that comes out, you're going to misunderstand the actual amount coming in; right?

A. I looked at how much was coming out.

Q. You mentioned these two studies right here, talking about the Franz study, and you said this is the one that you kind of relied on for your flux calculation?

A. I used one of the flux measurements from that study.

Q. And Dr. Sawyer, however, had a much, much,

much higher percentage of absorption than you did; right?

A. Yeah. We're coming back to the percent issue.

Q. Yeah, and what happened here was when they did the Franz, there was a certain amount of dose that was actually in the skin; right?

A. I'm willing. I'm looking at the Franz data if you want to look at it.

Q. Sir, could you just answer my question.

A. Okay.

Q. You haven't answered it. So is that a "yes"?

A. Oh, I didn't hear -- I didn't -- I didn't think you'd completely finished the question.

MR. WISNER: Okay. I'll have her read it back.

(The record was read back by the court reporter as follows:

"Q. Yeah, and what happened here was when they did the Franz, there was a certain amount of dose that was actually in the skin; right?")

THE WITNESS: Yes.

BY MR. WISNER:

Q. And according to OECD guidelines, you have to calculate that as a part of the absorbed dose; right?

A. I reviewed the OECD guidelines, and they say and they state in there if you have a reason not to, that you have to provide that reason.

Q. So here, if we used Dr. Sawyer's flux number, it would blow up your evaluation; right?

MR. EVANS: Objection, Your Honor. That was not a flux number.

MR. WISNER: That's not a legal objection.

THE COURT: Okay.

MR. WISNER: Sorry, Your Honor. What's the objection?

THE COURT: I'm the judge.

MR. WISNER: Sorry, Your Honor. I apologize.

THE COURT: Would you like to restate your objection?

MR. EVANS: The objection, Your Honor, it's misleading. It's not what Dr. Sawyer did in this chart.

MR. WISNER: Again, I don't believe that's a legal objection.

THE COURT: He says it's misleading. So I don't know whether you want to restate it or reask it.

BY MR. WISNER:

Q. If we use this number from Franz, it blows up your calculation; right?

A. Get me straight. If I use a 4 percent dermal

absorption rate that Dr. Sawyer said it was, if I was using the flux in my calculation, it wouldn't change it. It's the same flux. It's the same rate.

Q. In the Wester study that you talked about when he looked at all the tissues and stuff, remember on recross -- redirect, he brought that up?

A. Yes.

Q. They lost 20 percent of the dose, didn't they?

A. In the Wester study?

Q. Yeah.

A. Yeah, they -- then they did some explanation on that lost dose.

Q. Yeah. They speculated that 20 percent of the dose exfoliated off their skin; right?

A. Yes.

Q. That's pretty outrageous; right?

MR. EVANS: Objection, Your Honor.

MR. WISNER: Let me rephrase.

Q. That's a pretty bad recovery rate for one of these types of studies; right?

A. And I would just say that that's why we're doing more of the human dermal absorption data and that's what I relied my calculations on.

Q. But just a second ago, that was the study you kept citing to say that it doesn't stay in the body.

A. Yeah, that is an important study that states that purpose.

MR. WISNER: No further questions, Your Honor.

THE COURT: All right. Thank you. Thank you, Doctor.

So, ladies and gentlemen, we're done for the day. So if you could just wait one second.

Step down, Doctor. Go ahead and step down.

So we're done for the day. And just to remind you that tomorrow we will have a short day, we'll be finished by 3:00 o'clock. So and then after tomorrow, you won't be back until probably Monday. So just you have in mind the schedule remaining part of the week.

So I will see you tomorrow morning at 9:00 o'clock. And I trust that you will not talk about anything that's happened in this case so far. We are actually nearing the end, and the lawyers have assured me that by the date we originally promised the case will go to you for deliberation.

So thank you for your time. Thank you for your attention. Have a good lunch and then go home. Thank you.

(Jury excused for the remainder of the day.)

(Proceedings continued out of the presence of the jury:)

THE COURT: So those people in the gallery, you can probably leave because they're going to have lunch before they leave. So there's no reason to wait if you want to leave.

MR. WISNER: Your Honor, I just want to apologize for saying -- getting angry there. My frustration stems from those kind of objections are not even close to proper. Yelling out "argument" as an objection is highly improper. We have not been doing that, never did it during their directs or their crosses. I stand up on my objection, "hearsay," "speculation." I stick to the legal grounds. They have been routinely doing that throughout trial, and that's why I've gotten angry and I apologize. I shouldn't have gotten so angry.

THE COURT: Okay. So let's move on.

I have a conference call at 12:30. I have to do it in the courtroom regarding another case. So we're not going to resume until at least 1:30. The doors are still locked. I'll open them when I'm not busy. But probably between 1:30 and 1:45 we can come back. And remember I need to leave by 3:30.

Have a good lunch.

(Luncheon recess was taken at 12:06 p.m.)

AFTERNOON SESSION 1:54 p.m.

(The following proceedings were heard out of the presence of the jury:)

THE COURT: Good afternoon.

MR. MILLER: Your Honor, if I could, I would like to introduce my law partner, Dave Dickens. Mr. Dickens argued your instructions in the Johnson trial, and he's been working on this one behind the scenes.

MR. DICKENS: Good afternoon, Your Honor.

THE COURT: Good afternoon. Sorry to keep you waiting, but I had other fires to put out before we could go forward.

So first of all, with respect to the motion that was filed last Friday and that was argued for nonsuit, that's denied. And I think I indicated that I would probably deny it last Friday.

I just think, in looking at the evidence in the light most favorable to the plaintiff, these issues can and should go to the jury. I'm not going to go into any great detail on that.

I did have a chance to look at the briefs. And with respect to the jury instructions that you had filed up to last Friday, I think that I got an opposition to one from the plaintiffs today, this morning or last night. And I didn't have a chance to

look at that one. So we won't be able to discuss that today. But I think we can make some real progress.

And I have something on the Mucci letter, and I don't know that that's for tomorrow. When is that happening, and is that something I need to pay attention to immediately or not?

MR. MILLER: She is testifying tomorrow, and we do intend to use it in cross-examination, so it's an issue I think the defendants wanted to raise.

THE COURT: Okay. We'll mark that for a moment.

I took a look at the defense bench brief yesterday. I just got the opposition this morning, I think, from Plaintiffs. I haven't had a chance to really look at it.

The first thing that came to my mind is that we talk about a trial, and work through what all that meant and how time consuming that was going to be. That was the first thing that came to mind.

So as we have this conversation, I'm going to need to know how much time we're going to spend on unraveling this letter and what it means or if it meant anything in particular.

So it's not just a question of asking her about it, but how much time do we need to explain what

it means to the jury and whether it represents bias or not. Think about it while we talk about other stuff. But I wanted to give you a preview of what first came to my mind.

MR. MILLER: Sure.

THE COURT: With respect to causation, I did take a look at those briefs. And my tentative is that I would read 430 with the bracket, I would not read 431, and I would not read 435.

We had some discussion of that last week. You can make your record if you like, but I've read the briefs, and that's pretty much where I'm landing.

MR. DICKENS: Good afternoon, Your Honor. David Dickens, once again, on behalf of the plaintiffs, Your Honor.

I think the issue essentially comes down to the evidence and what the evidence has been in this case. And both plaintiffs --

THE COURT: I apologize. I did not bring my jury instructions out with me. I left them on my desk. Give me one second and allow me to grab the instructions.

All right. Counsel, you can proceed.

MR. DICKENS: Yes, Your Honor.

Plaintiffs -- both of the plaintiffs'

case-specific experts, Dr. Weisenburger and Dr. Nabhan, testified that it was not only Roundup that caused cancer. Even though it was, in fact, a substantial factor, it combined with other factors such as --

THE COURT: Let me just talk about that a second.

The whole argument all along has been that there are various sundry risk factors -- not causes, but risk factors that may be present -- but they're really not important. Because the key thing was that the cause was the glyphosate.

That's been pretty much the testimony of all the witnesses so far, and the argument of Counsel as we've gone along.

MR. DICKENS: I think it's a matter of, certainly, semantics to the extent it's risk factors versus causes.

But what the experts have said is that things such as obesity or age, even if we take the fact that it's not a cause, something is. So something causes that, even if we can't say it's one of these. But there's some kind of genetic disposition that occurred.

So there is a cause, even if we can't put our finger on it. And so it's not necessarily Roundup. And there was testimony with respect to --

THE COURT: Well, it is necessarily Roundup according to the Plaintiffs' theory, which is that you get older. It's not age. And with Dr. Nabhan, if he said it once, he said it -- age doesn't cause it, obesity doesn't cause it. It's when your body begins to break down -- was it the doctor that was here yesterday?

MR. DICKENS: Dr. Bello.

THE COURT: Dr. Bello essentially argued the same thing, which is that these are risk factors. Because when your body is older, then you've had more of an opportunity to have all kinds of things happen to it, which makes it easier.

But the running theme has been that the glyphosate was a cause, notwithstanding the risk factors.

And, in fact, I would agree with the defense argument that, you know, you spent a lot of time eliminating the things that you call risk factors, and bringing over to the cause column the cause, which is Roundup.

MR. DICKENS: And, you know, once again, I think if we look at 431 specifically with respect to multiple causes, it's Roundup combining with other factors.

So the testimony has been that it was --

clearly we agree that it was a substantial contributing factor to both of the Pilliods' cancer.

And because of the fact that it combined with, you know, the risk factors of age and obesity, whatever those are -- and we've introduced testimony with respect to how cancer actually occurs, and the hit-and-run theory. There's a hit, and that Roundup is -- and Dr. Sawyer testified to that -- it is a promoter. So it combines with other factors leading to cancer.

Even if we took away Plaintiffs' testimony, if we look at Defendants, Logacz -- I'm sure I didn't pronounce that correctly, but I can give you the citation -- that case stands for the principle that if Defendants come in and argue a separate cause, that a multiple cause instruction is appropriate.

THE COURT: But Defendants aren't -- there is no cause. You can't tell the cause because there are all these other things floating around.

But ultimately, what they land on, we don't know. Nobody knows, and the plaintiff doesn't know either.

MR. DICKENS: So with respect to Dr. Bello, she talked with respect to risk factors. But once again, she's saying that Roundup did not cause the cancer. It does not cause any cancer, was her

testimony. Something did. There is another cause there.

So she said, I call it idiopathic because I couldn't pinpoint it. But that doesn't mean there was no cause, it just means there's a separate cause that is not Roundup. But what she also said was, even if I'm talking risk factors, there's two causes: HIV and a compromised immune system.

Now, Dr. Levine, who has not testified yet, her report specifically says that compromised immune system caused Mr. Pilliod's cancer. And she says that in her report. Dr. Bello has already presented testimony that compromised immune system is a cause of cancer.

And Dr. Levine is pointing to that compromised immune system in saying that Mr. Pilliod's cancer -- and once again, her testimony hasn't been presented, but based on her reports and deposition testimony, we know that's going to be her testimony.

What they did also point to, and what Dr. Weisenburger said, is with respect to Hashimoto's. We've heard some testimony with respect to that. And Hashimoto's, Dr. Weisenburger said, is a cause; but I was able to rule that out, and here is why. Doctor --

THE COURT: That's my point, which is that

there's been so much discussion about all the things that -- thyroiditis, unless you have a thyroid-type cancer, not a cause. Hashimoto's, not a cause. Nothing to do with it.

That's the argument. There are these things out there, but they were not factors. Because the factor that we can point to, which 10 to 12 different experts say, step-by-step, we get to glyphosate and the formulated Roundup -- which, I guess the theory is that it's more toxic than glyphosate alone -- is the cause of the cancer. So --

MR. DICKENS: And they did that.

THE COURT: So backing up and saying, there are all these things out there, so I need to give this instruction that accounts for all the potential causes is really saying two different things. Which is why I'm not going to do it, unless I hear Dr. Levine say that it is the cause as opposed to it can be, but it's -- I don't know.

MR. DICKENS: I think the issue comes down to, if the jury is back in the room, and they're deliberating, and they decide, we think Roundup did cause cancer, but we also think something else did as well. What are they supposed to do with that?

If we don't give the but-for record -- that

is, if we don't give multiple causation --

THE COURT: I think the but-for is the last record, isn't it?

MR. DICKENS: What I'm saying is, if we do give that -- and I probably said it wrong.

If we do give but-for, and then they say, we think something else also played a role here, but because all we have is the but-for language and nothing else with respect to the multiple causation, what do we do with that fact?

There's nothing for them to say that these other factors that Defendant brought in -- I don't know -- age, obesity, those risk factors. But we were presented with studies that showed there was a significantly increased risk of these factors.

THE COURT: One of the jurors has asked that question. And it was emphasized over and over again just yesterday, because that question was asked: Are risk factors not cause? It's a risk factor.

So I'm not sure -- I can't hypothetically tell you what they're going to say, and I don't think it's appropriate to respond to that particular question. I don't know -- they may go through a lot of things.

But I think that understanding that it needs to be a substantial factor explains what they need to

consider in deciding whether or not, ultimately, Roundup was a substantial factor in causing the non-Hodgkin's lymphoma.

MR. MILLER: Your Honor, I would just add, if I could, why don't we punt on 431 until we hear Dr. Levine's testimony.

Because clearly, as to Al Pilliod, she points to a separate, independent cause of his non-Hodgkin's lymphoma.

THE COURT: I'll punt until then.

But I'm just saying that at this moment, and depending on what I hear tomorrow, I am not likely to read it. And I am likely to read 431 as --

MR. MILLER: It's actually Monday for her.

THE COURT: I want to hear from Mr. Ismail before --

MR. WISNER: I think what Mr. Dickens is getting at is, there was a very long cross-examination of Dr. Weisenburger, going over smoking and that gene t(14;18) mutation and all -- obesity, all of these different -- age. All these different numbers were thrown in front of the jury. And they've also seen numbers related to glyphosate. It would be a reasonable thing to conclude, based on the evidence in this case.

And that's the standard for a jury

instruction. Based on the evidence that's been presented, a jury can go, yeah, I think both Roundup and Hashimoto's, I think both of those were substantial factors in causing Mrs. Pilliod's disease. They could come to that conclusion. That would be a reasonable inference from the evidence.

If that is a possibility, then we have to give them an instruction on how to deal with that situation, because that is the evidence in this case.

Fair enough, our experts don't think that's true. And their expert had a distinction between risk factor and causation. And frankly, I don't think that's a proper distinction; I think they are the same things.

I believe we can get into arguing the merits, but regardless, the jury can hear this evidence. There's a lot of it. They went there on cross and spent hours and hours showing different studies and risks. And a jury can see that and say, yeah, I think both caused it.

If they have that reasonable conclusion, which is not something that could be argued from the evidence, then they have to be instructed on how to deal with that situation. I think that's our biggest concern.

And when you throw in the but-for causation, and don't give the multiple causation instruction, you

really create a situation where the answer to that question -- because, for example, we all agree that if they concluded that both Hashimoto's and Roundup were a substantial factor in causing her cancer, we win that fight.

But without that instruction, we don't. And if you give that instruction with the but-for causation instruction, we definitely don't. And that's the problem.

So we either get rid of the but-for causation issue in the 430, or we keep it and add the multiple causation one so the jury knows what to do if they come up with that issue.

They're both statements of the law, and they're both factual inferences that can be derived from the evidence of the case.

THE COURT: Okay.

Let me hear from Mr. Ismail.

MR. ISMAIL: Thank you, Your Honor.

First of all, 430, by its terms, states that it does not have to be the only cause of the harm. So to the extent Plaintiffs are concerned that the jury is otherwise under the impression that Roundup has to be -- to be a substantial factor, has to be the only cause of the harm, 430 expressly states to the contrary.

So a substantial factor need not be the only factor. So that is, indeed, the law.

The law very clearly states that but-for causation is the standard in California. So if the harm would have occurred anyway, without the alleged tortious conduct, then it cannot be a substantial factor. And that's, indeed, how the California cases describe it and how the use notes describe it.

There's a very limited exception to but-for causation, and the Major case calls it an exceptional circumstance. And that's where there are concurrent sufficient causes to bring about the harm. So a situation where the plaintiff can't prove but-for causation because the other action or conduct or exposure was sufficient to bring about the harm, as was the alleged tortious conduct.

It's a rare circumstance for it to occur. The Major case talks about multiple defendants, the plaintiff smoking different cigarettes; and the plaintiff, if forced to prove but-for causation, can't unpack that.

Here, none of the experts, none of them, have posed that there are independent sufficient causes in bringing about either of these cancers. The plaintiffs' experts were, to a question, denying that the risk

factors played any role, let alone a sufficient role, in bringing about the cancer.

So the whole construct of their risk factor board -- and Mr. Wisner says this idea of risk factor versus cause is somehow artificial. It was Dr. Weisenburger and Dr. Nabhan's explanation for why certain risk factors wouldn't be considered causal risk factors.

So age, obesity, gender, ethnicity, Your Honor might recall, I tried to put an X on the board, and he said to take it off. You can't even call it a risk factor that he has, let alone put it in the far right column where he would say it was even a substantial factor, let alone an independent sufficient factor in bringing out the harm, which is what's required under 431.

And Dr. Bello's distinction is consistent with that proposition, as well, as is Dr. Levine's opinion. Dr. Levine will not say that there are independent causes of bringing about this cancer; Roundup on the one hand, and something else on the other.

So this whole idea that if a plaintiff has risk factors -- regardless of what kind of case we're talking about -- that that drives this jury instruction to 431 is belied by the way the cases talk about it as

being an exception, the rare circumstance.

Here, their theory of the case certainly isn't that there are two things that independently caused their cancer; they think only one thing caused their cancer. And there hasn't been any evidence from which this jury, on their own, can decide: I think they would have gotten it without the Roundup, or I think they got it because of the Roundup.

That's not any evidence that has been put before this jury. So, obviously, we agree with the Court's tentative. Happy to answer any questions.

MR. DICKENS: If I may, Your Honor, a point directly -- and we actually cited it in our trial brief on causation -- what Dr. Weisenburger's testimony was with respect to obesity itself.

He said that we don't really understand for sure what happens, but with obesity, the risk is about 30 percent.

And then he says:

"It may have contributed to her lymphoma, but it wasn't a substantial contributing cause. On the other hand, Roundup causes an odds ratio greater than 2 in people who are highly exposed."

THE COURT: So if he says it himself -- which

is that it's not a substantial factor, and it doesn't have to be the only factor -- then Mr. Ismail is right. It doesn't have to be the only thing, but just a substantial factor.

MR. DICKENS: And Roundup has to be a substantial factor. But the other causes don't have to be substantial contributing factors in order for --

THE COURT: But they have to be an independent cause. And I think the entire focus of the trial has been that none of these things -- including the obesity, by the way -- is a major factor.

It's just a -- it's a reason they might be more likely to have gotten NHL. But by themselves, were not identified as anything that would have actually caused them to have NHL.

MR. DICKENS: And I think that what we're confusing is the two standards for independent.

Independent applies to the but-for clause. It does not apply to 431. Specifically, 431 can deal with contributing causes that are not independent concurrent. Independent concurrent, that applies to whether or not you give the but-for clause in that section.

So with respect to other contributing causes, like Dr. Weisenburger said with respect to obesity, that would fall into giving 431, which is contributing cause.

THE COURT: Not so far. I'm sorry. The way I've heard the evidence, not so far.

I'm not going to make a final decision until after I hear Dr. Levine. But at this moment, it's 430 with the last phrase. That's where we are right now.

We'll come back to it after Dr. Levine testifies. But that's -- that is how I see it -- how I see the record.

MR. WISNER: Just a quick question. When do you read the jury instructions? Before closing or after?

THE COURT: Before.

MR. WISNER: Okay. My concern is --

THE COURT: I don't want the jury -- I give them a copy to follow along, so that they have a copy. They tend to pay better attention if they have something in their hands.

MR. WISNER: My concern is argument. You read the instructions to the jury, and defense counsel says, ladies and gentlemen, Roundup didn't cause it. If anything caused it, it's Hashimoto's. Right? Or, if anything caused it, it was obesity or their advanced age. They both were old; that's clearly the cause here, ladies and gentlemen.

If they go and argue that -- and you can argue

that based off the evidence. There's plenty of data to support that argument. I don't think it's correct, but there's evidence to support it.

If they do that -- can we get an agreement that they're not going to make these arguments? If they are, we're clearly entitled to these instructions. If they're going to argue other causes of their cancer, we have to be able to instruct the jury how to deal with these other causes.

MR. ISMAIL: So the evidence that we put forward yesterday is that Hashimoto's didn't cause her cancer. We're not going to stand up in closing and say that Hashimoto's caused her cancer, even though our own expert said it's a risk factor, not a cause.

I'm not sure what Mr. Wisner is concerned about here with respect to the argument. We're equally concerned with how we would argue it in the context of 430, but we can deal with it in closing. If they think there's something objectionable, they can object. But our argument will conform to our theory of the case, Your Honor. You heard it yesterday.

That there's risk factors that these plaintiffs have, but that there are only a couple of known causes of NHL. She didn't have HIV, and she was immunocompetent. That's the way the testimony has come

in.

Rather than crafting how the closing argument is going to go right now, we're going to conform to the law and to the evidence.

MR. WISNER: Your Honor, in their opening statement, they make alternative cause arguments throughout the opening statement.

THE COURT: I don't want to hear that right now. I don't want to go back to opening statements.

MR. WISNER: I know. But that's what we're worried about.

THE COURT: I want to fast-forward to where we are right now, and focus on what will or will not be said to the jury in closing arguments.

MR. WISNER: The reason I say that is because past is prologue, right? So they've already made this argument to the jury, and now they're saying, we're not going to make that argument. Then I don't know what -- okay.

THE COURT: Did he say causes or risk factors?

MR. WISNER: I'll go back and find it.

THE COURT: No, don't. I would expect the lawyers -- you lawyers, and I'm sure you've now argued this a couple times -- to conform to the evidence. Because if you don't, then there's a real problem that

if either one of you steps outside the line, then we have a real problem with the case. And I'm sure you're aware of that.

We've invested a lot of time and energy, so I can't imagine that anybody wants to do that. No one, certainly, wants to deal with me if you do do it.

What can I say, other than my expectation is that your arguments will conform to the evidence. Nobody wants to hear an objection during their closing argument, and a bunch of sidebars and that kind of thing. So let's just take this a step at a time.

Right now it's 430. We'll go forward. We'll finalize them after all the evidence has been heard.

So with respect to consumer expectation versus risk benefit, I'm going to read the consumer expectation. And I've read these -- by the way, I spent a good deal of the weekend reading cases and reading your briefs, so I've actually given this a fair amount of thought coming into this argument today. I wasn't prepared last Thursday to talk too much about it then. But I really have, I have looked at these cases.

So with respect to this, I feel very strongly that the consumer expectation is the appropriate standard here. Roundup is sold in Home Depot pretty much everywhere. It's very straightforward. There's

nothing so complex about it that could trigger the reading for the risk benefit.

MR. ISMAIL: Understood. Your Honor, noting our objection, I can articulate it on the record, but we've heard the Court's tentative.

We believe there's not a proper design defect claim here, both from a legal perspective and from the way the evidence has been presented. That this is fundamentally a warnings case, under concepts such as unavoidably unsafe.

And so the comment came from the restatement -- how you're dealing with a chemical, a pesticide -- and you have to consider warnings concepts along with the design of the product, that they are part and parcel. It's fundamentally a warnings claim.

Here, the consumer expectation test, we believe, under the law, that what we have is -- we've heard a lot of complex scientific proof through eight or nine experts debating the science. And it's well beyond the ken of the consumer to have an expectation about that level of complexity.

And therefore, I believe the consumer expectation case not to be an appropriate standard for this jury. We understand the Court's ruling, and we're just preserving that for the record.

THE COURT: Sure. You have to have a lot of complex testimony about what glyphosate is, how it works. But Roundup itself is a pretty straightforward consumer item. Which, yes, it contains glyphosate, and unpacking glyphosate may be a little complex.

But it doesn't necessarily make the product itself so complex that the jury can't figure out whether or not the warnings were sufficient, or any of the other issues that follow the use of Roundup in the ordinary course of weed-fighting or however else they use it on their property.

All right. So failure to warn. Failure to warn, that would be the 1205 and 1222. And I actually really only want to talk about Bates. Because potential stays in as written. And 1205, paragraphs 2 and 4 -- actually, I don't think there's any reason for me to read actual. I don't think that that's either required -- I think that the language in 1205 and 1222, using the term "potential" is adequate.

I think the whole speculation issue does come in with respect to the second paragraph that's addressed in the Carlin case, but I think that the jury can understand and deal with that.

I'm thinking about adding paragraph 3, the requested language under Bates, as a substitute for use

or misuse in an unforeseeable way. The fit for a phrase -- that's proposed by the defendants at that point. So I would hear argument on that.

I think that the language in Bates that's driving that decision, potential decision, is the last -- the paragraph where it says:

"If the case proceeds to trial, the Court's jury instructions must ensure that nominally-equivalent label requirements are genuinely equivalent. And if a defendant so requests, the Court should instruct the jury on the relevant FIFRA misbranding standards."

So that's what's driving this decision.

MR. DICKENS: Certainly, we understand, Your Honor. I think the first sentence that the Court just read is what should drive the day here. It says:

"The Court's jury instructions must ensure that nominally-equivalent labeling requirements are generally equivalent," italicized.

What is included in the failure to warn instruction with respect to just the standard CACI instruction, used or misused in an intended or reasonably foreseeable way, is genuinely equivalent to the language widespread and commonly-recognized

practice.

What Bates says is that the wording does not need to be identical. You don't need to change the jury instructions to make sure that it reads exactly what FIFRA or what Bates says. All that it requires is that it's generally equivalent. It does not make or require warnings in addition to what FIFRA requires.

So what is included, that language, is not specifically a recitation of what FIFRA is misbranding, provisions actually go on to say.

Because once we go there, then the Court would also need to instruct them -- I think what Bates stands for is, you need to tell them that, in addition to what the failure to warn standard here is in California, here is what the misbranding is as well. To ensure that the jury does not find Monsanto liable for anything in addition to or different than what FIFRA requires.

So FIFRA is specific that, if a pesticide is misbranded, if it fails to warn of the risks -- and I don't have the exact language if front of me. But it's specifically and exactly what the failure to warn instruction was here in California.

So when you look at these two, they're completely and genuinely equivalent. And to start changing up the language because they use different

language in a federal regulation, then once we do that, we have to start instructing with respect to the other and put that into context, what does FIFRA misbranding mean? How is that looked at from a federal perspective?

As long as they're equivalent, which we certainly submit is the case, there's no reason to go ahead and start changing the CACI instruction.

So I'll also point out, Your Honor, that Judge Chhabria, in the federal case, specifically held that those two standards are equivalent. Judge Bolanos, in the Johnson case, used the standard CACI instructions once again.

All the courts that have considered this have held that as generally equivalent, and there's no need to start messing with the CACI instructions that were drafted in a way that are understandable to a jury.

THE COURT: Okay. Well, I just want to hear argument once I've reviewed Bates. I had some question about that.

But go ahead, Mr. Ismail.

MR. ISMAIL: Thank you, Your Honor.

I will start with two propositions. One, I think everyone agrees that the instruction needs to conform to the federal requirements so as not to impose additional burdens from a preemption perspective.

The next point I would make is that the language we submitted, Plaintiffs are not arguing that we have mischaracterized the federal regulation. They haven't contested that instruction should conform. They haven't contested that our language -- asserted that our language is erroneous. Their point is that it's close enough to what the CACI is.

If we agree with the first two principles, why should we not just give the language that is inarguably the correct articulation of the federal burden, rather than trying to decide whether different words are communicating the same thing.

And I think, Your Honor, just based on the way the wording is phrased, "misused in an intended or reasonably foreseeable way," versus "in accordance with widespread and commonly recognized practice," they are communicating different concepts. There's a foreseeability concept in the CACI that's not included in the federal.

And they are different articulations. Whether they're, in some sense, in the same zip code, I don't think is an issue. They have to be consistent and harmonized in a way that we don't have this collision between the state-toward obligation and the federal regulatory obligation.

So if our language is correct, and we agree that it needs to be harmonized, why not just use the language we proposed?

THE COURT: So Mr. Dickens argues that -- well, if we go down that path -- I would not be inclined to add additional instructions to further explain them.

MR. ISMAIL: Well, with the hypothetical he proposes or suggests, we're going to have to add other language to what? Yes, there's a whole regulatory scheme you could instruct on. We're not asking for you to do so; they're not asking for you to do so.

So there's a concept of failure to warn that's articulated here, that needs to be put in the context such that it's not imposing additional obligations than is required in the federal regulatory scheme.

I agree with you that there's a lot of concepts in the federal regulations, and neither side is asking you to instruct on it. So it seems to be somewhat of an irrelevant hypothetical that he's proposing.

MR. DICKENS: Yes, Your Honor. We're trying to hold Monsanto liable under the state law here. And what Bates says is that the state law need not explicitly incorporate FIFRA's standards as an element of the cause of action.

The cause of action here is failure to warn. The instructions have been approved. They're used in court after court after court. It's approved language. It doesn't need to be exact to FIFRA. There's no reason to change that.

THE COURT: So let's park that. I've heard enough on that.

What I would say is that, potentially, let's just hold in abeyance, my final decision on that language in paragraph 2 of 1222 and paragraph 3 of 1205.

But that I will maintain the word "potential" in paragraphs 2 and 4 in 1205. And in 1222, I will not insert "on the label" in either 4 or 7. So we'll come back and make a final decision on that, but the other two points I just made are final.

Where are we?

MR. WISNER: What time is it?

THE COURT: What day is it? Is it over yet? No, I'm sorry. Did I say that?

Let me go back, because those were the briefs -- I know that there will be a discussion about punitive damages.

Are there briefs I missed? I know we sort of had a rolling conversation last Thursday, and I wasn't clear on -- there's one other thing I know, and I'll

come back to it.

But I know that there was some discussion about wanting to know what I had to say about causation and failure to warn before getting into a discussion about punitive damages.

So I wanted to recalibrate, figure out where we are and what's left -- major issues we need to hammer out.

MR. DICKENS: I believe the opposition to the trial brief that was filed by Plaintiffs last night or this morning does address Special Instruction 3, which is the punitive damages instruction.

THE COURT: That, I haven't really reviewed yet. Because I just got the opposition this morning, so I'll have to take a look at it.

MR. DICKENS: And that's only specific to Monsanto's Instruction Number 3 with regard to punitives.

THE COURT: Let me take a quick break. I left some other stuff on my desk.

(Recess taken at 2:32 p.m.)

(Proceedings resumed at 2:35 p.m.)

(The following proceedings were heard out of the presence of the jury:)

THE COURT: So the other brief -- which I left

on my desk, I'm sorry -- was the special EPA instruction, and I read the briefs on that.

And my tentative is that that's an argument to the jury, but I don't think a special instruction is warranted. That would be Number 9 on Defendant's.

MR. ISMAIL: Your Honor, both parties proposed some version of an EPA instruction as a special. It is sort of a unique situation. The jury has heard a lot of regulatory evidence from both sides.

And we had proposed giving them some guidance on how to deal with that evidence. I understand the Court's tentative. Perhaps I shouldn't assume, but would your tentative apply to both sides?

THE COURT: I don't think a special EPA instruction is warranted.

MR. DICKENS: As long as the defendant doesn't get theirs, ours was more peremptory to the extent of some type of EPA registration. We're fine if the Court's decision is that there's no EPA instruction at all.

THE COURT: I think it's argument. Both would be out. Neither special instruction would be included, I guess, is what I should say.

MR. ISMAIL: If I may, Your Honor?

THE COURT: Yes.

MR. ISMAIL: So at the lunch break, we -- Your Honor requested that the parties submit a merge set, so to speak.

THE COURT: I got that.

MR. ISMAIL: Just by way of how this is forming, I think the first --

THE COURT: Let me grab it. I didn't bring that out. I brought everything but that.

MR. ISMAIL: There's nothing left in there.

THE COURT: Oh, there's plenty left.

I was going to ask somebody to sort of, in view of everything we've discussed, give me a set of proposed instructions that combines my rulings so far, with modifications that you all may have agreed to, plus the agreed to instructions. And I think we'll have a good outline of what they're going to start looking like.

MR. ISMAIL: So this, obviously, is prior to this afternoon's discussion?

THE COURT: Right.

MR. ISMAIL: So the first three instructions, which are the first 33 pages, are all agreed.

THE COURT: Okay.

MR. ISMAIL: And then what the parties have done is, there are some instructions submitted by one

side or the other that are objected to. And where both sides are submitting an instruction on a topic, we've put them back-to-back so you can see what the competing instructions are.

THE COURT: Okay.

MR. ISMAIL: So, for example, on page 34, Plaintiffs are proposing an instruction. We discussed this a little bit last week. Your Honor was disinclined to give it, in light of how the evidence has been presented, similar to the next instruction.

So these are not agreed to. We object to giving any instructions. We don't think anything is appropriate.

And as you go forward, there's the causation one, obviously, as we've discussed. But, for example, there was the warning issuing that Your Honor has given some guidance on.

THE COURT: Right.

MR. ISMAIL: And then the specials are at the end. So the playing field is getting narrower.

THE COURT: Yes. I'm so happy about that.

So pages 68 and 69 would actually both be out, because I'm not going to give either EPA instruction.

We're going to talk about the punitive damages after I've had a chance to look at the briefs and --

MR. DICKENS: Your Honor, when I referenced the objection or the trial brief, we do object to all their special instructions, punitive damages or otherwise.

I just want to make clear that when I said there was a trial brief on Special Instruction 3, that wasn't the only one we object to.

THE COURT: We haven't talked about special instructions. Before today, we have not.

I know that Special Instruction Numbers 3 and 5 are in your brief.

MR. DICKENS: That's right.

THE COURT: We haven't gone through all of these yet, so don't be concerned that I've ruled on things we haven't actually discussed and finalized.

MR. ISMAIL: And, Your Honor, the last thing to give the Court a heads up about is, at the end of the day yesterday, you commented about how we are going to deal with the different --

THE COURT: I'm sorry, I do want to talk about that, yes.

MR. ISMAIL: We're proposing an instruction, it's the very last one in the packet. I don't think the plaintiffs have a competing instruction.

So that's not agreed to, but that was our

proposed language to deal with the issue the Court raised yesterday.

THE COURT: Okay. So why don't you either develop your own or meet and confer with defense counsel about that. Because we need something like this.

I haven't read it, but we need an instruction that deals with the fact that Mr. and Mrs. Pilliod have two separate cases.

MR. DICKENS: We certainly will, Your Honor. We just received this. We will take a look and work with Defendant. I imagine we will likely be back, but to the extent we can work something out, we will.

THE COURT: I know we had a conversation about Plaintiffs' proposed Instruction Number 11, which is the basic negligence instruction.

Is there an objection to that? I know Mr. Brady was arguing that we need this to explain the basic concept of negligence before going into negligent -- duty to warn, failure to warn.

MR. DICKENS: Your Honor, I just want to point out that we obviously took a look and worked through it. We had both 400, 401, and then we had the 1221 instruction.

So what we think made sense was to combine the first two sentences, lay out what negligence is, and put

them with 1221. And that's how we ended up with this instruction.

THE COURT: Oh, okay. Got it. Okay. That makes sense.

Does that make sense to you?

MR. ISMAIL: I understand what --

THE COURT: Mr. Brady did say that, sort of taking some part of it and adding it. And I said, oh, gee, that sounds like a great idea. But we never followed through to find out what the idea was.

MR. ISMAIL: I understand what the plaintiffs have done. I guess our point is that they have specific negligence claims, not a general negligence claim.

And the specific does delineate the elements, either from a design or a warnings perspective. And the instruction -- proposed Instruction Number 11 from the plaintiff is superfluous in light of -- the specifics should govern the general, I guess, is our position.

And I'm not sure what we're getting, besides potential confusion by giving them a stand-alone negligence instruction, independent from the actual claim being made.

THE COURT: Okay. I see what you're saying, Mr. Ismail. And perhaps that can be resolved. Because I do think that just defining negligence isn't a bad

idea.

So the first sentence, which is that negligence is the failure to reasonably prevent harm to others. Just as before, Mr. and Mrs. Pilliod claimed that Monsanto was negligent. Because that's the kind of thing where you might have a request from a juror like, what is negligence?

So if it defines it, and goes on to further define what it means in the context of duty to warn, I think that might solve it. Because when Mr. Brady mentioned, I thought, just giving them the concept of, what is negligence? We know what it is; they may not know what it is.

So what about the first sentence defining negligence?

MR. ISMAIL: So taking the first sentence from proposed Number 11 and have that as the lead-in to --

THE COURT: 12 --

MR. ISMAIL: -- the 1222 instruction.

THE COURT: Yeah.

MR. ISMAIL: I believe that's okay.

MR. DICKENS: Your Honor, so I'm clear, taking that first sentence, I think we also need that second sentence, which is taken directly from 401.

Once again, it provides clarification as to

what negligence is. It's taken directly from 401, before it gets into the standard of care, which is in 401.

Our proposed Instruction Number 11 for 1221 is the standard of care for a negligent design claim. So it takes the basic, here's what negligence is, the two sentences, and then provides the standard of care for a negligent design claim. That is the plaintiffs' proposed Number 10, CACI 1220.

THE COURT: Let me go back here. Hold on.

Did you propose --

MR. DICKENS: Plaintiffs have proposed both 1220 and 1221. We've pulled down our 400 and the entirety of 401.

So Plaintiffs had proposed the negligence of 1220, which lays out the factual elements.

1221 provides the standard of care for that negligence claim in a product liability action.

And then, once again, those first two sentences are taken, just to define what negligence is, from 401. The second sentence, once again, we think is necessary because it makes clear that negligence is not only affirmative action, but can also be a failure to account.

THE COURT: I see. I'll have to go back and

look at your original.

So in your original set of instructions -- I see what you did. You proposed 1200, 1203 --

MR. DICKENS: I think in our original -- and what might be making confusion, if I recall correctly. I think what should be 1220, in our initial one, was incorrectly labeled as CACI 1205.

But it's "Negligence Essential Factual Elements." But I'll try to pull up our original.

THE COURT: Okay.

MR. DICKENS: So in our original, our 1220 was Instruction Number 16, Your Honor.

THE COURT: Yeah, I'm looking at that. I see what he did. It was labeled 1225, but it's 1220?

MR. DICKENS: That's correct.

THE COURT: So what you did was take --

MR. DICKENS: And then Instruction Number 17 corresponds now to what is proposed Instruction Number 11.

So in our initial, Instruction Number 17 was "Basic Standard of Care."

THE COURT: So when we were having a conversation about this, we weren't talking about Instruction Number 17. We were actually way back at 401.

MR. DICKENS: That's right.

THE COURT: When --

MR. DICKENS: Yes, Your Honor.

So what Plaintiffs had initially requested was 400, 401, "General Negligence."

But we also had 1220 and 1221, which is negligence under the "Product Liability" section of the jury instructions.

THE COURT: Right.

MR. DICKENS: So after reviewing the Court's comments and instructions, what we thought made the most sense was to move forward with the negligence of 1220 and 1221.

However, since that standard of care does not define what negligence is, to use the language from 401 and bring that over to the 1221 standard of care for negligence in product liability actions, just the first two sentences.

THE COURT: Right. I see what you did.

MR. DICKENS: We're fine --

THE COURT: I'm not sure that we really solved anything by doing that.

MR. DICKENS: To the extent we just want to read the first two sentences in as a separate instruction to define what negligence is, I think that's

certainly an alternative, as well, Your Honor, rather than including it into 1221. Just including it beforehand to lay out what negligence is.

But our position is that 1220 and 1221 would still be necessary at that point.

THE COURT: Okay.

MR. WISNER: And just to clarify, 1221, Your Honor, just doesn't define what negligence is.

THE COURT: I'm looking at it. I understand what you're saying.

MR. WISNER: That's why we took just the first two sentences from 401 as an instruction. We withdrew 400 and most of 401.

THE COURT: 1221 does actually -- it doesn't define the term negligence that an ordinary person might understand when you're sort of describing something, as opposed to the adjective that is -- I mean, a noun is negligent, as opposed to -- when something is negligent, as opposed to, exactly what does that mean?

But I think, in terms of looking at whether or not the two sentences as a separate instruction -- let me just hold that thought. It may make sense. Let me just hold that thought.

MR. WISNER: Sure.

THE COURT: So let me just go back and make a

note.

So that takes us to -- just, as we're going through this list, I've already ruled on 1222. So now we're at 3905. Is that essentially where we are, once we get through the 1200s?

Is there an opposition -- is there any opposition to that? Oh, I see, there are two different versions.

So the plaintiffs combined 3905 and -- no, both of you did, let's see.

So I'm wondering if we shouldn't state Mr. Pilliod and Mrs. Pilliod's damages in separate instructions. You were saying that Mr. and Mrs. Pilliod are each seeking -- I'm really wanting to instruct the jury so that they get that these are two different cases.

So you can state Mr. Pilliod's and then Mrs. Pilliod's. So you can say they both want this, but only one wants that. What Defendants have been arguing is that there's some potential for them not viewing these cases as separate.

I'm fine with 3928; you're sort of describing what applies to both of them. But it might not be a bad idea to just state them separately. Maybe you can break it down.

MR. DICKENS: Your Honor, on the items of noneconomic damages, I think part of the issue is that we're claiming that the damages for noneconomic damages are the same for Mrs. Pilliod and Mr. Pilliod.

It's our understanding that Monsanto is claiming there's no evidence of any future noneconomic damages for Mr. Pilliod himself. And that's the distinction.

THE COURT: Noneconomic or economic?

MR. DICKENS: Noneconomic. So they're simply pulling out any future noneconomic damages for Mr. Pilliod himself. Which, based on his testimony, his wife and his son, we think it's clear there was evidence of future noneconomic damage.

They've also specifically pulled out the language of, you know, physical impairment, inconvenience, grief, anxiety, humiliation, all those type of damages, which is straight from the CACI instruction; it's available for noneconomic damages.

We certainly understand the Court's instruction to break that down. But there's more substantive documents.

THE COURT: Why do you argue that Mr. Pilliod doesn't have any noneconomic damages?

MR. ISMAIL: Mr. Pilliod has been in remission

for eight years. Plaintiffs opened their case saying he has experienced cognitive dysfunction as a result of his three-month treatment in 2011.

They have abandoned that from an evidentiary perspective. They had an expert, they never called him. They never solicited that testimony from Dr. Nabhan. They have not solicited that testimony, even from any of their percipient witnesses.

At most, what we heard from the plaintiffs' son and from the plaintiffs themselves is that Mr. Pilliod is not the same since his cancer in 2011.

THE COURT: Right.

MR. ISMAIL: That's neither -- that's not 2019 going forward.

But in any event, there should be some competent medical evidence submitted from which this jury could conclude that he has future noneconomic damages.

He has a past -- he articulated what he went through in the past. But as we sit here in 2019, they haven't presented evidence that he has any future pain and suffering, that he has any future disease, that he's dealing with anything from his cancer in 2011.

They functionally abandoned that argument when they didn't present their expert, they didn't present

the treating physicians on this issue. They didn't even solicit from -- Mr. Wisner went through opening statement that he can't go sailing because he forgets where he is and he gets lost. They never asked any of those questions from their witnesses.

The general statement that he wasn't the same after his cancer in 2011 isn't a basis upon which this jury, in April of 2019, can start speculating as to what that damage is going forward.

And we distinguish Mrs. Pilliod from Mr. Pilliod in this regard. They did present some evidence as to her going forward. But as to him, they did not. They've abandoned it from where they started this trial.

MR. WISNER: Your Honor, Mr. Pilliod testified very clearly that his life has fundamentally changed since he's been diagnosed with cancer.

He talked in detail about how it's affected sense of well-being, and all sorts of issues that came out, that a reasonable jury can infer that he did suffer serious noneconomic damages following his diagnosis and severe treatment -- R-CHOP, for his chemotherapy. So there's clearly evidence that he did, in fact, suffer damages following his cancer.

There's a sort of inherent contradiction in

Counsel's argument. If they agree that there has, in fact, been damages since 2011, there's no reason the jury couldn't assume that those damages can continue into the future.

Now, the specific arguments, for example, that his cognitive dysfunction was directly caused by Roundup -- sorry, by the chemo treatment, two things: One, I actually never said that in opening. He then proceeded to claim to the jury that I did say that in opening, and that's not the truth. I actually didn't say that. I said it got worse.

And we heard testimony, very clearly, from Mr. Pilliod and Mrs. Pilliod that he got much worse, that his seizures got worse, his ability to walk got worse, and he has bone pain moving forward. And all of that is related to his cancer and treatment of that cancer.

Sure, we didn't call Dr. O'Shanick to have him give his cognitive opinion about specific details of neural impairment. But we don't have to do that to argue future noneconomic damages to the jury.

So I think that the evidence here is clear that he is able to obtain noneconomic damages in the future. Obviously, it has to be constrained by the evidence that they heard.

But they have heard evidence that leads to a reasonable conclusion that he suffered some of the things they're trying to get out of here, including grief, anxiety, emotional distress. I mean, there's no question that he's experiencing that for the rest of his life. He clearly testified to that, and so did his son.

So there's evidence here for him getting noneconomic damages moving forward.

THE COURT: Okay. I actually agree that there is evidence, based on his testimony, regarding what he can't do anymore, what he used to do, what he liked to do. I think you are constrained somewhat by that evidence, however. It's only going to get you so far.

But it is -- I think that that does -- his discussion about how difficult the whole process was and the impact on his life, coupled with some of the limitations that he said he has had to experience and currently doesn't do any longer, which has more to do with the outdoor sports and sailing and things he used to do, I think that gets you into future noneconomic damages.

As I said, you can only argue so much. But I do think that you can argue that he has some future loss in that regard.

So I think that we can include that

instruction, and I would not break both of them out. I don't know if there's anything else in the difference between -- with respect to the difference between Plaintiffs' and Monsanto's proposed instruction.

Otherwise, I would agree that he can argue -- that can be included in the instruction and can be argued.

MR. WISNER: And I think we just throw in a sentence that says something to the effect of -- we can meet and confer on this -- but something to the effect of, in assessing noneconomic damages, you should assess Mr. and Mrs. Pilliod's damages separately.

THE COURT: There does need to be some reference to that.

The next one, I think I already said no to 3928, the unusually-susceptible plaintiff.

MR. DICKENS: Your Honor --

THE COURT: Go ahead and make your record.

MR. DICKENS: Your Honor, for the record, with respect to 3928 -- and the source of authority, you know, lay it out. What this instruction is for, that a plaintiff without such a pre-existing would probably have suffered a less injury or no injury, does not exonerate Defendant from liability.

Your Honor, if we cannot get the causation

instructions, if risk factors are not causes, then certainly those risk factors are something. And those risk factors are making it more likely than not that the Pilliods were unusually susceptible for developing cancer, whether that be obesity, age, all of those risk factors that the Court has determined may or may not be causes.

Those risk factors would make them unusually susceptible. And because of that, this instruction is necessary to take into consideration what those risk factors are, and how to weigh those in making determinations as to the Pilliods.

MR. MILLER: If I could, Your Honor, not just for the record, but in an attempt to persuade the Court.

As to Mrs. Pilliod, I agree with the Court 100 percent.

As to Mr. Pilliod, I think the Court wants to reserve until you hear Dr. Levine. This is precisely what Dr. Levine says. She's going to tell this jury that Mr. Pilliod was more susceptible to getting non-Hodgkin's lymphoma because he has this constellation of immune compromises, and she's going to rattle off a laundry list of them that fit together. Because she's the non-Hodgkin's lymphoma expert in the world, and she has got some impressive credentials. And she says that

he's more susceptible, and we're entitled to have it because that squarely fits the evidence.

So I'm asking as to Mr. Pilliod -- and the Court is trying two different cases here at once. This applies to Mr. Pilliod, and I think the Court should reserve until you hear her because it's square-on with the evidence.

Thank you, Your Honor.

THE COURT: Well, we haven't finalized them. But as of this moment, no.

MR. MILLER: I understand, Your Honor.

THE COURT: You can always renew it one last time after Dr. Levine.

MR. MILLER: Thank you, Your Honor.

THE COURT: But as of this moment, no.

And then we're actually at punitive damages. So we're going to hold that thought on punitive damages until I've had a chance to read the briefs.

So on the special instructions.

MR. WISNER: Your Honor, there's Number 15, the life expectancy.

THE COURT: I kind of assumed --

MR. WISNER: No, they're objecting.

THE COURT: All right. So there's an objection to Number 15, Counsel?

MR. ISMAIL: So, in part, Your Honor, it's preserving our issue on the Revlimid issue and future medical expenses, which I assume is well-preserved at this point, given how much we've talked about it.

But we think this instruction invokes that very issue, so we're objecting, in part, on that basis.

In addition, Your Honor, the proposed instruction here is not consistent with 3905, which both parties have presented as being -- as should be charged in this case. The no fixed standard for deciding noneconomic damages, in light -- there isn't some formulaic approach to determining noneconomic damages in the future, given that Mr. Pilliod has no future economic damages.

So as to him, understanding the Court is allowing future noneconomic, the life expectancy issue -- there's a lack of consistency with 3905, which is being given.

And even as to Mrs. Pilliod, same argument with the noneconomic for her, as well, understanding that we have objected and have been overruled on the future economic damages of Mrs. Pilliod.

THE COURT: But 3905, there's no fixed standard for deciding that you're going to give -- how much you're going to give. But you have to have some

general idea how long they might live.

MR. ISMAIL: I understand, Your Honor.

THE COURT: So that essentially sort of bookends the whole idea that, yes, you have to kind of use your judgment. But at the same time, you have to have some context within which to exercise that judgment.

So unless there's a problem with the wording that's inconsistent with the actual instruction, I'm going to include that.

Tomorrow, Dr. Mucci is coming, and how long of a day is that looking like?

MR. ISMAIL: We're going to consult after court today. Dr. Mucci would ordinarily be a full-day witness. Maybe with the Court's indulgence on a shorter lunch, we can pick a little time up there, but I'll talk with Mr. Miller.

MR. WISNER: There is a possibility, although we're hoping to work around it, that she comes back on Monday. But we understand the Court's schedule.

THE COURT: And there's a witness on Monday, as well, right?

MR. ISMAIL: Dr. Levine.

THE COURT: That's your last witness?

MR. ISMAIL: Yes, Your Honor.

THE COURT: Is she an all-day witness?

MR. ISMAIL: She likely would be an all-day witness.

THE COURT: So then we're really talking about Tuesday, winding up instructions. And closing and instructions on Wednesday.

Is that what we're thinking?

MR. ISMAIL: If the evidence spills over to Tuesday, that seems almost assured to be the case.

Absent that, I think the parties don't object to closing on Tuesday if the Court is in a position on the jury instructions.

THE COURT: Which means we would have to finish the jury instructions on Monday.

MR. WISNER: That's right.

THE COURT: And we're talking about the rest of Dr. Mucci and all of Dr. Levine on Monday? That sounds a little ambitious.

The problem is, I don't mind working late. But if this is open to the public, I can't have everybody in the courtroom. And that's fine. I'm just explaining that I have to get everybody out of here by around 4:30.

MR. WISNER: I think Mucci will get done tomorrow. I think it probably will happen. And I'm

pretty sure Levine will get done on Monday, as well. She is a case-specific expert for Mr. Pilliod, and Dr. Bello was off early on Monday.

MR. ISMAIL: No, she wasn't.

MR. WISNER: She was not.

MR. ISMAIL: 4:29.

MR. WISNER: I apologize. She was not.

But in any event, I think Mr. Miller is not as long of a cross-examiner as I am.

MR. MILLER: I think she's an all-day witness.

MR. WISNER: I think she's all-day, but I think both sides expect Dr. Levine to be done on Monday.

And so the question is, on Tuesday morning, are our jury instructions ready to go? And if they are, I know I prefer to close on Tuesday, if we could. We have obviously the 10th off because of the wedding. But I would like to get them in deliberations as soon as possible and see if we can get a verdict before Friday and go home.

THE COURT: Okay. That's ambitious. That takes as long as it takes.

MR. WISNER: Sure.

THE COURT: You never have any idea.

I don't feel like we have tons left to do with the jury instructions; I feel like we're getting close.

Really focusing on the punitive damages, which I'll try to look at a little bit this evening, now that I have the briefs.

As far as Dr. Mucci, are we sort of there, except for some of the specials?

MR. ISMAIL: Your Honor, pages 34, 35, and 36 were proposed instructions from Plaintiffs that Your Honor tentatively was inclined not to give last week.

THE COURT: Okay. Hold on one second.

MR. DICKENS: Your Honor, our position would be that those instructions would better be dealt with after the evidence. It involves things such as failure to explain or deny evidence, party having power to produce better evidence. And so --

THE COURT: 203, I'm almost certain not to read that.

On terms of failure to explain or deny evidence and statement of a party opponent, I am likely to give that, but I'm not sure about Number 2.

But I know I'm not going to give -- I'm not inclined to give Number 1, which would be CACI 203.

I doubt I will give 205. I just don't see that.

But 212, probably.

That would be my tentatives going forward.

MR. DICKENS: Understood, Your Honor.

So to the extent we, at the close of evidence, believe for 203 or 205, we may just submit. I don't think there needs to be much argument. But what we believe meets those elements and submit it to the Court, and we can have an argument at that point.

THE COURT: Whoever the scribe is, it looks like it's Plaintiffs. No, actually everybody is on here. Whoever is doing it.

MR. WISNER: It's joint.

MR. DICKENS: It's joint.

We'll take care of it, Your Honor.

THE COURT: If you can refine it and give it to me tomorrow, that would be helpful. If there's something I can address tomorrow before I leave, I will.

MR. ISMAIL: Your Honor, if I may on one issue. I apologize. I've been reminded that I failed to point one thing out on the consumer expectation test.

In the directions for use -- and this is 1203 -- there's an option for the Court in charging and submitting to the jury the factual question of whether there is a consumer expectation for the product. And you'll see it's cited to the Saller case.

And so it gives the Court the option to modify

the instruction to advise the jury that it first must determine whether the product is one about which an ordinary consumer can form reasonable minimum safety expectations.

And I believe that was part of the charge in Johnson for consumer expectation. And if this instruction is given over objection, we would request that the optional language be included in it.

THE COURT: All right. Let me get that.

In terms of the use notes, where are you, Counsel?

MR. ISMAIL: In the second paragraph: "The Court must make an initial determination."

Maybe I have an out-of-date book.

THE COURT: No, it is.

I'm not inclined to read that, actually. But I'll take it under advisement.

MR. ISMAIL: Thank you, Your Honor.

THE COURT: But I don't think it applies, based on my analysis of this whole question. I don't think it applies.

So this Mucci letter, what exactly are we looking at here? There was a letter written by two Congresspersons regarding her testimony, or at least some of her work with respect to the --

MR. MILLER: Yes, Your Honor. Judge Chhabria let it in. It took less than three minutes. It's clear impeachment. We don't have to do a trial within a trial. That's just silly. It takes about three minutes.

She can deny it and claim she's still right, but it goes to her credibility. And it's not a ham sandwich, it's a lot more relevant. That's why Judge Chhabria allowed it and why it took so little time.

THE COURT: I haven't looked at the -- I guess there's an excerpt from the transcript, where it says he initially let it in and then cut it off and -- cut off the line of questioning and struck Plaintiffs' counsel's question because it developed into --

MR. MILLER: I read it last night. That's not what happened at all. It was not a side draw.

What Judge Chhabria did not like was that Ms. Wagstaff referred to it as a congressional thing. And Judge Chhabria said, no, it's two congresspeople, refer to it that way. And she referred to it that way and she completed her line of questioning, and then they moved on.

He said, that's enough, let's move on, after they had queried it. He did not cut it off, he did not

strike it. It takes less than five minutes. It's very legitimate cross-examination.

THE COURT: I'll tell you what, since I didn't look carefully at the transcript, and I haven't looked at your brief yet, let me look at that. We'll talk about it first thing in the morning.

MR. ISMAIL: You indicated last week that you had a tentative on the second RJN, when we were --

THE COURT: I think I issued an --

THE CLERK: I'll give you a copy.

THE COURT: I drafted an order, just to make sure -- I just wanted to make sure that it was in the record. I did, and I drafted and filed the order.

MR. ISMAIL: Very good.

THE COURT: The only one I didn't file was -- well, it's sort of moot now, which was your motion for reconsideration, which I denied.

MR. MILLER: Oh, on Rubenstein?

THE COURT: No, the neighbor.

MR. MILLER: It's moot now.

THE COURT: It's moot now. I just didn't file an order on that.

So I think we're done, if that's okay with you. And I will see you mañana at 9:00.

MR. DICKENS: Thank you, Your Honor.

MR. ISMAIL: Thank you, Your Honor.

(Proceedings adjourned at 3:18 p.m.)

State of California)
)
County of Alameda)

We, Kelly L. Shainline and Lori Stokes, Court Reporters at the Superior Court of California, County of Alameda, do hereby certify:

That we were present at the time of the above proceedings;

That we took down in machine shorthand notes all proceedings had and testimony given;

That we thereafter transcribed said shorthand notes with the aid of a computer;

That the above and foregoing is a full, true, and correct transcription of said shorthand notes, and a full, true and correct transcript of all proceedings had and testimony taken;

That we are not a party to the action or related to a party or counsel;

That we have no financial or other interest in the outcome of the action.

Dated: April 30, 2019

Kelly L. Shainline
CSR No. 13476, CRR

Lori Stokes
CSR No. 12732, RPR