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IN THE CIRCUIT COURT
TWENTIETH JUDICIAL CIRCUIT
ST. CLAIR COUNTY, ILLINOIS

DIANA HOFFMANN,	)	
individually and as	)	
Independent Administrator	)	
of the Estate of THOMAS R.	)	No. 17-L-517
HOFFMANN, Deceased, et al.,	)	
	)	
Plaintiff,	)	
	)	
v.	)	
	)	
SYNGENTA CROP PROTECTION,	)	
LLC, et al.,	)	
	)	
Defendants.	)	

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REMOTE VIDEOCONFERENCE CORPORATE DEPOSITION OF
SYNGENTA, BY AND THROUGH ITS REPRESENTATIVE

TIMOTHY PATTERSON

THURSDAY, JUNE 25, 2020

VOLUME IV (Pages 570-767)

REPORTED BY:

DEBRA A. DIBBLE, RDR, CRR, Notary Public

JOB NO. 27664

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Page 571 1 REMOTE VIDEOCONFERENCE DEPOSITION OF 2 TIMOTHY PATTERSON, produced as a witness at the 3 instance of the Plaintiffs and duly sworn, was 4 taken in the above-styled and numbered cause on 5 the above-referenced date, from 8:07 a.m. to 6 4:03 p.m. PDT, before Debra A. Dibble, RDR, CRR, 7 Notary Public, reported by realtime stenographic 8 means at the location of the witness, pursuant to 9 Section 1-109 of the Illinois Code of Civil 10 Procedure pursuant to the Illinois Supreme Court 11 Rules 206 and 204(a)(3). 12 13 14 15 16 17 18 19 20 21 22 23 24 25	Page 573 1 STEPTOE & JOHNSON LLP BY: JASON LEVIN, ESQUIRE 2 jlevin@steptoe.com 633 West Fifth Street 3 Suite 1900 Los Angeles, California 90071 4 (213) 439-9455 Counsel for CHEVRON U.S.A., INC. 5 6 STEPTOE & JOHNSON LLP BY: ANTHONY G. HOPP, ESQUIRE 7 ahopp@steptoe.com 227 West Monroe Street 8 Suite 4700 Chicago, Illinois 60606 9 (312) 577-1249 Counsel for GROWMARK, INC. 10 11 12 ALSO PRESENT: 13 14 HOLLY HARRIS Syngenta In-House Counsel 15 16 VIDEOGRAPHER: ISAAC ORIHUELA, TransPerfect Legal Solutions 17 18 19 20 21 22 23 24 25
Page 572 1 REMOTE APPEARANCES: 2 KOREIN TILLERY, LLC BY: STEPHEN M. TILLERY, ESQUIRE 3 stillery@koreintillery.com JOHN A. LIBRA, ESQUIRE 4 jlibra@koreintillery.com ROSEMARIE FIORILLO rfiorillo@koreintillery.com 5 505 N. 7th Street Suite 3600 6 St. Louis, Missouri 63101 (314) 241-4844 Counsel for PLAINTIFFS 7 8 WALKUP, MELODIA, KELLY & SCHOENBERGER BY: KHALDOUN A. BAGHDADI, ESQUIRE 9 kbaghdadi@walkuplawoffice.com 650 California Street 10 San Francisco, California 94108 (415) 889-2919 Counsel for PLAINTIFFS 11 12 KIRKLAND & ELLIS LLP BY: KARI KNOBRIKAWA, ESQUIRE 13 kari.knobrikawa@kirkland.com 1301 Pennsylvania Avenue N.W. Washington, D.C. 20004 (202) 879-5000 Counsel for SYNGENTA CROP PROTECTION, LLC 14 15 HUSCH BLACKWELL BY: JOSEPH C. ORLET, ESQUIRE 16 Joseph.Orlet@huschblackwell.com JENNIFER CECIL, ESQUIRE 17 Jennifer.Cecil@huschblackwell.com 4801 Main Street 18 Suite 1000 Kansas City, Missouri 64112-2551 (816) 983-8295 Counsel for CHEVRON U.S.A., INC. 19 20 21 22 23 24 25	Page 574 1 INDEX 2 3 APPEARANCES 572 4 PROCEEDINGS 577 5 6 EXAMINATION OF TIMOTHY PATTERSON: 7 DIRECT EXAMINATION BY MR. TILLERY 578 8 9 CERTIFICATE 765 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

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1	DEPOSITION EXHIBITS			1	PROCEEDINGS		
2	NUMBER	DESCRIPTION	PAGE	2	(June 25, 2020 at 8:07 a.m. PDT)		
3	Exhibit 68	Exposure of spray operators	587	3	THE VIDEOGRAPHER: We are now on		
4		to paraquat,		4	the record. Today's date is June 25th, 2020. The		
5		SYNG-PQ-00228608-00228615		5	time on the record is 8:07 a.m. Pacific Standard		
6	Exhibit 69	A Study of the Occupational	603	6	Time. This is the video deposition of Tim		
7		Exposure of Malaysian		7	Patterson, in the matter of Diana Hoffmann versus		
8		Plantation Workers to		8	Syngenta Crop Protection, LLC, et al.		
9		Paraquat,		9	This is filed in the Circuit Court		
10		SYNG-PQ-00693891-00693938		10	Twentieth Judicial Circuit, St. Clair County,		
11	Exhibit 70	August 1969 The Standard	700	11	Illinois, Case No. 17-L-517.		
12		Oiler,		12	This deposition is taking place		
13		CUSA-00124055-00124090		13	via web video conference with all participants		
14	Exhibit 71	5-4-87 letter to Dr. R. E.	706	14	attending remotely due to the Covid-19 pandemic.		
15		Ridsdale from Desmond		15	My name is Isaac Orihuela. I'm		
16		Byrne,		16	the videographer representing TransPerfect.		
17		SYNG-PQ-01770721-01770740		17	Counsel on the conference please		
18	Exhibit 72	3-19-69 Paraquat-Toxicity &	713	18	identify yourselves and state whom you represent,		
19		Registration Status,		19	beginning with the questioning attorney.		
20		CUSA-00364727-00364728		20	MR. TILLERY: For the plaintiffs,		
21	Exhibit 73	3-29-74 Meeting Report -	720	21	Stephen Tillery of the law firm of Korein Tillery.		
22		Paraquat Label Revision,		22	MR. ORLET: Joe Orlet on behalf of		
23		CUSA-00341060-00341063		23	Chevron.		
24				24	MR. TILLERY: I'm sure we have --		
25				25	THE REPORTER: And I -- I will		

Page 576				Page 578			
1	Exhibit 74	2-27-74 Notes of Meeting	728	1	go --		
2		with Chevron Chemical		2	MR. TILLERY: I think there are		
3		Company,		3	other attorneys present on the call, but they may		
4		SYNG-PQ-02508147-02508150		4	or may not enter their appearance for their		
5	Exhibit 75	4-11-79 Paraquat/Human	738	5	clients.		
6		Hazard,		6	THE REPORTER: I will note the		
7		CUSA-00303977-00303981		7	rest of the appearances on the stenographic		
8	Exhibit 76	HERBICIDES IN THE AMERICAS,	746	8	record.		
9		CUSA-00073464-00073536		9	THE VIDEOGRAPHER: Thank you.		
10	Exhibit 77	June 1983 Article on	753	10	MR. TILLERY: And though this is a		
11		Paraquat by Andrew Revkin		11	continuation of a prior deposition which has taken		
12		in Science Digest,		12	place on prior days, would you please swear the		
13		CUSA-00073980-00073987		13	witness, please.		
14				14	THE REPORTER: I will as soon		
15				15	as --		
16				16	THE VIDEOGRAPHER: Our court		
17				17	reporter today is Debbie Dibble, representing		
18				18	TransPerfect. The court reporter will now swear		
19				19	in the witness.		
20				20	TIMOTHY PATTERSON,		
21				21	having first been duly sworn, was examined and		
22				22	testified as follows:		
23				23	DIRECT EXAMINATION		
24				24	BY MR. TILLERY:		
25				25	Q. Dr. Patterson, you understand this is		

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Page 579 1 a continuation of the depositions we've started 2 previously. I'm going to ask you questions along 3 the lines that we were talking about earlier. We 4 discussed some rules relating to remote 5 depositions. 6 You understand those rules to 7 apply in this deposition as well; correct? 8 A. Yes, sir. 9 Q. And that entails issues of 10 communication, et cetera, except when you're on a 11 break. There's facilities here for you to have 12 that capacity to talk to your counsel on breaks 13 through an electronic chat room; right? 14 A. Understood, yes, sir. 15 Q. All right. Have you undertaken any 16 additional work for your preparation for the 17 continuation of your deposition? 18 A. Sir, yes, I reviewed additional 19 information related to potential competitors' 20 entry into the U.S. market of paraquat. 21 Q. Do you have those documents here with 22 you? 23 A. Sir, I didn't list the documents. I 24 just reviewed a few documents to ensure I 25 understand the landscape of the competitors and if	Page 581 1 the time Chevron initiated the sale and 2 distribution of formulated paraquat products? 3 A. That was my understanding. 4 Q. Did Chevron always sell through a 5 distributor? Or did it sell in some cases 6 directly to the end user? 7 A. Sir, based on my recollection and my 8 review of the documents, it was through a 9 distribution. 10 Q. How did the distribution chain develop 11 through Chevron? 12 A. Sir, would you please clarify the 13 question? 14 Q. Yes. It's my understanding that when 15 you started in '85 [sic], you had a distribution 16 chain. Was that through your Chevron Chemical 17 Company existing relationship that you established 18 that? 19 A. Sir, my understanding after reviewing 20 the documents is that when Chevron entered the 21 business in 1965, we had the Chevron Chemical 22 Company and Ortho product line. And my 23 understanding is through that already established 24 Ortho product line and marketing structure is how 25 Chevron would have marketed and distributed the
Page 580 1 and when they entered the U.S. market. 2 Q. Can you give us the benefit of your 3 research findings over the last few days on that 4 topic? 5 A. Sir, yes. So my understanding after 6 reviewing the document, is that, other than ICI 7 and Chevron, there was no paraquat being sold by 8 others up until the 1986 time frame, which Chevron 9 was in the business, which was the time frame that 10 I was focusing on. 11 Q. So you effectively confirmed your 12 guesstimate of what the circumstance was when you 13 testified on Tuesday; right? 14 A. Yes, sir. 15 Q. Was there any part of the country, of 16 the United States that Chevron did not sell 17 formulated paraquat products to? 18 A. Sir, I'm not aware of any -- anything 19 specific related to the breakdown of the states 20 where they didn't sell paraquat. I understand 21 that for Puerto Rico there was a different -- a 22 different arrangement where, I believe, ICI -- I 23 believe Chevron was -- I believe ICI's Gramoxone 24 was being sold in Puerto Rico. 25 Q. Okay. And was it being sold there at	Page 582 1 paraquat. 2 Q. So effectively you had an existing, 3 let's call it, client database of people that you 4 were already in the business of selling product 5 to. And you'd reached out to them and told them 6 that you had a new product called paraquat. 7 Would that be a fair statement of 8 what happened? 9 A. Sir, I don't recall reviewing any 10 documents, the specifics of how they introduced 11 paraquat into the market. But it's my 12 understanding they had an existing network of 13 distributors based on their other products. 14 Q. And what other farm or crop protection 15 products was Chevron Chemical Company selling in 16 1965? 17 A. Sir, one that I recall is, Cappan was 18 one. And there were multiple other Ortho 19 products, but I don't remember all of them off the 20 top of my head. 21 Q. Would you spell that for the record, 22 please? 23 A. I believe it's spelled C-A-P-P-A-N. 24 Q. Okay. But other than that, you don't 25 remember any other products?

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Page 583 1 A. No, sir, I just focused on paraquat. 2 Q. And when Chevron decided to terminate 3 its relationship with ICI, was there an inventory 4 of product that remained on the shelves of its 5 distributors? 6 A. Sir, that was my understanding based 7 on reviewing the documents. 8 Q. And how long was it that that sale of 9 Chevron products continued after Chevron 10 terminated its relationship in September 1986 with 11 ICI? 12 A. Sir, my understanding is that part of 13 the termination agreement, Chevron -- I don't know 14 if sold back is the appropriate word, but it was 15 arranged that ICI would take back the remaining 16 paraquat inventory that Chevron had. 17 Q. And what happened to your formulation 18 plant in California? Was it shuttered at that 19 time, or did it start being used for other 20 purposes? 21 A. Sir, my understanding, not from the 22 documents, but my understanding from my general 23 knowledge from working at Chevron is that that 24 facility remained as a Chevron facility, but I'm 25 not an expert in that, and I would need to	Page 585 1 A. Sir, I don't know. I only focused on 2 the pre-'86 time frame. 3 Q. During the period from 1965 through 4 the time Chevron lost the paraquat business in 5 1986, was Chevron also selling diquat? 6 A. Sir, yes, that's my understanding 7 based on my review of the documents. 8 Q. And that started at the same time as 9 paraquat, didn't it? 10 A. Sir, I don't recollect the exact time 11 that diquat was introduced. 12 Q. Okay. You wouldn't have any reason to 13 dispute that it was introduced at the same time, 14 would you? 15 A. Sir, based on my review of the 16 documents, paraquat and diquat were often on -- 17 often discussed at the same time, and it was 18 around the same time period that I saw them 19 together on a document. So that seems logical to 20 me. 21 MR. ORLET: Object to the form. 22 MR. TILLERY: Joe Orlet, I have no 23 problem with you, if he's already started 24 answering a question, of stipulating to the 25 inclusion of your objection after the answer is
Page 584 1 confirm. That's just my general knowledge and 2 understanding. 3 Q. After September 1986, has Chevron had 4 any business relationship with the 5 paraquat-formulated products in any way? 6 A. Sir, would you please repeat the 7 question? 8 Q. Yes. 9 Has Chevron, or -- and I use that 10 word here to include the entire umbrella of 11 Chevron companies, not just Chevron USA or its 12 corporate predecessors. Has Chevron had any 13 relationship in a business way with paraquat 14 products since September 1986? 15 A. Sir, based on my recollection of the 16 documents I reviewed, I know that Chevron may have 17 been involved in the Poison Control Center with 18 the paraquat calls; but other than that, I don't 19 recall any other relationships or any other 20 business with paraquat that I observed in the 21 documents. 22 Q. Did Chevron, after it got out of the 23 paraquat business in September of 1986, replace 24 paraquat with another similar type of crop control 25 product?	Page 586 1 given in the record to preserve your objection so 2 as to avoid interfering with the record. I know 3 that's what you're trying to do, so I'm happy to 4 do that for you. Okay? 5 MR. ORLET: Appreciate it. 6 MR. TILLERY: Sure. 7 Q. (BY MR. TILLERY) Did the termination 8 of the association with ICI in September 1986 with 9 respect to paraquat also include the termination 10 of the sale of diquat? 11 A. Sir, I don't recall diquat being 12 included in those termination documents. 13 Q. Did -- strike that. 14 To your knowledge, did Chevron 15 continue to sell diquat after '86? 16 A. Sir, I did not study diquat very much 17 in Chevron's business of diquat for this -- in 18 preparation for this. 19 Q. Yeah, and I'm not going into any great 20 detail. It was a matter of curiosity on the 21 points. I just wanted to know if you knew that. 22 We're not going down that path, if that's your 23 concern. Okay? 24 All right. Yesterday, you 25 mentioned a couple of studies -- and strike the

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Page 587 1 question. 2 Have we covered the intervening 3 work that you did between Tuesday and today? 4 A. Sir, yes, I believe so. 5 Q. All right. 6 A. I looked at the -- yes, sir. 7 Q. Okay. So let's talk about another 8 study. And I think, from my recollection, I think 9 this might have been one you referenced. If not, 10 you can certainly take the time to look at it. 11 This is SYNGENTA_PQ_00208608. If 12 we could pull this up. And where we left off was 13 Exhibit No. 67 on the last deposition that was 14 taken on Tuesday. This will be Exhibit No. 68 for 15 this deposition. 16 (Patterson Deposition Exhibit 68 17 marked.) 18 THE WITNESS: It's loaded. 19 Q. (BY MR. TILLERY) And is this one 20 you're familiar with? 21 A. Yes, I've reviewed this document. 22 Q. This would have been a document that 23 would have been shared with you from ICI; correct? 24 A. Yes, sir, that's my understanding. 25 Q. And wasn't it also included within the	Page 589 1 A. Yes, sir, that's my understanding. 2 Q. Okay. And the first stage, if we can 3 go to page 2 so you can see it, Design of 4 Investigations, I'm going to refer you to. 5 Do you see that Design of 6 Investigations? 7 A. Yes, sir. 8 Q. Are you able to read that adequately, 9 Dr. Patterson? 10 A. Yes, sir. 11 Q. All right. So let's look at this 12 paragraph. And it says: The 1965 investigation 13 was conducted as nearly as possible to average 14 conditions of spraying. A team of six sprayers -- 15 two Chinese, two Indians, and two Malays -- was 16 formed to include a range of skin pigmentation and 17 of differing practice in personal hygiene. 18 Clothing consisted of shirts, singlet, and long 19 trousers, tucked inside the socks; footwear varied 20 from canvas or leather shoes to open sandals. 21 This is the normal dress for such operations on 22 Malaysian estates, which do not as a rule provide 23 more elaborate protective clothing. 24 Correct? 25 A. Yes, sir, that's what the document
Page 588 1 documents that you reviewed in preparation for 2 your deposition? 3 A. Yes, sir, I've reviewed this in 4 preparation for my deposition. 5 Q. All right. 6 Now, let's take a look at this 7 document a little more closely. This, if we open 8 the first page and it's on display mode, it's 9 referencing a publication of the British Journal 10 of Industrial Medicine. 11 Do you see that? At the top? 12 A. Yes, sir. 13 Q. And that's a 1969 publication, and it 14 is entitled Exposure of Spray Operators to 15 Paraquat, A. A. B. Swan, Imperial Chemical 16 Industries Limited. And that's the Alderley Park 17 facility of ICI, isn't it? 18 A. Yes, sir, that's my understanding. 19 Q. He's the same Swan that we've been 20 referring to in all of these letters and 21 communications with Chevron folks, isn't he? 22 A. Yes, sir. 23 Q. All right. He references and 24 published here a study that was done in two 25 separate stages in 1965 and 1967; correct?	Page 590 1 states. 2 Q. And they were measuring, they were 3 measuring paraquat exposure, weren't they? 4 A. Yes, sir. 5 Q. All right. Now, if you look on that 6 same page, we see a picture of one of the 7 sprayers, and that's from the 1967 spray. 8 Do you see that? That's normal 9 clothing and normal height of weed growth; right? 10 A. Yes, sir, according to this article. 11 Q. Now, what the point of the study was 12 was to allow these individuals to spray the 13 chemical as they normally would every day, go to 14 work, spray this chemical on this Malaysian plant, 15 weeds in a Malaysian plantation, and then do tests 16 of them, including urine tests, to determine 17 whether or not they had systemic invasion of 18 paraquat; right? 19 A. Sir, would you please repeat the 20 question? 21 Q. Yes. I mean, if you need to take time 22 to review this, go ahead, and to verify my 23 statements to you, but I assumed since you'd read 24 this before, that maybe we could go straight to 25 it.

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Page 591 1 But there were two sets of trials, 2 one was '65 and one was 1967. And the study 3 investigator took the '65 group and he recorded 4 what they were doing in their normal, what you 5 call as-is situation. Mr. Smith comes to work, he 6 gets his gear, he does it the way he does it every 7 day; this is how he does his spraying. And that's 8 what they recorded. 9 And in that situation, after a 10 designated period of time, they then did a urine 11 test to determine if there was a systemic 12 involvement of paraquat in their bloodstream which 13 could be measured from their urine. That's what 14 you understood the test was. 15 A. Sir, my understanding of the goal of 16 the urine measurements was to measure potential 17 exposure, but not necessarily -- that doesn't 18 necessarily correlate with systemic exposure in 19 the bloodstream. 20 Q. How would it get in the urine? Let's 21 walk through that. 22 How does paraquat get into the 23 urine from a physiological standpoint? 24 A. Sir -- 25 Q. And let's start -- let's start over	Page 593 1 detail about whether or not it can be absorbed in 2 the gut. 3 So you agree that it can be 4 absorbed through the skin and get into the 5 bloodstream; right? 6 A. Yes, sir. 7 Q. And you agree that it can be inhaled 8 and absorbed into the bloodstream, right? 9 A. Yes, sir, depending on the amount. 10 Yes, sir. 11 Q. And the way that works, just for the 12 ladies and gentlemen of the jury and the Court, is 13 that you take a breath of this air that contains 14 this mist. It goes down from your throat into 15 what's called the bronchus tube; right? You 16 understand that from your physiology classes? 17 A. Yes, sir. 18 Q. All right. And it then goes out into 19 the bronchials, further into the lung, right? 20 A. Sir, it depends on the size of the 21 aerosol and how -- 22 Q. Well, yes, but it's -- we're assuming 23 it's an adequate amount of size to get into these 24 areas. I'm talking about the physiology of how it 25 works. You agree with me so far I'm right.
Page 592 1 and do it this way. Person is out spraying, like 2 the 1965 group measured in this study. They're 3 out there with paraquat tanks spraying all day 4 long, and they come in and measure, and they take 5 urine specimens. And they find out that there's 6 paraquat in the urine. Walk me through, if you 7 can, the means by which you understand how that 8 gets into their urine. 9 A. Well, sir, it would need to go through 10 the bloodstream to get -- 11 Q. Right. 12 A. -- to be filtered in the kidneys and 13 the urine. 14 Q. You understand that whether it gets in 15 through the skin or through their nose or through 16 their lungs or whether they -- it finds its way 17 into their gut, it's ultimately absorbed into the 18 bloodstream; right? 19 A. Sir, from the gut, it may not 20 necessarily be absorbed into the bloodstream. 21 Q. Okay. So you take issue with it 22 coming through the jejunum of the small intestine 23 and it being absorbed into the bloodstream there. 24 You take issue with that? We'll talk about that 25 later today, and we'll note that we'll talk in	Page 594 1 A. Yes -- 2 Q. It's correct? 3 A. The physiology. 4 Q. Yes. Then it goes to a structure, 5 sort of at the end of the line, which is called, 6 what, the alveoli; right? 7 A. Yes, sir. 8 Q. And at the alveoli, at that point, 9 there's an exchange that takes place. That's how 10 we breathe, and we get oxygen into our 11 bloodstream; right? 12 A. Yes, sir. 13 Q. And when that happens, what you have 14 in that bronchial tube that goes into the alveoli, 15 if it contains a toxin, can be exchanged with the 16 blood and get into the bloodstream; correct? 17 A. Yes, sir. 18 Q. All right. And then it becomes what 19 we refer to as systemic; right? 20 A. Systemic is a very broad term that can 21 encompass many things, but it's -- 22 Q. I'm talking about your understanding 23 as a doctor, a Ph.D. in toxicology, and your 24 understanding of the human physiology. And we're 25 just going to walk through a brief summary of

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Page 595 1 this. 2 Once you get your blood 3 contaminated with the toxin, the reason it's 4 systemic is because it only takes a minute or so 5 for that blood to course its way all the way 6 through the body. 7 Would you agree with me? 8 A. Sir, it depends on the properties of 9 the chemical and the distribution for it to reach 10 the other organ systems, and that's my 11 understanding of what systemic refers to. 12 Q. Okay. So would you agree with me that 13 once it gets through those bronchial tubes into 14 the blood, it's able to pass through the rest of 15 the body? 16 A. It's able to pass through the blood 17 system. 18 Q. Right. And when a person drinks 19 paraquat and you do the autopsy after they pass 20 away from the poison, you see evidence of it in 21 the kidneys, in the lungs, in the brain. We've 22 talked about those studies in a previous -- in the 23 previous parts of this deposition. 24 Do you remember those? 25 A. Yes, sir, I remember.	Page 597 1 situation -- 2 Q. Oh, come on -- 3 A. -- that it would kill them. 4 Q. Come on. I mean, we're going to have 5 a long day here if we don't get to the basics. 6 There's nothing about this that's complicated. 7 You know that if you drink enough of this 8 material, it gets into your belly, and it kills 9 you. You know that, right? You guys have -- 10 A. Certainly if you have enough of it -- 11 Q. Yeah. 12 A. Yes, sir, if you drink above a lethal 13 dose, it will kill you unless you get treatment 14 quick enough. 15 Q. All right. And then what's the cause 16 of death? 17 A. Sir, my understanding from reviewing 18 the literature on paraquat and the documents is 19 it's usually related to the effects on the lung. 20 Q. Right. How did it get from the gut 21 into the lungs? 22 A. Sir, it would be -- with a high enough 23 dose, it would be absorbed into the bloodstream 24 and then the lungs selectively take up the 25 paraquat.
Page 596 1 Q. All right. So the person drank it, it 2 went into their gut, but it wound up in their 3 lungs, in their kidneys, in the muscle tissue of 4 their body, and in their brains. 5 Do you understand -- do you 6 remember reading those? 7 A. Sir, yes, and it's very important to 8 understand the dose to correlate that with the 9 distribution within the body. 10 Q. Right. But I'm trying to get a -- I'm 11 trying to do this in steps so we understand the 12 study better. And if you'd bear with me, just 13 bear with me. 14 Is everything I'm saying, to your 15 knowledge, physiologically sound? Is it correct? 16 A. Sir, I can't agree to everything 17 you've said. We'd have to go through it, you 18 know -- I believe I answered each of your 19 questions individually. 20 Q. Well, let's go back and do it. I told 21 you when somebody takes a teaspoon of this and 22 dies and an autopsy is done, that material went 23 through -- went into their esophagus, went down 24 into their gut, and then killed them, didn't it? 25 A. Sir, I'm not aware in every single	Page 598 1 Q. And it would pass through the 2 bloodstream to the lungs, right, would you agree? 3 A. Yes, sir. 4 Q. And that's also how it gets into the 5 brain. So if you did cadaver studies and saw that 6 the person who died from ingestion of paraquat had 7 it in the brain, it got there through the blood, 8 didn't it? 9 A. Sir, yes, it would be transferred from 10 the blood. 11 Q. Right. 12 A. That would be the source of the 13 paraquat. 14 Q. Right. So the way it gets out of the 15 blood in the human body is through an excretion 16 mechanism, through the kidneys, isn't it? That's 17 one of the ways it gets out of the blood? 18 A. Yes, sir, that's correct. 19 Q. And the way that works is that the 20 bloodstream is connected through what we've 21 referred to as adrenal arteries or veins, and they 22 supply major blood supplies to the kidney for the 23 purpose of cleaning out these toxins and 24 impurities in the system; correct? 25 A. Sir, yes, that's the function of the

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Page 599 1 kidney. 2 Q. Right. And then when the kidneys 3 filter this, it goes on down through the urinary 4 bladder; and when a person urinates, they expel, 5 to the extent that the kidneys are able to do so, 6 the toxins in the body; right? 7 A. Yes, sir, that's accurate. 8 Q. All right. So far we're agreeing. Is 9 that a fair statement? 10 A. Yes, sir. 11 Q. All right. Now, when you go back to 12 this study, they're doing urinary tests, aren't 13 they, in this study? 14 A. Yes, sir. 15 Q. And what they're checking is whether 16 or not they can see evidence of paraquat in the 17 urine of the spray applicators of paraquat, aren't 18 they? 19 A. Yes, sir. 20 Q. So, in other words, if in the normal 21 day-to-day standard technique of using whatever 22 they did in '65 as their as-is system, they do 23 this analysis of their blood and they can say: 24 When you apply it that way, you get paraquat in 25 your system, and that is measured by the amount of	Page 601 1 the following combinations of protective 2 equipment: knee-length gum boots and rubber 3 gloves; face-mask and rubber gloves; and face-mask 4 and gum boots. 5 Do you see that? 6 A. Yes, sir. 7 Q. So in other words, instead of doing 8 this as-is, the way that the sprayers would 9 normally do it, they gave them additional 10 equipment, protective equipment to wear, including 11 masks, rubber boots, gloves, et cetera, in these 12 groups, and then tested them; right? 13 A. Yes, sir, that's an accurate 14 description. 15 Q. All right. And if you'd look then, it 16 says: As before, the teams were composed of two 17 Chinese, two Indians, two Malays, and then we look 18 at the '65 results at the bottom of that page in 19 the right-hand column. 20 And it says: Small amounts of 21 paraquat were found in the urine -- if we skip 22 over to the next page. This is 8810 -- were found 23 in the urine of all members of the spray team at 24 some stage during the 12-week period. 25 Do you see that?
Page 600 1 paraquat that we find in your urine. 2 Is that a fair statement? 3 A. Sir, yes, it's used as a marker for 4 exposure to paraquat. 5 Q. Right. And that marker means if you 6 test positive and they see it, that it got into 7 your blood; right? 8 A. In this situation, sir, yes. In this 9 particular study. 10 Q. And let's look at that same page 11 again, and just for the record, we've been at this 12 discussion preliminaries, and we're now again on 13 Plaintiffs' Deposition Exhibit 68, and we've moved 14 to SYNGENTA_PQ_00228609. Okay? Now, if we go 15 down one -- skip the paragraph after the '65 16 investigation. 17 Do you see that? 18 A. Yes, sir. 19 Q. And then it says: The '67 20 investigation was designed to show which route of 21 exposure was the most important in determining 22 absorption of the traces of paraquat found in the 23 urine of some operators in the '65 trials. 24 Operations were carried out by four teams, one 25 with normal clothing and the remaining three with	Page 602 1 A. Yes, sir. 2 Q. And then if we go to the following 3 page, which is 8611, this is referencing the 1967 4 trials, isn't it? 5 And actually, can we do the 6 preceding page for Dr. Patterson, please. 7 A. Yes, sir, yes, I see that. 8 Q. Do you see the -- 9 A. The 1967 trials. 10 Q. The 1967 trials. We're talking about 11 the '67 trials. You see in -- it says there in 12 the '67 trials, in a total of 394 samples, there 13 was findings of 53 positives. Okay? 14 So if we move over to the page 15 that you have there up, and you look in the first 16 column, it says: The groups on Bahau -- and 17 that's one of the plantations that was being 18 tested -- wearing masks, gloves, and boots, had 19 14 percent and 10 percent positive urines. 20 Do you see that? 21 A. Yes, sir, I see that. 22 Q. So despite the fact that in the '67 23 group, that they increased the personal protective 24 equipment to include masks, gloves, and boots 25 provided by ICI, they still had 14 percent and

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Page 603 1 10 percent positive urines, meaning 14 and 2 10 percent in the groups had paraquat in their 3 bloodstream; correct? 4 A. Yes, sir, that's what the document 5 says. 6 Q. All right. Now, let's move on here to 7 another one. And let's talk about one you 8 mentioned yesterday, I believe. 9 And this would be 69, Exhibit 69 10 of your deposition. 11 (Patterson Deposition Exhibit 69 12 marked.) 13 THE WITNESS: 69 is loaded. 14 Q. (BY MR. TILLERY) Okay. This is 15 SYNGENTA PQ 00693891. 16 And this is a reference to -- the 17 document is Imperial Chemical Industries Limited, 18 Central Toxicology Laboratory, Alderley Park, 19 Cheshire UK, and it's entitled the Study of the 20 Occupational Exposure of Malaysian Plantation 21 Workers to Paraquat; right? 22 A. Yes, sir, that's correct. 23 Q. And it's by G. Chester and B. H. 24 Woollen. 25 Do you see that?	Page 605 1 participated in in terms of either designing or 2 paying for? 3 A. Yes, sir, my understanding is that 4 Chevron contributed to the protocol and provided 5 input into the study design. 6 Q. Okay. And, if we can go through this 7 study together. If you'll look on page 3897. 8 Do you see this? 9 Are you able to see the exhibit, 10 sir? 11 A. I do. I see a table. 12 Q. Yeah, it's a table. A study 13 procedure, Survey Groups, Study No. 1, and this is 14 2.1.1: Occupational exposure surveys were carried 15 out on the following Dunlop Estates and numbers of 16 workers. 17 And the Dunlop Estates simply 18 reflects the portion of the area in Malaysia where 19 they were doing their work, they're spraying for 20 weeds, and where the workers were located; 21 correct? 22 A. Yes, that's my understanding. 23 Q. So Regent would be a place where they 24 were growing product and spraying for weeds. 25 Jasin Lallang would be the same, Gomali would be
Page 604 1 A. Yes, sir. 2 Q. So this is the one you referenced 3 yesterday on the record. 4 A. Yes, sir. 5 Q. All right. So you've seen this and 6 looked at it before, right? 7 A. Yes, sir, I've reviewed this. I've 8 reviewed this study. 9 Q. You reviewed this study before we ever 10 started depositions in this case because it was 11 part of the records you had in your system there 12 at Chevron, right? 13 A. Yes, sir, we had the study in our 14 records. 15 Q. Okay. Now, the date of the issue of 16 this study is December 19, 1980, isn't it? 17 A. Yes, sir. 18 Q. So the earlier ones we were talking 19 about were 1965 and 1967 studies. And this is a 20 1980 study. Or at least a report on 1980 of a 21 prior study; right? 22 A. Yes, sir. 23 Q. This was a study commissioned and 24 carried out by ICI. And the study, I understand, 25 was one of them that, did you say that Chevron	Page 606 1 the same; correct? 2 A. Yes, sir, that's my understanding. 3 Q. And then it's -- on another heading, 4 Number and Sex of Workers Per Survey Group, and it 5 says spray operators, and it says how many there 6 were for each corresponding location that we just 7 talked about in the first column; right? 8 A. Yes, sir. 9 Q. And then there was another category of 10 people called carriers. And did you understand 11 from reviewing this study that that included 12 people who literally took the materials out to the 13 sprayers? The paraquat materials. 14 A. Yes, sir, that's my understanding. 15 Q. Okay. And it tells how many were 16 females and how many were males in each of these 17 categories. And this category -- this study was 18 designed to measure exposure to paraquat, wasn't 19 it? 20 A. Yes, sir, that's correct. 21 Q. Just so we're clear, this is the same 22 active ingredient that Chevron was selling that's 23 being tested here, right? 24 A. Yes, sir, that's correct. 25 Q. And the preceding study that we looked

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Page 607 1 at from '65 to '67 was the same active ingredient 2 that Chevron was selling as well; right? 3 A. Yes, sir, paraquat. 4 Q. All right. 5 Now, if we can, let's go to the 6 first page, which is basically the study reasons. 7 And that's the preceding page to this one. Would 8 be the -- sorry, the introduction page. 9 The next page, I'm sorry. 10 There we go. 11 If you look at this introduction 12 page here, do you see in this first paragraph it 13 says: Paraquat is sprayed for weed control on 14 these plantations. For these reasons, the same 15 plantations were selected for extensive 16 investigations of occupational dermal and 17 respiratory exposure to paraquat in association 18 with the survey of spray workers and other estate 19 workers in the Howard study. 20 That was the 1980 study; correct? 21 A. Yes, sir. That's what the document 22 says. 23 Q. And then if we go to the objective, it 24 says: The objective was to examine the potential 25 dermal and respiratory exposure of knapsack spray	Page 609 1 directing your attention to SYNGENTA_PQ_00693933. 2 Do you see that? 3 A. Yes, sir. And, sir, before we 4 continue, just to clarify some of my previous 5 responses, the Chester study I was referring to on 6 June 23rd was actually a different study. It was 7 the occupational exposure and drift hazard during 8 aerial application of paraquat to cotton and not 9 this Malaysian study. So I just wanted to clarify 10 that, sir. 11 Q. Okay. But it doesn't change the fact 12 that this study was in your records and you 13 reviewed it before your deposition; right? 14 A. That's correct, sir. 15 Q. And it was in -- it was in Chevron's 16 records and known to them at or near the time that 17 it was finalized by ICI; correct? 18 A. Yes, sir, that's my understanding. 19 Q. All right. Now let's go to the page 20 that I referenced for the record, please. 21 Tell me when you've had a chance 22 to look at it. 23 A. Table 17, sir? 24 Q. Yes. 25 A. Yes, sir.
Page 608 1 operators, pesticide formulation carriers, and 2 rubber tappers to paraquat during their normal 3 daily working regimes. 4 Do you see that? 5 A. Yes, sir. 6 Q. Okay. And they recorded what they did 7 at that time, how they did it, and they recorded 8 how the spray operators were tested as well, 9 didn't they? 10 If you go to page 3909. 11 Actually, before we do that, let's 12 go to page 3933. 13 A. Sir, if you don't mind, can we pause 14 for a minute so I can get a hard copy of the 15 study. 16 MR. TILLERY: Absolutely. Of 17 course. We'll go off the record. Tell us when 18 you're ready to go back on, please. Okay? 19 THE VIDEOGRAPHER: We are going 20 off the record at 8:52 a.m. Pacific. 21 (Recess taken, 8:52 a.m. to 22 9:00 a.m. PDT) 23 THE VIDEOGRAPHER: We are back on 24 the record at 9:00 a.m. Pacific time. 25 Q. (BY MR. TILLERY) Dr. Patterson, I was	Page 610 1 Q. Okay. So we have a number of people. 2 And if you look at them, I think there's a total 3 of 19 of them. 4 A. Yes, sir. 5 Q. Spray operators we're talking about, 6 right? 7 A. Yes, sir. 8 Q. Okay. So the spray operators have a 9 measurement, and .05 is considered to be the 10 cut-off date -- strike that. 11 And .05 is considered to be the 12 cut-off point for nondetect of paraquat in their 13 urinary samples that were tested; correct? 14 A. Yes, sir, that's my understanding. 15 Q. And if it's .05 or greater, that's 16 considered a positive test; right? 17 A. Sir, it's considered that paraquat was 18 detected above the detection limit, yes. 19 Q. And if you're looking for that, that's 20 your endpoint for your test, that's a positive 21 test, right? 22 A. Sir, I believe that's a fair 23 statement. 24 Q. All right. So in Regent, we had one 25 out of four; right?

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Page 611 1 A. Yes, sir. 2 Q. And in the next group of four, Jasin 3 Lallang, we had three out of four were positive; 4 right? 5 A. Yes, sir. 6 Q. In Gomali, the next one, two out of 7 four were positive, right? 8 A. Yes, sir. 9 Q. Segamat, one out of four was positive; 10 right? 11 A. Yes, sir. 12 Q. And Regent, two out of three were 13 positive; right? 14 A. Yes, sir. 15 Q. And that's with paraquat residues in 16 their urinary tests; correct? 17 A. Yes, sir. 18 Q. All right. Now let's go to page 3909. 19 And if you look under 3.6, Urine 20 Analysis. 21 A. Yes, sir. 22 Q. It says: Paraquat residues were 23 detected in the urine of nine of nineteen spray 24 operators, and one of seven carriers. Two of four 25 female spray operators in Jasin Lallang Estate	Page 613 1 spraying. The procedure, however, would have been 2 difficult to achieve without interfering with 3 normal work practices. 4 Do you see that? 5 A. Yes, sir, that's what the document 6 states. 7 Q. So the study author is saying that 8 they didn't even -- even though they got nine out 9 of 19 positives, roughly 50 percent of the study 10 subjects, had they waited longer, it might have 11 even been more dramatic in terms of findings; 12 correct? 13 A. Sir, yes, it's based on a more 14 realistic assessment of paraquat absorption. It 15 could have been made by collecting the total 16 volume of urine voided during the first 24 hours. 17 Q. And just so the jury and judge is 18 clear, that doesn't mean the number's going down. 19 If anything, it's going to go up; right? Because 20 we already have indications of positives. Is that 21 a fair statement? 22 A. Sir, yes, if the sampling period was 23 longer for the urine, it would be unlikely to go 24 down, but it also depends on the toxicokinetics of 25 paraquat. It's --
Page 612 1 excreted more paraquat than any of the male 2 operators in spite of a relatively lower total 3 potential exposure. 4 Do you see that? 5 A. Yes, sir. 6 Q. So if you'd now look at page 3913. 7 The last paragraph, we get that page. 8 Do you see where it says: The 9 urine analysis? 10 A. Yes, sir. 11 Q. All right. The author of the study 12 said: Hold on, hold on, that urine analysis must 13 be treated with caution, and it is recognized that 14 by sampling immediately after cessation of 15 spraying, the urinary paraquat residues determined 16 were not accurate indications of the total urinary 17 paraquat excretion following a single spraying 18 session. The permeability of paraquat through 19 intact skin is extremely slow compared with other 20 groups of pesticides such as organophosphate 21 insecticides. 22 A more realistic assessment of 23 paraquat absorption could have been made by 24 collecting the total volume of urine voided during 25 the first 24 hours following cessation of	Page 614 1 Q. Well, we know that the samples they 2 took tested positive. Those aren't going to 3 change. So nine out of 19 are going to stay the 4 same. So had they waited longer, what he's saying 5 is we might have had other additional findings, 6 isn't he? 7 A. Right. There may have been additional 8 findings. 9 Q. So that number may have gone from nine 10 closer to 18, we just -- or 19, we just don't know 11 what that number would have been had they waited a 12 little longer to test; correct? 13 A. Sir, it may have gone up, but there is 14 multiple variables that go into that, such as if 15 they washed afterwards. 16 Q. But would you agree with me that 17 that's the fair import of what the author is 18 saying, sir? 19 A. Sir, my interpretation of this is that 20 the author is saying a more robust and complete 21 assessment would have been done if they took the 22 first 24 hours of urine. 23 Q. And the fact is is the same nine that 24 they tested positive would have stayed positive 25 because they already met that standard. They

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Page 615 1 found it in the urine. Correct? 2 A. Sir, they would have still had urine 3 [sic] detected in their urine, yeah. 4 Q. Yeah. So the minimum number would 5 have still stayed at nine if they didn't find 6 anything else. If they found more, the number 7 would have gone up. 8 Would you agree with me? 9 A. Yes, sir, if they would have found 10 more, then the number would have gone up. 11 Q. And let's walk through how that 12 happens. That happens because as the process 13 works through the body and there's clearance, it 14 takes longer for some people; it takes longer 15 depending upon their exposure, it takes longer 16 because of how it impacts them in the muscles and 17 other tissues, as to how it's cleared through the 18 kidneys. Is that a fair statement? 19 A. Sir, my understanding in relation to 20 this statement is related to the dermal absorption 21 and not necessarily the distribution in the body. 22 Because paraquat has such a low dermal absorption, 23 if it was on the skin longer, then it would have a 24 greater chance for absorption to occur. And based 25 on that, sampling the urine for a longer time	Page 617 1 A. Yes, sir, that's a typical approach 2 for toxicology, yes. 3 Q. That would be a typical lab 4 experiment; right? 5 A. Yes, sir. 6 Q. And just tell us the kind of lab 7 animals that are typical that you've seen that are 8 used. 9 A. Sir, the most common I would say is 10 the rat. And in addition to the rat, rabbits and 11 mice, guinea pigs are often used depending on the 12 endpoint and the study design. And in some 13 instances, dogs are also used for study. 14 Q. Sometimes scientists use animal models 15 in the course of studying a chemical to induce 16 pathology that is similar to a particular human 17 disease that they're studying; correct? 18 A. I'm sorry, sir, would you please 19 repeat the question? 20 MR. TILLERY: Could you read the 21 question back to him, please? 22 (Whereupon, the following 23 testimony was read by the court reporter.) 24 "QUESTION: Sometimes scientists 25 use animal models in the course of studying a
Page 616 1 course may have detected more paraquat in the 2 urine. 3 Q. More of the 19 people would have shown 4 up to be positive, wouldn't they? Not just half 5 of them? 6 A. More than the 19, sir? 7 Q. More of the 19 test subjects than nine 8 would have shown up positive very likely, right? 9 Had they waited longer. 10 A. Sir, it depends on the personal 11 hygiene habits and what was done after exposure. 12 Q. All right. Would you agree with me, 13 Dr. Patterson, that scientists often use 14 laboratory animals as models to determine the 15 effects of a chemical? 16 A. Yes, sir, that is accurate. 17 Q. And they don't administer known toxic 18 compounds to humans because that would be 19 unethical, correct? 20 A. That's correct, sir. 21 Q. Okay. So if a scientist wants to 22 study the effects of a chemical, he or she puts 23 the chemical into an animal in some way and 24 studies the effects that that chemical has on the 25 animal; right?	Page 618 1 chemical to induce pathology that is similar to a 2 particular human disease that they're studying; 3 correct?" 4 (End of readback.) 5 THE WITNESS: Sir, yes, I'm aware 6 of that approach to use chemicals to induce a 7 diseased state in an animal. 8 Q. (BY MR. TILLERY) And that's because 9 we obviously cannot induce a diseased state in 10 humans and then study the effects, because it 11 would be unethical; correct? 12 A. Yes, sir. 13 Q. Scientists often need to recreate a 14 human disease in an animal model in order to try 15 to find medicines that will cure the disease or 16 lessen the effects; correct? 17 A. Yes, sir, that's accurate. 18 Q. And that's often done in the 19 pharmaceutical industry. You understand that, 20 right? 21 A. Yes, sir. 22 Q. So the disease is modeled in an 23 animal, and if the chemical can induce the key 24 hallmarks of the disease, then these biological 25 pathways are studied for possible cures; right?

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Page 619 1 Common practice. 2 A. Yes, sir, I would agree with that. 3 Q. All right. To be sure a specific 4 intended dose is delivered to the animal, is 5 injection the most accurate means of administering 6 the chemical? 7 A. Sir, to clarify, intravenous 8 injection? 9 Q. However you want to do it. I'm 10 talking about injecting using a hyperdermic needle 11 into a test subject, is that the most accurate 12 means of administering a chemical? If there's 13 others, tell me. 14 A. Sir, directly injecting into the 15 bloodstream is more accurate because you are able 16 to deliver that entire dose to the bloodstream 17 without going through metabolism and excretion as 18 you would in the gut. 19 Q. Okay. In other words, certainly more 20 accurate than having an animal eat something; 21 correct? 22 A. Sir, not to be difficult, I struggle 23 with the word "accurate." It depends on what your 24 goal of the study is. If you're studying, for 25 example, metabolism, then you would want to put it	Page 621 1 the bloodstream, and you're not as likely to get a 2 one-to-one correlation as you would with 3 injection. 4 Q. Well, let's assume we want to 5 inject -- strike that. 6 Let's assume we want to use 7 paraquat as the test chemical and we're going to 8 use laboratory mice as the test subject, and we 9 want to test the effects of exposure to these test 10 animals. And I'm looking for the most accurate 11 way of determining the impact of that chemical 12 exposure and the amount of chemical that caused 13 it. 14 Do you understand our project 15 here? 16 A. Yes, sir. 17 Q. All right. Now, let's consider the 18 options. One would be an injection into the 19 bloodstream; right? 20 A. Yes, sir. 21 Q. Another one that would be used in a 22 lab would be to have the animal inhale a mist of 23 the chemical; right? 24 A. Yes, sir. 25 Q. Another one would be to feed it to
Page 620 1 in the stomach. If you wanted to have a more 2 accurate correlation with a dose that you're using 3 in a dose in the bloodstream, then injection would 4 be the most appropriate. 5 Q. Well, injection allows the scientist 6 to ensure that an exact amount of a particular 7 test item, like the chemical, is being delivered 8 to the animal in a known amount; correct? 9 A. Sir, oral gavage -- I'm not sure if 10 you mean injection, if it includes oral gavage as 11 well, because oral gavage administers a known 12 dose. 13 Q. Okay. So -- but oral gavage goes 14 through the gut into the -- into the stomach, into 15 the intestines. 16 Are you saying that's as accurate 17 as injecting it by hyperdermic needle into the 18 bloodstream or into the gut itself into the 19 peritoneum? 20 A. Sir, I'm not trying to be difficult, 21 I'm referring to your statement about the dose. 22 So the dose delivered is still accurate with oral 23 gavage. You're still delivering the dose to the 24 animal. It's just what happens to that dose is 25 more complicated than directly administering it to	Page 622 1 them; right? 2 A. Yes, sir. 3 Q. Another one would be to inject it into 4 the peritoneum of their gut; right? 5 A. Yes, sir. 6 Q. And that's referred to in many of 7 these studies as sort of an i.p. injection, 8 intraperitoneal injection; correct? 9 A. Yes, sir. 10 Q. So let's explain that to the Court and 11 jury. That when you take a hypodermic needle, you 12 just inject it into their belly, correct? 13 A. Yes, sir. 14 Q. Into a specific location; right? 15 A. Right. 16 Q. Now, I want to talk about those, those 17 different routes of exposure. All of those 18 different ones. 19 Can you tell me which is the most 20 accurate means of measuring the amount of the 21 chemical that we gave to the test animal? 22 A. Sir, so in addition to those options 23 you listed, there's also dermal studies and then 24 the oral gavage studies. 25 Q. But I didn't --

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Page 623 1 A. And -- 2 Q. But I didn't include them. 3 A. You're not talking about those 4 options. 5 Q. I'm talking about the ones I told you. 6 Which one is the, in your opinion, the most likely 7 to give an accurate amount of chemical that the 8 animal responded to? 9 A. Sir, in terms of delivering the dose 10 to the bloodstream, injection, IV injection is 11 most likely -- the most likely to correlate with 12 your dose to what you're delivering to the 13 bloodstream. 14 Q. Okay. And what's the next most 15 accurate? 16 A. Sir, to recap, we had inhalation and 17 i.p.? Those are the other two? 18 Q. Yes. And if you want to include -- 19 you mentioned dermal. Let's include dermal, 20 dermal exposure as well. 21 A. Sir, so the intraperitoneal injection 22 would likely be the most -- again, the most 23 accurate in terms of correlating your administered 24 dose with the dose delivered into the bloodstream. 25 And then for inhalation and	Page 625 1 where oftentimes chemicals are metabolized, 2 followed by excretion in the bile and the feces, 3 and so you're less likely than the other methods 4 to have a one-to-one correlate of dose received to 5 what's making it into the bloodstream. 6 Q. Okay. So the gastric? 7 A. For feeding -- 8 Q. Feeding study? 9 A. Yes, sir, for an oral gavage or a 10 feeding study. 11 Q. Okay. And so we're clear now, let's 12 talk about dermal exposure. 13 How does it stack up versus these 14 other forms of exposure to a chemical? 15 A. Sir, it would be similar as an oral 16 study in terms of the physical chemical properties 17 of the chemical, which would dictate how much and 18 how fast it would be able to penetrate the skin. 19 And that would preclude some of it getting into 20 the bloodstream. 21 Q. Okay. So the way I understand you 22 lining them up would be No. 1 most accurate 23 means -- and we're not talking about anything else 24 than just measuring the amount that you're 25 delivering to the test subject, okay?
Page 624 1 dermal, sir, again, not to belabor the issue, but 2 it gets very complicated because of the variables 3 associated with the chemical itself. It depends 4 on the optimal water coefficient and how much the 5 chemical will penetrate the skin, the vapor 6 pressure is important for inhalation, so there are 7 very many variables. So those two are usually, 8 not always, but usually less likely to result in a 9 correlation of administered dose to a dose in the 10 bloodstream. 11 Q. All right. Now, I want to include 12 also gastric exposure through consumption of food 13 product which is laced with the same chemical and 14 measured. So now we have the direct bloodstream, 15 intraperitoneal, which you've already described. 16 We have inhalation, we have dermal, and we have 17 ingestion. Okay? 18 A. Yes, sir. 19 Q. Does that analysis change? Which one 20 is more accurate? 21 A. So, sir, with the ingestion, you're 22 going to most likely not absorb all of the 23 material from the gastrointestinal tract. Again, 24 it depends on the chemical properties. And then 25 once you do ingest it, it goes through the liver,	Page 626 1 The most accurate would be the 2 injection into the bloodstream. Next would be the 3 intraperitoneal, and then beyond that, it would be 4 either the dermal or ingestion of the material, or 5 oral gavage. 6 Would they be in roughly the same 7 category, or is there a different -- difference 8 between them? 9 A. Yes, sir, for dermal; oral injection, 10 including feeding and gavage and inhalation, those 11 are below the intraperitoneal and injection. And 12 the order of those heavily depends on the physical 13 chemical properties of the material. But again, 14 sir, just to clarify, an accurate dose, I mean, 15 you're still delivering an accurate dose to the 16 animal. It's just the accurate -- it's just if 17 you have -- how much you're delivering directly 18 into the blood versus delivering to the animal. 19 Q. And in each one of these cases, is the 20 goal to get it into the bloodstream to measure its 21 effects? 22 A. Sir, it depends on your endpoint and 23 your goal of the study. 24 Q. Okay. So let's assume we're trying to 25 measure the toxic effect of the chemical like

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Page 627 1 paraquat. Whether or not you use a direct 2 injection or intraperitoneal, ultimately the 3 chemical gets into the bloodstream; correct? 4 A. Sir, would you please repeat the 5 question? 6 Q. Yes. Whether or not you use an i.p. 7 injection, intraperitoneal, or a direct line into 8 the -- into a vein in the animal, the chemical 9 gets into the bloodstream; right? 10 A. Yes, sir, the chemical gets into the 11 bloodstream. 12 Q. And whether you use inhalation or 13 dermal or gastric by virtue of eating something, 14 ultimately through body processes, either through 15 respiration or through digestion or through 16 transdermal exposure, the chemical gets into the 17 bloodstream; correct? 18 A. Not necessarily, sir. It depends on 19 the dose and the -- like we discussed, the 20 kinetics of how rapidly and quickly it can 21 penetrate the skin, for example. 22 It may not actually make its way 23 into the bloodstream under all circumstances. 24 Q. Well, would you agree with me that 25 when paraquat is administered by subcutaneous	Page 629 1 systemic. 2 Would you agree with that? 3 A. Yes, sir. That's accurate. 4 Q. Okay. Would you agree that when 5 paraquat is administered by intraperitoneal 6 injection, it becomes systemic? 7 A. Yes, sir. 8 Q. All right. And would you agree that 9 when paraquat is administered by subcutaneous 10 injection, it becomes systemic, meaning it gets 11 into the bloodstream? 12 A. Yes, sir. 13 Q. Now, paraquat reaches the brain 14 regardless of the route of exposure if that 15 chemical has become systemic; correct? 16 MR. ORLET: Object to the form. 17 THE WITNESS: Sir, I believe it 18 would depend on the dose and the conditions. 19 Additional variables would be -- would dictate 20 whether it was able to pass the blood-brain 21 barrier and make it into the brain. 22 Q. (BY MR. TILLERY) Well, you know for a 23 fact that people who have died after drinking a 24 little bit of this from the studies we've been 25 over at great length, you know that it gets into
Page 628 1 injection, it becomes systemic? 2 A. Sir, I would agree that if 3 administered under subcutaneous injection, it is 4 in the bloodstream and would be available based on 5 the -- distribution based on it being in the 6 bloodstream. So whatever the normal distribution 7 is of paraquat, that would be available to occur. 8 Q. Okay. I used the word systemic. If 9 we're going to make sure we have the right terms 10 and definitions, I mean systemic meaning it gets 11 into the bloodstream. 12 Would it be better for you if I 13 just said it gets into the bloodstream? 14 A. Sir, as long as we agree that systemic 15 means getting into the bloodstream, I'm fine using 16 the term systemic. 17 Q. All right. That's what I mean, it 18 gets into the bloodstream. 19 A. That's fine, sir. 20 Q. Would you agree that when paraquat is 21 administered orally, it becomes systemic? 22 A. Sir, it depends on the dose, based on 23 my understanding. 24 Q. Okay. So at some point, depending on 25 the dose, it gets into the bloodstream and becomes	Page 630 1 their blood -- into their brain, right? 2 MR. ORLET: Objection -- 3 THE WITNESS: Sir, I recall that 4 there were instances after a lethal ingestion of 5 paraquat that paraquat was measured in the brain 6 of those individuals. 7 Q. (BY MR. TILLERY) So let's assume that 8 when you found this, that it does get into the 9 brain, whether you agree with it or not -- and 10 I'll represent to you that Dr. Philip Botham 11 testified in a deposition last week that Syngenta 12 has been aware of the fact that during spray 13 operations and application of paraquat, they've 14 known that it gets into the human brain for over 15 25 years. 16 Now, I'm asking you to assume that 17 that's what he said under oath, okay? 18 Now, do you have any information 19 that would dispute what he said? 20 MR. ORLET: Object to the form. 21 THE WITNESS: Sir, to clarify the 22 time period, you said 25 years. So I read these 23 documents from before '86, and there was nothing 24 in the documents that I reviewed that indicated 25 that paraquat was likely to pass a blood-brain

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Page 631 1 barrier and accumulate in the brain. 2 Q. (BY MR. TILLERY) Had you ever done 3 any of those studies to see whether or not it 4 would? 5 A. Sir, I don't recall Chevron conducting 6 any of those studies to measure paraquat in the 7 brain. 8 Q. So if you didn't do the studies and 9 you have the legal monopoly on the sale of the 10 chemical, were you waiting on somebody else to do 11 the studies? 12 MR. ORLET: Object to the form. 13 THE WITNESS: Sir, apologize on 14 the question, to clarify, legal monopoly, I'm not 15 an expert in -- 16 Q. (BY MR. TILLERY) I'm just saying 17 nobody else was selling it. ICI had it patented 18 in the United States and had a distribution 19 agreement with you and nobody else, and you opened 20 the deposition today telling us that nobody else 21 was selling it. From 1965 through 1986 when you 22 got out, there was ICI and Chevron. 23 During that period of time, did 24 you do any studies whatsoever to determine whether 25 or not paraquat could get into the human brain?	Page 633 1 review that study. 2 Q. Okay. So you don't remember it. I 3 remember it. Okay? I remember you saying you 4 recognized it, it was a study that Chevron had. 5 That's what I remember. The record will tell the 6 truth. 7 Are you disputing the record? 8 [Crosstalk] 9 A. Sir, what I'm saying is that I would 10 need to go back and review the conclusions of the 11 studies to properly characterize it, because there 12 are other variables that are important to consider 13 in interpreting the outcome of the study. 14 Q. Okay. Right. Did you, at Chevron, do 15 any studies to determine whether paraquat passes 16 through the human blood-brain barrier? 17 MR. ORLET: Object to the form, 18 asked and answered. 19 THE WITNESS: Sir, in my review, I 20 did not come across any studies where we -- that 21 were designed to directly measure that. 22 Q. (BY MR. TILLERY) Did you at any time 23 at Chevron do any studies to determine whether 24 paraquat passes through the blood-brain barrier of 25 any animal?
Page 632 1 A. Sir, I don't recall studies where we 2 directly measured animals -- using animal studies 3 and animal models where we directly measured 4 paraquat in the brain. 5 Q. Okay. So when you say you don't know 6 if it passes through the blood-brain barrier, 7 okay, you're ignoring the Litchfield study from 8 1973 that's in your records, which we talked about 9 when we first met, that shows that radio-labeled 10 paraquat got into the brain of rats? 11 Do you remember that? That whole 12 discussion you and I had? 13 A. My answer is I don't recall that 14 study. 15 Q. Okay. So you -- I asked you questions 16 about that in March. Remember? 17 A. Yes, sir. 18 Q. Rats are mammals, aren't they? 19 A. Yes, sir, rats are mammals. 20 Q. All mammals have blood-brain barriers; 21 right? 22 A. To the best of my knowledge, yes. 23 Q. And those rats certainly got paraquat 24 in their brains, didn't they? 25 A. Sir, I would need to go back and	Page 634 1 A. Sir, based on my review of the 2 documents, I did not find any studies that were 3 designed to do that, no, sir. 4 Q. Now, in terms of the different means 5 of exposure, okay? One meaning oral 6 administration, one being inhalation, another 7 intraperitoneal injection, another subcutaneous 8 injection, do they all result in the chemical -- 9 certainly by different means, but do they all 10 result in the chemical, if we're testing paraquat, 11 paraquat getting into the bloodstream? 12 A. Sir, that's most likely the case, but 13 it also depends on the dose. 14 Q. Right. In general terms, they all 15 result in the same thing, don't they? 16 A. Sir, it depends on the dose. 17 Q. Okay. Which one now don't you agree 18 with? It's going to be a long day. 19 I'm not trying to trick you here, 20 sir. I'm trying to move on to the next question. 21 You're being quite difficult in your answers. I'm 22 just trying to establish a point. 23 I'm just trying -- these are 24 fundamental points that we shouldn't be 25 disagreeing about. Okay?

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Page 635 1 A. Sir, I understand. I -- I apologize. 2 Q. All right. All I'm trying to say is, 3 irrespective of the route of exposure, whether you 4 ate it, you breathed it, it got in your nose, 5 injected into your skin, it came in through your 6 skin by exposure or was put in your veins, 7 ultimately it gets into the bloodstream if it 8 reaches whatever you want to refer to as the 9 adequate amount or level. That's the endpoint. 10 Okay? 11 Do you understand? 12 A. Sir, if it reaches the adequate dose 13 to be absorbed and make it into the bloodstream, 14 it could, and that's why I keep referring to the 15 dose because not under every circumstance is there 16 going to be a high enough dose where it would 17 actually reach the bloodstream. 18 Q. But you agree with me when it reaches 19 that, whatever that level is, the end result is it 20 gets into the bloodstream; right? 21 A. Yes, sir. At the appropriate dose. 22 Q. Does there become any qualitative 23 difference in the molecule of paraquat when it 24 gets into the bloodstream dependent upon the way 25 it got there?	Page 637 1 a.m. PDT) 2 THE VIDEOGRAPHER: We are back on 3 the record at 9:59 a.m. Pacific Standard Time. 4 Q. (BY MR. TILLERY) You had indicated to 5 me, sir, that you wanted to explain some 6 additional work that you'd done in the last two 7 days following Tuesday's deposition. Some 8 additional research you've undertaken. 9 Would you explain that on the 10 record, please? 11 A. Yes, sir. So I also reviewed some 12 additional documents related to the formulators, 13 Chevron's formulators of paraquat based on what we 14 discussed on Tuesday. 15 In addition, related to exposure 16 studies that Chevron was involved in. I further 17 looked at the documents we had and found two 18 additional studies that Chevron were involved. 19 And then I also had a conversation with Dr. Dick 20 Cavalli. 21 Q. Well, let's go through those. Before 22 we resume my line of questioning, let's go through 23 those. You indicated that you had done some work 24 with respect to formulators. What is it that you 25 did, and what did you find?
Page 636 1 A. No, sir, no, it would still be a 2 molecule of paraquat. 3 Q. Right. There's no qualitative 4 distinction or difference in the molecule of 5 paraquat that enters the bloodstream based upon 6 the route of exposure, is there? 7 A. Sir, that's my understanding. 8 Q. Okay. Now, I want to tell you that -- 9 ask you a question. Let's start with this 10 question: If I dosed two mice with the same 11 amount of paraquat using different routes of 12 exposure, and I gave you their brains to examine, 13 would you be able to tell me what route of 14 exposure I used to dose each one? 15 A. No, sir, I wouldn't. 16 Q. Okay. Thank you. 17 Now let's move on to a different 18 topic. 19 THE WITNESS: Sir, can we take a 20 15-minute break? 21 MR. TILLERY: Absolutely, sir. 22 Sure. You bet. 23 THE VIDEOGRAPHER: We are going 24 off the record at 9:38 a.m. Pacific. 25 (Recess taken, 9:38 a.m. to 9:59	Page 638 1 A. Sir, so what I found in the documents 2 was that in 1983 is when Chevron started using 3 formulators that were not Chevron formulators. 4 Q. And where were they? 5 A. There were multiple formulators. I 6 don't recall the exact list of formulators and 7 where they were, but those are in the documents. 8 Q. Okay. And how many of them were 9 there? 10 A. Sir, I don't recall how many there 11 were. 12 Q. Were these companies that were 13 separate and distinct legal entities from the 14 Chevron umbrella of companies? 15 A. Sir, that was my understanding based 16 on my review of the documents. 17 Q. And did they formulate products 18 pursuant to a contract with Chevron, ICI, or both? 19 A. Sir, I didn't review any of the 20 contract information between Chevron and any of 21 these formulators. 22 Q. And do you remember the areas or 23 regions of the United States where they were 24 located? 25 A. Sir, I don't recall.

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Page 639 1 Q. Do you know one of them was here in 2 the St. Louis area; right? 3 A. Sir, I remember we discussed that on 4 Tuesday during the previous deposition. 5 Q. Okay. So one was right here in the 6 St. Louis area. 7 Do you know any others that were 8 located throughout the United States? 9 A. Sir, there were multiple formulators. 10 I can't recall a specific city or state. 11 Q. Were they formulating different 12 products, in other words, different aspects of the 13 paraquat finished product? 14 A. Sir, my understanding is that there 15 was a formulator's manual that Chevron had 16 prepared that would have directed them, the 17 procedures and how to formulate as well as the 18 health and safety precautions to take. 19 Q. So you gave them a recipe and the 20 ingredients, and they manufactured it; right? 21 MR. ORLET: Object to the form. 22 THE WITNESS: Sir, my 23 understanding is that we gave them a bulletin on 24 how to -- on the -- for example, the 25 specifications of the paraquat formulation.	Page 641 1 formulation sites for Chevron, but I don't know 2 the exact fraction that each would have changed in 3 response to the overall paraquat volume. 4 Q. Where were the four Chevron 5 formulation sites? 6 A. Sir, I remember that there was one in 7 Maryland, there was one in New Jersey, and I 8 believe there was another one in Oregon. 9 Q. And do you know how long they existed 10 and produced paraquat product? 11 A. Sir, I don't recall reviewing that in 12 the documents. 13 Q. Okay. Was there anything else you 14 learned from reading about formulation? 15 A. Sir, one additional point that I 16 recall is that Chevron was expecting to have their 17 third-party formulators take over more of the 18 formulation compared to their sites. I recall 19 reviewing that in the documents as well. 20 Q. When did that occur? 21 A. Sir, that would have been in the '83 22 to '85 time point that I reviewed, seeing that 23 that was their expectation of -- expectations of 24 what they wanted to see occur. 25 Q. Did the production of paraquat change
Page 640 1 Q. (BY MR. TILLERY) And then what 2 happened to their finished product? Did they ship 3 it directly to your distribution chain, or did it 4 come back to Chevron for distribution? 5 A. Sir, my understanding is that they 6 would have -- based on my review of the documents, 7 my understanding is they would have shipped it 8 directly to the -- further along the distribution 9 chain. 10 Q. And were the arrangements that you're 11 describing pursuant to a written agreement? 12 A. Sir, I don't recall reviewing any 13 written agreements with the Chevron formulators. 14 Q. Okay. Do you think those exist? 15 A. Sir, I don't know. 16 Q. Did the Chevron formulation continue 17 while these other formulators started producing 18 finished paraquat products? 19 A. Sir, yes, that is my understanding, 20 that Chevron was also formulating. 21 Q. Did the formulation in Richmond, 22 California go down when these others were 23 contracted to create or produce formulated 24 paraquat product? 25 A. Sir, I believe there were four	Page 642 1 through the '80s for Chevron? 2 MR. ORLET: Object to the form. 3 Q. (BY MR. TILLERY) In terms of total 4 volume? 5 A. Sir, I recall seeing charts that had 6 that information, but I don't recall the trend 7 over the '80s. 8 Q. Was that part of your reliance 9 materials? 10 A. Sir, I believe it may have been in the 11 reliance materials, but I'm not 100 percent sure. 12 Q. Do you know generally whether or not 13 the amount of paraquat was on an upward trend or a 14 downward trend at the times Chevron got out of the 15 paraquat business? 16 A. Sir, I would need to consult the 17 documents. 18 Q. You don't know without looking at the 19 document; right? 20 A. That's correct, sir, I need to look at 21 the document. 22 Q. And your own understanding and 23 knowledge as a corporate representative giving 24 your testimony would be dependent entirely on what 25 that document says too; right?

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Page 643 1 A. Yes, sir. 2 Q. All right. Do you know what state of 3 the art means in the context of this case? 4 A. Sir, I have a general understanding of 5 what state of the art means, but not necessarily 6 in this case. 7 Q. Could you explain any claim that 8 paraquat was designed and manufactured in 9 accordance with the state of the art, What that 10 means? 11 MR. ORLET: I'll lodge an 12 objection to the form of the question insofar as 13 it seeks a legal conclusion. 14 You can answer. 15 MR. TILLERY: And I -- and I -- 16 and I want to make sure you understand, I'm not 17 looking for a legal definition. I'm looking for 18 what you understand that to mean in terms of 19 production, manufacture, scientific analysis, 20 study, what does Chevron believe establishes the 21 state of the art for the production of paraquat in 22 1965? 23 MR. ORLET: Same objection. 24 THE WITNESS: Sir, I can only 25 comment on what my general knowledge is on what	Page 645 1 A. Sir, based on the documents that I 2 reviewed, I did not see a request from the EPA to 3 conduct a specific neurotoxicity study. 4 Q. Okay. Are there any codes or 5 standards applicable to the chemical industry 6 generally or pesticide manufacturers in particular 7 that would have been in effect in 1965? 8 A. Sir, I'm not aware of any prescribed 9 protocols or guidance on how to conduct studies 10 from that -- from 1965. 11 Q. Okay. And at the time that this 12 chemical was released for sale in the 13 United States in 1965, Chevron and ICI were the 14 only companies who sold it; right? And provided 15 it? 16 A. Yes, sir, that's my understanding. 17 Q. Okay. 18 MR. ORLET: Objection to the form. 19 Q. (BY MR. TILLERY) Do you believe that 20 a company that has a lawful monopoly, and by 21 that -- I'm going to start this question over, but 22 I want to explain to you what I mean by lawful 23 monopoly. You founded something. Thought about a 24 chemical, you figured it out, your scientists had 25 decided that, you know, this thing will work.
Page 644 1 state of the art means. 2 Q. (BY MR. TILLERY) Why don't you tell 3 me what your general knowledge is, and we'll go 4 from there. 5 A. Sir, so to me, state of the art means 6 the most current and typical technology that could 7 be applied -- technology and information that 8 could be applied, whether it be to science or to 9 any process that's available at the time. 10 Q. That would be in existence for you to 11 use for that product; correct? 12 A. Yes, sir. 13 Q. All right. Do you know what safety 14 testing of pesticides US regulators required 15 premarket in 1965? 16 A. Sir, I don't recall a specific -- 17 finding a specific list of the testing that was 18 required by the, for example, the U.S. Department 19 of Agriculture for registration of a pesticide. 20 Q. Okay. Has the U.S. Department of 21 Agricultural -- strike the question. 22 Has the U.S. Department of 23 Agriculture or the United States EPA ever required 24 Syngenta or Chevron or ICI to do neurotoxicity 25 studies on paraquat, to your knowledge?	Page 646 1 That's what happened in 1955. We talked in 2 England, and they patented paraquat. They 3 registered in the United States around 1962, 4 something like that, and got the patent issued 5 here. 6 And so I'm not using the term 7 monopoly in a derogatory sense. I'm saying it's a 8 lawful one. Okay? The only game in town. 9 Do you understand my definition? 10 A. Yes, sir, I believe so. 11 Q. All right. Would you agree that a 12 company that has a lawful monopoly on a product 13 has a responsibility to make a scientific inquiry 14 into all of the dangers associated with the use of 15 that product before it's sold? 16 MR. ORLET: I want to clarify, are 17 you talking about a patent holder, or are you 18 talking about a distributor such as Chevron? 19 Q. (BY MR. TILLERY) That's a good -- 20 very good question. We can break that down. 21 Did you understand what Mr. Orlet 22 just said? 23 A. Yes, sir, I did. 24 Q. Okay. Well, let's take that apart. 25 Do you think that you, Chevron, had a different

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Page 647 1 responsibility than ICI in terms of determining 2 whether or not there had been an appropriate 3 scientific inquiry into all of the dangers 4 associated with paraquat before it was sold in the 5 United States in 1965? 6 A. Sir, as a distributor of a chemical, 7 we have the requirement to ensure that the label 8 properly reflects the known scientific and 9 toxicology information, and we also should look at 10 the -- 11 I'm sorry, can I start over again? 12 Q. Keep talking. Go ahead. 13 A. Can you repeat the question? 14 Q. What I'm asking you is, and it's -- 15 very clearly is when you started selling this 16 product in 1965, was your responsibility different 17 than that of ICI's in terms of making sure there 18 had been a proper scientific inquiry into all of 19 the dangers associated with the use of paraquat? 20 A. Sir, Chevron believed that an 21 appropriate level of understanding of the 22 toxicology and the science should be conducted so 23 that we can appropriately warn of the hazards 24 associated with the chemical and the proper use. 25 Q. Yeah, I really don't know what that	Page 649 1 But my question is a little different. 2 Is your responsibility different 3 than that of ICI's in confirming through 4 scientific analysis and inquiry whether or not the 5 dangers associated with the use of the product had 6 been adequately investigated? 7 MR. ORLET: Objection to the form. 8 THE WITNESS: So I'm not exactly 9 familiar with the requirements of ICI, but I would 10 say that our requirements are to make sure that 11 the toxicology of the material is understood as 12 best as possible before distributing the material. 13 Q. (BY MR. TILLERY) You're not saying 14 that you have a lesser duty in this situation of 15 producing it than ICI; is that -- strike that. 16 You're not saying that Chevron had 17 some lesser duty than ICI did when this product 18 was sold in terms of making sure it was safe to 19 use. Is that a fair statement? 20 MR. ORLET: Object to the form. 21 THE WITNESS: Sir, in terms of the 22 duty between a distributor and a manufacturer, I'm 23 not aware of the regulatory requirements in terms 24 of what the duty and the responsibility was at 25 that time. I was speaking more generally from a
Page 648 1 answered, so to be -- with due respect, that 2 wasn't my question. 3 MR. TILLERY: Would you read back 4 my question, Ms. Reporter? 5 I move to strike your answer as 6 unresponsive. 7 (Whereupon, the following 8 testimony was read by the court reporter.) 9 "QUESTION: What I'm asking you 10 is, and it's -- very clearly is when you started 11 selling this product in 1965, was your 12 responsibility different than that of ICI's in 13 terms of making sure there had been a proper 14 scientific inquiry into all of the dangers 15 associated with the use of paraquat?" 16 (End of readback.) 17 THE WITNESS: Sir, so my answer 18 was related to responsibility, because I'm not 19 familiar with -- that there was a regulatory 20 requirement in 1965, and that's why I answered 21 that Chevron believes that an appropriate 22 understanding of a toxicology should happen before 23 we sell the material and distribute the material. 24 Q. (BY MR. TILLERY) Yeah. And I agree 25 with that. I'm not disagreeing with you, sir.	Page 650 1 Chevron position of what the toxicology and 2 science understanding as a general principal 3 should be before distributing a chemical. 4 Q. (BY MR. TILLERY) Okay. So we'll come 5 back to that relationship issue in a second. 6 Is it -- starting the question, is 7 it fair, then, to say that you agree that Chevron 8 had an obligation before it sold this product in 9 1965 to confirm through scientific analysis that 10 it was safe to use? 11 MR. ORLET: Object to the form. 12 THE WITNESS: Sir, I'm not sure 13 about the word "obligation." I don't know if we 14 were necessarily obligated to from a regulatory 15 requirement. 16 Q. (BY MR. TILLERY) Well, I didn't say 17 regulatory. I said any requirement. 18 Would you agree with me that you 19 shouldn't sell it unless you've had a scientific 20 analysis done to confirm that it's safe to use? 21 That's all I'm asking. 22 A. Sir, yes, I agree that the toxicology 23 should be understood before a material is 24 distributed. 25 Q. And now tell me if you think, from any

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Page 651 1 source, regulatory, nonregulatory, contract, 2 course of dealing, you name it, was there any 3 difference in overall responsibility for 4 confirming the safety of the product in 1965 5 between Chevron and ICI? 6 MR. ORLET: Object to the form. 7 THE WITNESS: Sir, it's my 8 understanding that Chevron was distributing it and 9 making a label; so based on that, we would have 10 understood the toxicology so that we would be able 11 to appropriately reflect that on the label. 12 Q. (BY MR. TILLERY) So is that a -- is 13 that a roundabout way of saying your duty would 14 have been the same as ICI's? 15 MR. ORLET: Same objection. 16 THE WITNESS: Sir, I don't think 17 our duty would have necessarily been the same as 18 ICI's. I don't know what ICI's duty was. 19 Q. (BY MR. TILLERY) Well, did -- was 20 there anything in all of these documents that 21 you've read, you went over over 500 documents for 22 our discussions on Tuesday. Is there anything you 23 read that would indicate that Chevron, for some 24 reason, didn't have the same responsibility as ICI 25 in producing a product that was safe to use?	Page 653 1 THE WITNESS: Sir, Chevron would 2 have approached this irregardless -- regardless of 3 how ICI would have approached it to make sure that 4 the material was safe to use. Sir, I guess I 5 don't understand the context of why ICI is in the 6 question. 7 Q. (BY MR. TILLERY) What I am doing is 8 this, what I'm asking you is: Is there anything 9 by virtue of your relationship with ICI, your 10 contractual relationship, the fact that they were 11 manufacturing an active ingredient elsewhere and 12 shipping it to you and you were using it as part 13 of a formulated product, anything about that 14 relationship which caused you to think that ICI 15 had a greater degree of responsibility for 16 confirming the safety of paraquat scientifically 17 before it was first sold in America? 18 MR. ORLET: Same objection. 19 THE WITNESS: Sir, related to 20 that, I don't recall in the documents anything 21 that ICI had a greater responsibility or a 22 different responsibility, but I do know that we 23 relied on ICI, especially at that time frame, for 24 toxicology information. 25 Q. (BY MR. TILLERY) And on their science
Page 652 1 MR. ORLET: Same objection. 2 Q. (BY MR. TILLERY) Namely paraquat. 3 A. Sir, Chevron -- so based on my review 4 of the documents, there was -- and my 5 understanding of the time period, there was no 6 adopted requirement for what information was 7 standard at the time. 8 Q. Okay. So I, again, don't know what 9 that answers. 10 I move to strike it as 11 unresponsive. 12 Are you having trouble 13 understanding me here? 14 A. I'm having trouble -- I'm trying to 15 clarify -- 16 Q. Well, you know, I'm just asking a 17 pretty straightforward question, and that is: In 18 1965 when you started selling paraquat, did you 19 have the same obligation as ICI, the company that 20 brought you the product to sell, by agreement, and 21 who patented it in the United States, did you have 22 the same obligation as ICI to confirm through 23 state of the art scientific means available to you 24 that the product was safe to use? 25 MR. ORLET: Same objection.	Page 654 1 results; correct? All of their science studies. 2 A. Sir, on many of those science studies, 3 I believe that there were other studies that 4 Chevron did related to the use of paraquat related 5 to its ability to kill plants. 6 Q. But whether or not you relied on their 7 toxicology studies, would you agree with me that 8 at the time of the release of paraquat in the 9 United States in 1965, Chevron had an 10 obligation/duty to use state-of-the-art technology 11 and scientific means to confirm that paraquat was 12 safe to use? 13 MR. ORLET: Object to the form. 14 THE WITNESS: Sir, related to the 15 obligation and duty, I don't understand the 16 context of obligation and duty, and that's why I 17 keep coming back to that Chevron did take that 18 upon themselves to make sure that the toxicology 19 was understood according to the state of the art 20 at the time. 21 Q. (BY MR. TILLERY) So what I'm asking 22 for clarification and so we can move on is, 23 whether or not you want to say it's an obligation 24 or a duty, you're telling me that Chevron intended 25 to use state-of-the-art technology to confirm that

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Page 655 1 this product was safe to use; right? 2 MR. ORLET: Object to the form. 3 THE WITNESS: I said Chevron used 4 the existing animal studies, which would have been 5 the state of the art at the time, the toxicology 6 studies, to inform on the safety and toxicology. 7 Q. (BY MR. TILLERY) What neurological 8 tests did Chevron perform before paraquat was 9 marketed? 10 A. Sir, based on my review of the 11 documents, Chevron did not conduct any toxicology 12 studies. They relied upon the toxicology studies 13 provided by ICI. 14 Q. Okay. In your view, was it 15 appropriate at that time, as part of the state of 16 the art, to rely upon ICI's neurotoxicity studies? 17 MR. ORLET: Object to the form. 18 THE WITNESS: Sir, regarding the 19 neurotoxicity studies, I feel like we need to 20 define what the neurotoxicity studies were in your 21 view versus my view. If you wouldn't mind 22 clarifying that, please. 23 Q. (BY MR. TILLERY) Well, why don't you 24 tell me what a neurotoxicity study is. 25 A. Sir, in today's standards, over the	Page 657 1 investigating neurotoxicity, for example, for a 2 regulatory submission. 3 Q. Okay. So you're referring to a 4 regulatory statement; right? 5 A. Mostly a regulatory statement, but 6 also in general because the regulatory typically 7 follows the science in terms of understanding how 8 to conduct the study and what to look for in terms 9 of what's important and how to evaluate it and how 10 to interpret it. In the general evolution. 11 Q. Okay. Let me ask you, sir: Are you 12 suggesting there was no neurotoxicity 13 capability -- strike that. 14 Were you suggesting that there was 15 no capability for doing neurotoxicity studies of 16 pesticides in 1965? 17 MR. ORLET: Object to the form. 18 THE WITNESS: Sir, that's not what 19 I'm trying to say. I'm trying to -- 20 Q. (BY MR. TILLERY) Well, here's what 21 I'm asking you, whether you are or not. I'm 22 asking you this: Were there neurotoxicity studies 23 available to be performed on pesticides in 1965? 24 MR. ORLET: Object to the form. 25 THE WITNESS: Sir, yes,
Page 656 1 years as toxicology has progressed, specific 2 protocols have been designed to address 3 neurotoxicity; however, that is a more recent 4 development, primarily occurring, as best as I 5 understand it, in the '90s, the specific 6 neurotoxicity protocols. 7 Before that, neurotoxicity would 8 have been evaluated within a, for example, a 9 chronic exposure study, just like any other organ 10 systems, so the lung, the liver, the kidney. And 11 it would have been evaluated in that context. 12 Q. So you're saying there weren't any 13 other types of neurotoxicity studies in 1965 that 14 other chemical manufacturers were performing on 15 their pesticide products other than what you've 16 indicated; right? 17 MR. ORLET: Object to the form. 18 THE WITNESS: Sir, based on my 19 understanding, there wasn't a 20 neurotoxicity-specific protocol at that time 21 frame. 22 Q. (BY MR. TILLERY) What are you 23 referring to as a protocol? 24 A. So a guidance document. A guidance 25 document that outlines the procedure for	Page 658 1 neurotoxicity was available as an endpoint in 2 repeat-dose as well as acute studies; it would 3 have been an endpoint that would have been 4 evaluated. 5 Q. (BY MR. TILLERY) Okay. Tell me all 6 the ways in 1965, had Chevron wanted to do a 7 neurotox full evaluation of paraquat, that it 8 could have used. 9 A. Sir, so it would have -- so the 10 studies available and typically run at the time 11 would have been repeat-dose animal studies, such 12 as in a rat or the mouse, and they would have 13 evaluated the organ systems, including the nervous 14 tissue and the brain, measuring the weight, as 15 well as looking at the histopathology, which is 16 evaluating microscopically any effects on nervous 17 tissue to the brain. 18 Q. And that was available in 1965 for 19 clarification, wasn't it? 20 A. Yes, sir, that's my understanding. 21 Q. And it was also available in 1962, 22 wasn't it? 23 A. Sir, my best guess is that's the case, 24 yes. 25 Q. All right. Did Chevron do any of that

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Page 659 1 with respect to paraquat before you marketed it in 2 1965? 3 A. Sir, based on what I reviewed, Chevron 4 did not conduct any of those studies on their own. 5 Q. Okay. Did ICI have any of those 6 studies available for you before you marketed it? 7 A. Yes, my understanding based on 8 reviewing the documents is that ICI conducted 9 those studies and shared them with Chevron. 10 Q. Okay. And which studies specifically 11 did they do that fell into the category you just 12 described? 13 A. Sir, most notably, I recall a rat 14 repeat-dose study. I believe it was a lifetime 15 study, or close to that, as well as a long-term 16 chronic repeat-dose dog study was conducted at 17 that -- around that time period. 18 Q. Okay. And did Chevron believe that 19 those studies were adequate to assess the 20 neurotoxicity potential of paraquat before you 21 marketed it? 22 A. Sir, my understanding, based on 23 reviewing the documents, is that at the time, 24 those studies were considered valid and reliable 25 information to evaluate the toxicity.	Page 661 1 MR. ORLET: Object to the form. 2 THE WITNESS: So, sir, based on 3 those studies, the brain and the nervous tissue 4 would have been evaluated and then different 5 variables such as whether or not there was a 6 dose-response effect, whether the effect was 7 considered adverse or not. It would have been 8 concluded in the study report what the effects 9 were among the various organ systems and whether 10 or not it was adverse. 11 Q. (BY MR. TILLERY) And your testimony 12 is all of that was done; right? 13 A. Based on my understanding of that 14 information, that information was -- those studies 15 were evaluated. 16 Q. Okay. And who -- 17 A. As I described. 18 Q. I'm sorry. Go ahead and finish. I'm 19 sorry. 20 A. I've finished. 21 Q. Okay. Who at Chevron evaluated those 22 studies? 23 A. Sir, in the 1965, '66 time period, I 24 don't -- I couldn't find in the document who 25 reviewed those studies. My understanding is that
Page 660 1 Q. And what was the conclusion that 2 Chevron reached from its evaluation of those 3 studies? 4 And to make sure we're clear, 5 we're talking about the studies ICI did assessing 6 paraquat's neurotoxicity in laboratory animals 7 before you started selling the product in 1965. 8 A. Sir, based on those studies and the 9 observation that there was no effect on the 10 nervous system, Chevron concluded that there 11 was -- that the nervous system was not a target of 12 paraquat. 13 Q. And tell me how ICI made a 14 determination from those studies that there was no 15 effect on the nervous system caused by paraquat. 16 A. Sir, just to make sure I answer your 17 question as directly as I can, are you asking 18 about the study results themselves? 19 Q. Yeah. Oh, yes. I'm asking you how 20 those studies informed ICI and Chevron that there 21 was no neurotoxic concern from the use of 22 paraquat. 23 A. Okay. 24 Q. Information you had before you started 25 selling it in 1965. What were you relying on?	Page 662 1 we were relying upon ICI as the experts -- 2 Q. Okay. 3 A. -- to provide interpretation. 4 Q. Okay. Let's go back for a second, 5 because we're going to break for lunch here in 6 just a few minutes, okay? 7 But let's go back and talk about 8 your discussions with Dr. Cavalli over the last 9 couple of days. 10 What did you talk to Dr. Cavalli 11 about? 12 A. Sir, I was talking to Dr. Cavalli 13 about the relationship between Chevron and ICI. 14 Q. And what did he tell you? 15 A. He told me that Chevron and ICI 16 cooperated, but that they worked independently of 17 one another. They made their own decisions. And 18 that neither one or the other had control of the 19 other. 20 Q. Okay. Did he tell you anything else? 21 A. Sir, he also mentioned that related to 22 toxicology studies, they were able to make 23 suggestions to ICI and what they thought were the 24 most appropriate studies to do, but that they had 25 no control over ICI and what they did; and that

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Page 663 1 ICI tended to take the approach that they were 2 going to do it how they wanted to do it, and it 3 was sometimes difficult to persuade ICI. 4 Q. Anything else he told you? 5 A. Sir, he also stated that both ICI and 6 Chevron independently set their own policies, and 7 did not inform one another on their policy 8 decisions. 9 Q. And what policies are you talking 10 about? 11 A. Sir, it was just a general statement 12 in terms of policies. We didn't get into the 13 details. 14 Q. Was there anything else that 15 Dr. Cavalli reported to you? 16 A. Sir, that's all that I recall at this 17 time. 18 Q. Now, based upon what you just told us 19 about ICI's position regarding toxicology studies, 20 the fact that they were going to do it on their 21 own and -- I don't know exactly how you described 22 it, but according to their own determination, did 23 Chevron, with that practice relationship with ICI, 24 ever undertake to repeat any neurotoxicity studies 25 of its own to determine and reassure itself that	Page 665 1 who did the '60s studies do the others, right? 2 MR. ORLET: Object to form, 3 misstates testimony. 4 Q. (BY MR. TILLERY) Is that a fair 5 statement? 6 A. Sir, I don't believe it's a fair 7 statement. 8 Q. Okay. Did you do the follow-up 9 studies after you determined that the 1960s were 10 not -- what did you say -- robust? 11 A. Sir, they weren't robust based on the 12 scientific knowledge that had developed over the 13 subsequent ten or so years in terms of the 14 knowledge that was gained on how to conduct the 15 studies, and that's why they were repeated. 16 Q. Well, let's stop right there. What 17 additional scientific knowledge did you know in 18 '75 at Chevron about paraquat that you didn't know 19 in 1965? 20 A. Sir, it wasn't necessarily related to 21 paraquat. It was related to the specific 22 protocols for any chemical on how you would 23 conduct the study. 24 Q. Okay. 25 A. So for example --
Page 664 1 the product was safe? 2 A. Sir, as that time progressed, and 3 specifically with Dr. Cavalli and other 4 toxicologists becoming more involved in paraquat 5 and during the time period where paraquat was 6 being reregistered, it became apparent that the -- 7 those studies that were done in the '60s were not 8 as robust as the current protocols for conducting 9 repeat-dose studies. 10 And based on that, there was a 11 series of studies, additional studies, chronic 12 repeat-dose studies that would have evaluated, 13 again, the nervous system. Those were redone. 14 New studies were conducted, new chronic 15 repeat-dose studies were conducted. 16 Q. And who conducted them? 17 A. Sir, based on the documents I read, my 18 best recollection is ICI primarily conducted or 19 led those studies. 20 Q. Right. And my point to you is simply 21 this: You determined later in your own -- on your 22 own that the studies that you had relied upon in 23 1960s, before marketing, were not adequate. And 24 that other studies had to be done. But when the 25 repeat studies were done, you let the same company	Page 666 1 Q. Excuse me. Okay. Then explain, if 2 you wouldn't mind, what you learned about 3 scientific protocols or test procedures in the ten 4 years from '65 to '75 that you think affected the 5 testing necessity for the safety of paraquat. 6 A. Sir, it was, again, not necessarily 7 related to paraquat. It was the evolution of the 8 science over that time. So, for example, the 9 sample size of the animals. How the animals are 10 caged. The duration of treatment. The 11 interpretation of studies. So, for example, what 12 is the maximum dose that you should be treating 13 with the animals -- treating the animals. 14 So various variables such as that 15 were better understood at that time such that 16 more -- such that those variables could be 17 incorporated into -- into making a study more 18 robust for that time period. 19 Q. Okay. Let's go back and look at each 20 one of those. 21 Are you trying to tell me that 22 state-of-the-art science in 1965 did not 23 understand sampling size for a study to determine 24 the statistical power or accuracy of a study? 25 MR. ORLET: Object to the form.

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Page 667 1 Q. (BY MR. TILLERY) Is that your 2 testimony? 3 A. Sir, I'm not testifying that they 4 didn't understand it. I'm saying that the 5 understanding changed. 6 Q. Well, that means Chevron's 7 understanding changed; right? Or ICI's knowledge 8 changed? Right? 9 A. Sir, the guidance on these protocols 10 are -- change often based on the -- based on 11 information that's collected over time. 12 Q. Well, what I asked you is simply this: 13 Are you telling me that the state of art of the 14 scientific technology in 1965 did not recognize 15 the importance of sampling size for a scientific 16 experiment? 17 MR. ORLET: Object to form, 18 assumes fact -- 19 THE WITNESS: Sir, that was just 20 an example of some of the different variables that 21 would be considered. 22 MR. TILLERY: I move to strike 23 your answer as nonresponsive. Can you answer my 24 question? 25 THE WITNESS: Sir, so sample size	Page 669 1 numbers. 2 Q. (BY MR. TILLERY) I'm not going to let 3 you off the hook on this one. You're going to 4 have to answer me. You used several examples. I 5 wrote down four of them, and we're going to go 6 through all four of them. 7 A. Okay. 8 Q. Now, I want to know, you said there 9 was a difference, there had been a development in 10 ten years from '65 to '75, in the scientific 11 knowledge that caused you to repeat these tests. 12 And what I want to know is: What was different 13 between '65 and '75, in terms of scientific 14 studies on the topic of the sample size of the 15 studies? What did you know in '75 you didn't know 16 in '65? 17 MR. ORLET: Object to the form. 18 THE WITNESS: Sir, my 19 understanding, my general understanding is that 20 the emphasis on a certain amount of animals 21 changed such that in the 1965 time frame, there 22 was no agreed-upon number of studies per animal 23 that were required. 24 Q. (BY MR. TILLERY) Okay. How did that 25 differ in '75? What was the standard then?
Page 668 1 would -- is a variable that would have changed 2 over time. The appropriate number of animals to 3 test -- 4 Q. (BY MR. TILLERY) What didn't they 5 know in 1965 about sampling size that they knew in 6 1975, in terms of its impact on the robustness of 7 a scientific study? 8 A. Sir, that was just an example of many 9 different variables that could have changed. 10 Q. You can't answer the question, can 11 you? 12 A. Sir, I would need to go look at the 13 specifics on what changed and why. 14 Q. Well, how about right now, without 15 going and looking it up, can you tell me what -- 16 based on what you just said on the record, under 17 oath? What was different in '65 and '75 in terms 18 of scientific state of the art experimental 19 knowledge of sampling size? 20 MR. ORLET: Object to the form. 21 THE WITNESS: Sir, again, it would 22 relate back to the statistics and what was, at 23 that time, in '75, what was considered the most 24 appropriate -- the most appropriate sample size. 25 I would need to go back and look at the exact	Page 670 1 A. So my -- I would need to go back and 2 look at the exact number of animals required, but 3 my understanding is that it was -- it had -- it 4 was -- it was more understood that you needed a 5 larger sample size in the 1975, '70s time frame. 6 Q. So you're saying that scientists in 7 the ten years between '65 and '75, realized that 8 the sample size had to change in order for you to 9 get more predictive or accurate scientific test 10 results; correct? 11 MR. ORLET: Object to the form. 12 THE WITNESS: Sir, science evolved 13 over that time period such that it was recognized 14 that the more -- that more animals will give you a 15 more robust assessment of the toxicity. 16 Q. (BY MR. TILLERY) Okay. And when was 17 it that you learned that you needed more animals, 18 that you didn't know in 1965? 19 A. Sir, there's no one document or a 20 revelation that said this is the -- this is what 21 needs to be done. It was an evolution with 22 multiple endpoints as the science evolved. 23 Q. What is your reliance material that 24 supports that position? What are you relying on 25 for this?

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Page 671 1 A. Sir, I'm relying on the documents that 2 I reviewed, where I remember seeing multiple 3 discussions related to the reasons why the studies 4 were repeated. 5 Q. Which documents told you that the 6 science had changed between 1965 and 1975 7 regarding sampling size? 8 A. Sir, I don't recall the -- sir, I 9 don't recall any document that specifically 10 pointed to one scientific change, but I recall 11 documents discussing the reasons why the studies 12 needed to be redone. 13 Q. Yeah, whether or not you did, you saw 14 those, can you point me to the documents that 15 answer my questions? 16 A. Sir, I would need to review and find 17 those documents. 18 Q. Do you have them with you? 19 A. Sir, I would need to spend some time 20 reviewing them. 21 Q. Well, what are you talking about in 22 terms of time? 23 A. Sir, there's a lot of documents. It 24 could be quick if I can get my hands on those 25 documents, but I would have to go through a lot of	Page 673 1 technology? 2 A. Sir, as I tried to express to you 3 earlier, I was giving you examples of things that 4 changed. I can provide you the specific list of 5 reasons that Chevron discovered about why these 6 studies needed to be repeated. 7 Q. You can give me one? 8 A. Sir, I can try to go to the documents 9 and find the reasons why these studies were 10 repeated. 11 Q. Okay. And so we're going to take a 12 break, and you're going to look for the documents 13 that tell us precisely why these studies needed to 14 be repeated; and more specifically, you're not 15 going to just do that, you're also going to come 16 back and tell us how the evolution of science, 17 between the launch of this product in 1965 and the 18 time the studies were repeated, had caused a 19 change in the state of the art to require those 20 studies to be done. 21 Do you understand the assignment? 22 A. Sir, for the latter part, again, it 23 was an example of how science changes over time to 24 become more exact. 25 Q. Right. And I want to know what it is.
Page 672 1 documents possibly to find them. 2 Q. Okay. Well, I'm asking you to do that 3 while we break to allow you to do it. But before 4 you do, okay? I want to ask you some more 5 questions, okay? 6 And that is, what changed with 7 respect to how you cage animals in terms of 8 scientific knowledge between 1965 and 1975 -- 9 A. Sir, I -- 10 Q. -- that would influence the scientific 11 results or reliability of the scientific results 12 of the tests? 13 A. Sure. And, sir, related to the caging 14 of animals, '75 is not necessarily a specific time 15 point. It was, you know, from the '60s to the 16 late '70s to the early '80s, but regarding caging, 17 it was realized to be an important factor because, 18 for example, rats are a very social animal, and so 19 caging them in groups versus caging them in a 20 single house could -- in a single cage could 21 possibly impact the results. 22 Q. Okay. So are you saying that there 23 was a rat study or a rat analysis that you used 24 before -- and relied upon, before 1965, that had 25 to be redone because of the caging differences in	Page 674 1 This is our time to talk to you. I can't call you 2 back and ask you. This deposition is my 3 opportunity. 4 What I want you to tell me is what 5 happened in that period of time that wasn't there 6 in 1965. 7 You see, we're saying in the case 8 that this stuff should have been done before you 9 launched it. You told me things happened in that 10 ten-year other period, science changed. I want 11 you to tell me specifically what changed that 12 wasn't available in 1965. 13 Do you understand what I'm asking 14 you to look for? 15 MR. ORLET: Objection to the form. 16 THE WITNESS: Yes, sir, I'll 17 review the documents and find as much information 18 as I can. 19 MR. TILLERY: We'll come back 20 at -- what time? How long do you want to do this? 21 It's five minutes to 1:00 Central Time. 22 MR. ORLET: How about 1:30? 23 THE WITNESS: Sir, I'll -- 24 MR. TILLERY: I'm sorry? 25 MR. ORLET: 1:30.

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Page 675 1 MR. TILLERY: 1:30 is fine. 2 Does that give you enough time, 3 Dr. Patterson? 4 THE WITNESS: So 30 minutes? I'll 5 do the best I can in 30 minutes. 6 MR. TILLERY: Do you need more 7 time? 8 THE WITNESS: I won't know until I 9 get into the documents. 10 MR. TILLERY: We'll check back at 11 1:30 and see how you're doing, okay? 12 THE WITNESS: Yes, sir. 13 MR. TILLERY: Thank you. We'll go 14 off the record now. 15 THE VIDEOGRAPHER: Stand by. We 16 are going off the record at 10:53 a.m. Pacific 17 Time. 18 (Recess taken, 10:53 a.m. to 19 12:06 p.m. PDT) 20 THE VIDEOGRAPHER: We are now back 21 on the record at 12:06 p.m. Pacific Standard Time. 22 Q. (BY MR. TILLERY) Dr. Patterson, you 23 took a break and looked through your documents to 24 see if you could answer my question. 25 What did you find?	Page 677 1 of the document you're relying on. 2 A. So the first part is related to the 3 two-year rat study. So 2a, it says: The draft 4 protocol for the 2-year rat study needs to be 5 checked to ensure that it is in line with the 6 latest EPA guidelines (June 1977). 7 So that's an example of the 8 recently introduced EPA guidelines that needed to 9 be followed in designing the studies. 10 And then the next sentence is: In 11 particular Chevron felt that the animals should be 12 individually housed. 13 And that's relating to the housing 14 and caging of the animals. 15 Q. And just so before we go on, you're 16 saying that there was no scientific understanding 17 about the importance of individual housing in 18 1965. Is that what you're saying? 19 MR. ORLET: Object to the form. 20 THE WITNESS: I'm sorry, I don't 21 know if there was no understanding, but I believe 22 that the knowledge changed, just like it usually 23 does in science, that additional information was 24 understood and collected so that the best protocol 25 could be developed. So again, it may not have
Page 676 1 A. Sir, I did the best that I could to 2 find multiple examples citing the reasoning behind 3 conducting repeat studies for certain endpoints, 4 so I could point you to those studies. These are 5 being pulled from Index Group Exhibit 7 and 8C. 6 Q. So why don't you tell us exactly what 7 the Bates range is on that document and starting 8 off with No. 7. 9 A. So for No. 7, the first one is Bates 10 No. 290557 through 290570. 11 Q. What is that document? So just to 12 repeat, is that a Chevron document? 13 A. This is a CUSA document. 14 Q. CUSA-290557 through 290570? 15 A. Correct. 16 Q. Okay. What is the title of the 17 document? 18 A. It is a meeting between ICI and 19 Chevron. 20 Q. Okay. And tell me what part of the 21 document you're relying on. 22 A. So, on the first CUSA Bates number, 23 290557, under -- starting under No. 2, Status of 24 Long Term Studies. 25 Q. Okay. Read into the record the part	Page 678 1 been no understanding, but better understanding. 2 Q. (BY MR. TILLERY) Okay. Go ahead. 3 What was the next part you're relying on? 4 A. So in that same section but on page 3, 5 they're discussing the importance of the age of 6 the animals. So in the middle of that paragraph 7 it says: In particular the age of the animals at 8 the start of the experiment needs clarifying -- 9 the latest EPA guidelines suggests weanling 10 animals. 11 Q. It suggests what? 12 A. Weanling animals. So W-E-A-N-L-I-N-G. 13 Q. Okay. All right. 14 A. And then related to the mouse 15 carcinogenicity study, which is part B on page 3, 16 there's information on the previous study, so, for 17 example, it states: The tumor data had been 18 handled in an unsophisticated fashion and the 19 staff that carried out the study were no longer 20 employed at CTL. The pathologist at the time did 21 not believe autolyzed animals should be examined 22 and consequently there were large numbers of 23 animals in the study that were not examined, there 24 were some inconsistencies between the protocol and 25 the study.

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Page 679 1 So, for example, you know, based 2 on the pathologist's understanding at the time, he 3 didn't evaluate certain animals that likely would 4 have been evaluated based on the current 5 understanding. 6 Q. So in the document you're reading 7 from, is that part of a larger production group of 8 documents? Chevron produced large volumes in one 9 single group. Is this in the middle of one of 10 those? Because we can't find the document you're 11 referencing. 12 A. Sir, I believe this is page 250 of 13 Index 7, or thereabouts. 14 Q. Index 7 is what? 15 A. I apologize, sir, it's the documents 16 that you collected, your indexes 1 through 14. 17 Q. Okay. So you're talking about Index 7 18 meaning the documents I sent back to you, right? 19 A. Yes, sir. 20 Q. All right. Okay. Got it. And we 21 have different numbers on those for exhibit 22 numbers, but it was the 7th index number. That's 23 what you're saying. 24 A. Yes, sir. 25 Q. All right. Do you have anything else?	Page 681 1 anywhere from 2 1/2-4 hours depending on its 2 urgency and Dr. Steel is going to be forwarding us 3 the methodology. 4 As we receive it, we look 5 forward -- we will forward it to Jim Leary. They 6 are continually looking for other methods. 7 And then it goes on, sir, to talk 8 about some additional methods. Would you like me 9 keep going? 10 Q. Just tell us the other methods it's 11 referring to. 12 A. It's an HPLC, which is a high pressure 13 liquid chromatography method. 14 Q. Okay. Was this for human beings, to 15 test them? 16 A. Sir, I don't know if it was ever 17 applied to human beings, but it was for blood. 18 Q. All right. What I'm asking you is: 19 Was this for use with laboratory animals? 20 A. Sir, I didn't see that specified in 21 the documents, how they applied that method. 22 Q. So you don't know if this is something 23 that had it been available would have been used in 24 1965, do you? 25 A. Sir, this is an example of a new
Page 680 1 A. The next one that I had pulled from 2 the Index 7 is, I believe, starting on page 163. 3 And it's titled Memo and Minutes Re: ICI 4 Toxicology Meeting. And the Chevron USA number is 5 00289880. 6 Q. Okay. Why don't you read into the 7 record what you're relying on there. 8 A. So the section that I believe to be 9 relevant is on Bates stamp 00289884. And it's 10 discussing new analytical methods for measurement 11 of paraquat. And this is an example of how the 12 analytical method was improved over time to 13 increase the sensitivity for paraquat in relation 14 to measuring it in different assays. 15 Q. Okay. Why don't you read that? 16 A. Okay. Dr. Gordon Steel was kind 17 enough to spend some time discussing with us 18 analytical methods for measurement of paraquat. 19 They now have a GC method using a nitrogen 20 selective detector with which they are able to 21 quantitate paraquat in small samples of blood. 22 Dr. Steel's claim is that they can find 0.01 ppm 23 in a 3 ml sample. They have done this 500 or 600 24 times now and feel that it is a very excellent 25 method. It is somewhat laborious and requires	Page 682 1 method that was developed later in the '70s. 2 Q. Okay. So did you use it in the '70s 3 after you learned about it? 4 A. Sir, I would have to consult the 5 documents. I didn't have enough time to follow up 6 on -- 7 Q. Well, you've read over all the 8 documents. Did Chevron, after they found out 9 about this technology, use it? On paraquat? 10 MR. ORLET: Objection. 11 THE WITNESS: Sir, I don't recall 12 seeing it. I would need to further evaluate. 13 Q. (BY MR. TILLERY) Can you answer my 14 question? Did you ever see a document that showed 15 that Chevron used this technology once it found 16 out about it? 17 MR. ORLET: Objection to form. 18 THE WITNESS: Sir, I don't recall 19 seeing that in documents. 20 Q. (BY MR. TILLERY) Okay. What about 21 the first one that you reported? 22 Do you see the first one? 23 A. Yes, sir. 24 Q. All right. Give us a summary again of 25 that technology.

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Page 683 1 A. Sir, the first one was related to the 2 protocol of the two-year rat study, for example, 3 and the caging of the animal, and Chevron feeling 4 that the animals should be individually housed. 5 Q. Okay. Other than housing an animal, 6 what about the gas chromatography that was set up? 7 You said there was reference to gas chromatography 8 analyzing blood specimens, right? 9 A. Sir, that was in the one I just read 10 you, not the first example. 11 Q. Did you use it as well after you found 12 out about it? 13 A. Sir, the -- I'm not aware of anything 14 with the gas chromatography blood sampling, if 15 that was used or not. 16 Q. So the two methods that you just told 17 us about, you found out about in a meeting with 18 ICI in what year? 19 A. 1976. 20 Q. And after you found out about them, 21 would it be safe to say that you have never seen a 22 document or a study or a reference that indicated 23 that you used those in any way to test paraquat? 24 MR. ORLET: Object to the form. 25 THE WITNESS: Sir, I did not see	Page 685 1 techniques into its analysis of paraquat. 2 MR. ORLET: Object to the form of 3 the question. 4 THE WITNESS: Sir, upon my review 5 of the documents, I did not pay special attention 6 to the analytical methodology used. 7 Q. Can you answer my question, sir? 8 A. Sir, with my review of the documents, 9 I did not see the application of this analytical 10 method, but I was not specifically looking at the 11 methodology. 12 Q. But the straightforward answer is you 13 didn't see any evidence of it in your review of 14 the documents, did you? 15 MR. ORLET: Object to the form. 16 THE WITNESS: Sir, I wasn't 17 looking for the evidence. 18 Q. (BY MR. TILLERY) But you didn't see 19 it? 20 A. Sir, I did not see it. 21 Q. All right. Now, was there anything 22 else you wanted to tell us about? 23 A. Yes, sir. 24 Q. All right. 25 A. Sir, also in Group Exhibit 7.
Page 684 1 any additional information related to those 2 methods in the documents I was able to review. 3 Q. (BY MR. TILLERY) You were never able 4 to see evidence that Chevron ever used them; 5 correct? 6 MR. ORLET: Object to the form. 7 THE WITNESS: In the documents 8 that I reviewed right now, I did not see that. 9 Q. (BY MR. TILLERY) Did anybody at 10 Chevron restrict your access to documents in 11 preparation for this deposition? 12 A. No, sir, they did not. 13 Q. Did you ever see any evidence that ICI 14 used these methods to test paraquat that you 15 referenced in your meeting? 16 A. Sir, I would have to go back and 17 evaluate the specific methods that ICI was using 18 for blood to see if this method was applied or 19 not. I did not have time to correlate this method 20 with what ICI was using in the later years. 21 Q. But we've talked repeatedly about the 22 shared information between the two companies. I'm 23 asking you if in any of the documents that you saw 24 in preparation for these depositions, you ever saw 25 evidence that ICI incorporated these new	Page 686 1 Q. Okay. Please give us the reference. 2 What is the date of the first document you're 3 referencing? 4 A. Sir, I'm finding it. One moment, 5 please. 6 It's a July 13, 1978 document. 7 Q. 1978 document? 8 A. Yes. 9 Q. Okay. 10 A. It should be on page 3 -- 11 Q. July 13th? 12 A. July 13th, yes, sir. It should be on 13 page 304 of Index 7. 14 Q. Okay. And what does the document 15 reference? 16 A. It's meeting minutes as summarized by 17 Chevron Chemical Company. It was a meeting 18 related to the RPAR registration, reregistration 19 for paraquat. 20 Q. Okay. What is it that you're 21 referencing in the document, sir? 22 A. Sir, at the -- from the bottom of the 23 page, starting at the third paragraph up, it 24 states: An instillation study, which is a repeat 25 of the Zavalla study, except using rats rather

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Page 687 1 than rabbits is being initiated by ICI. 2 It was pointed out that the Gage 3 study is not flawed as sometimes indicated, but 4 continues to be a valid and useful data source, 5 but it does raise some questions that need to be 6 clarified. 7 And, sir, I feel that this is an 8 important example of how science evolves, and even 9 though the existing information is -- may still be 10 valid, continuing to obtain additional information 11 to get as much information as possible to address 12 the hazards is very important, and this is an 13 example of that. 14 Q. What was the new technological or 15 scientific advancement that you found from -- in 16 that document? 17 A. Sir, in this case, they're validating 18 the information in the second species. 19 Q. So is there anything about that that 20 couldn't have been done in 1965? 21 A. Sir, a second species could have been 22 done in 1965, but as science evolved over time, 23 not necessarily in that ten-year period but over 24 the history of science, understanding that there 25 could be differences in between species has also	Page 689 1 "QUESTION: You're trying to tell 2 this Court and jury that scientists studying 3 pesticides in 1965 were not aware of the 4 significance of the impact across multiple species 5 of a chemical? Is that what you're saying?" 6 (End of readback.) 7 MR. ORLET: Objection to the form. 8 THE WITNESS: Sir, it's not black 9 and white in terms of if they were or they 10 weren't. It was a better understanding of the 11 importance. 12 Q. (BY MR. TILLERY) So you're not -- 13 please, you're not suggesting the scientists in 14 1965 didn't understand that if a chemical made a 15 rat, a mouse, a dog, a sheep, and other animals 16 sick, that that was more significant than if it 17 just made one animal sick; correct? 18 A. Sir, it has to do more with the 19 response. 20 Q. Can you answer my question or not? 21 Can you answer it? 22 A. Sir, I am answering. Sir, I'm trying 23 my best to answer your question. 24 Q. Do you know what? I'm this close to 25 terminating us. If you want to continue this, can
Page 688 1 evolved which has led to the advent of certain 2 studies being done in multiple species and the 3 importance of that. 4 Q. So you're trying to tell this Court 5 and jury that scientists studying pesticides in 6 1965 were not aware of the significance of the 7 impact across multiple species of a chemical? Is 8 that what you're saying? 9 MR. ORLET: Object to the form. 10 THE WITNESS: Sir, what I'm trying 11 to say is that it's a general concept that has 12 evolved over time about the importance of that 13 and in terms of one species not necessarily being 14 sufficient. So there is some examples that have 15 come out in the toxicological literature, for 16 example, thalidomide, where you would see 17 something in one species and not another. 18 MR. TILLERY: Yeah, I move to 19 strike your answer as nonresponsive. 20 Q. (BY MR. TILLERY) Can you answer my 21 question, please? Listen to the reporter read it 22 back to you and then, please, see if you can 23 answer my question directly. 24 (Whereupon, the following 25 testimony was read by the court reporter.)	Page 690 1 you just straight-up answer it? Just answer my 2 questions instead of giving whatever speech you 3 want to give. 4 If you want to continue it, I'm 5 going to ask the Court to read your deposition and 6 see if it needs to be supervised. We dealt with 7 this all day Tuesday. I don't want to deal with 8 it anymore. Now can you please answer my 9 questions? And if you don't want to, fine, I'm 10 fine with you not wanting to; but if you don't, 11 let's just take it to the Court and see if the 12 answers you're giving are in the spirit of 13 discovery in the state of Illinois. I don't 14 believe they are, but maybe the Court would find 15 the other way. 16 Now, I am asking for -- these are 17 not difficult questions. They're straight up. 18 And you're not willing to answer them directly. 19 A. Sir, you told me how you wanted to -- 20 Q. Let's start off with this question and 21 see how you answer it and then I'll -- 22 MR. ORLET: Sir, excuse me. 23 Q. (BY MR. TILLERY) I'll tell you 24 whether or not we terminate today. If we 25 terminate, I'll take it to the Court and get

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Page 691 1 supervised discovery and let the Court sit in on 2 the deposition and make rulings as we go and order 3 you to answer the questions as we go. 4 Here's my question to you. 5 A. Before you ask that question, can I 6 have a five-minute break with counsel? 7 Q. No, you can't. We're going to go 8 ahead. If you have an attorney-client advice, 9 that's up to you. You know, later, at a break. 10 That's not what I'm asking. I'm moving on to a 11 new question now. 12 MR. ORLET: He said that he -- you 13 told him that he can have a break any time he 14 wants. 15 MR. TILLERY: Then take your 16 break. Five minutes. Okay? Then let's get on 17 with the dep. I'm -- 18 Look, you guys can talk about it 19 off time. Any reasonable trial lawyer who reads 20 this transcript will see that you've been 21 instructed not to answer my questions. And I 22 understand this, but it's not right to the 23 discovery process to do it, and I object to it, 24 and I think it's unfair to the plaintiffs that 25 you're refusing to answer direct questions, and	Page 693 1 THE VIDEOGRAPHER: We are going 2 off the record. The time is 12:30 p.m. Pacific. 3 (Recess taken, 12:30 p.m. to 4 12:41 p.m. PDT) 5 THE VIDEOGRAPHER: We are back on 6 the record at 12:41 p.m. Pacific Standard Time. 7 Q. (BY MR. TILLERY) Dr. Patterson, I've 8 identified a series of straightforward questions 9 I'm going to ask you, and see if you can give me a 10 straight answer. And we'll use them as sort of a 11 test, okay? And it's up to you how you want to 12 answer them, but after this, I'm not going to 13 spend time on this without taking it to the Court 14 depending on whether you're willing to answer my 15 questions directly. 16 The first question is this: What 17 technological or scientific advancements since 18 1965 have made any type of tests or studies of 19 paraquat safety feasible now that were not 20 feasible in 1965. 21 A. Sir, other than a general advancement 22 of protocol design, there's nothing else I'm aware 23 of. 24 Q. Okay. In 1965, were other chemical 25 manufacturers performing neurotoxicity studies on
Page 692 1 let's just take it to the Court and get it 2 resolved and then resume the deposition. 3 If the Court feels that you're 4 doing it, then I'll abide by the decision of the 5 Court. Okay? But I want direct answers to my 6 questions. 7 MR. ORLET: He's telling you that 8 he can't answer some of your questions with yeses 9 or nos, and -- 10 MR. TILLERY: He's not answered 11 a -- today, Joe, he's not answered one question 12 with a "yes" or "no." That would have been nice 13 had I had that. I'll look over the transcript and 14 see how many times he's said "yes" or "no," but 15 that's not happened. So I'm just looking -- 16 MR. ORLET: Look at how many times 17 he says you're correct. 18 MR. TILLERY: Well, you can go 19 into a chat and come back and tell me how you want 20 to handle this, but I am -- I'm going to -- if 21 this goes on, we're terminating today, and I'm 22 going to go get Court help for us and ask for 23 Court supervision of his deposition and order him 24 to answer the questions directly as we go. 25 So go ahead and take your break.	Page 694 1 the pesticide products they were releasing on to 2 the market at that time? 3 A. Sir, I don't know the extent of the 4 studies other pesticide manufacturers were 5 conducting. 6 Q. Okay. Did anything in the state of 7 scientific or technological knowledge prevent 8 Chevron from determining whether paraquat was 9 neurotoxic in 1965? 10 A. Sir, could you please repeat the 11 question? 12 Q. Did anything in the state of 13 scientific or technical knowledge prevent Chevron 14 from determining whether paraquat was neurotoxic 15 in 1965? 16 MR. ORLET: Objection to the form. 17 THE WITNESS: No, sir. 18 Q. (BY MR. TILLERY) In 1965, could 19 Chevron have done a behavioral study using animals 20 exposed to paraquat for different periods of time 21 at different doses and by different methods of 22 exposure to see whether paraquat caused any 23 detectable central nervous system effect? 24 MR. ORLET: Object to the form. 25 THE WITNESS: Sir, I don't recall

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Page 695 1 a behavioral protocol being developed at that 2 time. 3 Q. (BY MR. TILLERY) So your answer is 4 you don't know or you don't -- you think it -- 5 they could not have? I'm trying to get an 6 understanding of what you're telling me. 7 A. Sir, I don't know the extent to which 8 a behavioral protocol could have been developed, 9 so I don't know. 10 Q. Okay. In 1965, was the technology 11 available for Chevron to be able to analyze brain 12 tissue samples to see if paraquat was present in 13 the brain of test animals exposed to it? 14 A. Sir, I believe so. 15 Q. In 1965, was Chevron able to analyze 16 postmortem brain tissue samples to see if paraquat 17 was present in paraquat poisoning cases? 18 A. Sir, I believe that technology was 19 available. 20 Q. Did Chevron do such analyses of brain 21 tissues postmortem following paraquat poisoning? 22 A. Sir, based on my recollection of the 23 documents, in certain postmortem cases, I recall 24 seeing the paraquat -- or a brain being evaluated 25 in some of them over the course of the 1965 to '86	Page 697 1 A. Sir, I did not see any of those 2 studies in the documents I reviewed. 3 Q. In 1965, were nonhuman primate studies 4 feasible? 5 A. Yes, sir. 6 Q. Were other chemical manufacturers, to 7 your knowledge, testing on nonhuman primates in 8 1965? 9 A. Sir, I don't know. 10 Q. Were inhalation studies feasible in 11 1965? 12 A. Yes, sir. 13 Q. Did Chevron do any inhalation studies 14 on paraquat in 1965 or before? 15 A. Sir, Chevron did not conduct any 16 inhalation studies in 1965 or before based on the 17 documents I reviewed. 18 Q. In 1965, were lifetime animal tests 19 feasible? 20 A. Yes, sir, that's my understanding. 21 Q. When did Chevron do its first lifetime 22 animal test using paraquat? 23 A. Sir, my understanding, based on the 24 review of the documents, is that in the mid to 25 late '70s, Chevron collaborated with ICI to
Page 696 1 time period, but I can't remember how each case 2 corresponds to the date. 3 Q. But was the technology available at 4 that time, as far as you know? 5 A. To measure paraquat in the brain in 6 case -- [crosstalk] 7 Q. Yes. 8 A. -- yes, sir. 9 Q. In 1965, was the technology available 10 to count neuronal cell loss in people or animals 11 exposed to paraquat? 12 A. Sir, I don't know if that technology 13 was available. 14 Q. Okay. Do you know when it became 15 available? 16 A. Sir, I'm only familiar with the 17 guideline studies which were in the '90s. And so 18 I'm only familiar with its introduction in the 19 '90s. 20 Q. Okay. In 1965, were in vitro studies 21 of neuronal cell lines feasible? 22 A. Sir, I don't know. 23 Q. Did Chevron do in vitro studies of 24 neuronal cell lines with respect to paraquat 25 exposure?	Page 698 1 conduct a study like that. 2 Q. Do you know the name of the study? 3 A. Sir, there was a mouse and a rat, a 4 chronic carcinogenicity study. 5 Q. Okay. Would you agree that at any 6 time from 1965 until Chevron quit its business 7 involved with paraquat, Chevron could have 8 designed an epidemiological study that monitored 9 paraquat users long-term to determine paraquat's 10 possible effect on their health? 11 A. Yes, sir. 12 Q. Would you agree with me that Chevron 13 never did any such study? 14 A. Sir, I don't recall any long-term 15 epidemiology studies in the documents I reviewed 16 conducted by Chevron. 17 Q. By 1969 at least, was Chevron aware 18 that farmers were applying paraquat without 19 wearing masks? 20 MR. ORLET: Object to the form. 21 THE WITNESS: Sir, I don't recall 22 seeing anything in the documents in 1969 or before 23 that Chevron was aware that they weren't wearing 24 masks. 25 Q. (BY MR. TILLERY) Was Chevron aware

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Page 699 1 that people stood in fields where products were 2 being sprayed close to where the spray application 3 process took place by 1969? 4 A. Sir, would you please repeat the 5 question? 6 Q. Yes. Was Chevron aware by 1969 that 7 people stood in fields where paraquat was being 8 sprayed close to the spray application process? 9 A. Yes, sir, I believe that's the case. 10 Q. Okay. And how did Chevron know that? 11 A. Sir, based on how pesticides are 12 applied, in the documents I reviewed, I believe 13 they would have understood, for example, a flagger 14 with an aerial application would be near where the 15 material was being sprayed. 16 Q. Did Chevron consider -- strike that. 17 Did Chevron consider it dangerous 18 or a safety violation to stand in a field without 19 a mask or other protective equipment on while 20 paraquat was being applied by a spray application 21 method? 22 MR. ORLET: Object to the form. 23 THE WITNESS: Sir, my 24 understanding, based on the label, was if there 25 was a chance to inhale the spray mist is when	Page 701 1 Do you see this? 2 A. Yes, sir. 3 Q. What is The Standard Oiler? 4 A. Sir, I'm not aware of what The 5 Standard Oiler is. 6 Q. Okay. Let's go to the next page. 7 Okay. If you'd take a look at 8 that page. 9 And then if you'd look at the very 10 next page, that might give you an idea of the 11 index for the document. 12 On the Cover: Ortho 13 representative Jim Beaver inspects apple leaves 14 for signs of blight in an orchard in Virginia's 15 Shenandoah Valley. 16 Do you see that? 17 A. Yes, sir, I do. 18 Q. And then it has a reference below that 19 to Behind the Scenes. And it references, if you 20 go to the very bottom, yes. Can you read that? 21 It says: Published eight times a 22 year for employees of Standard Oil Company of 23 California and affiliated companies. 24 A. Yes, sir, that's what the document 25 states.
Page 700 1 Chevron recommended the use of a respirator. 2 Q. (BY MR. TILLERY) What year was that? 3 A. Sir, if I recall correctly, I believe 4 that was a label in the '60s, and perhaps the 1966 5 label. 6 Q. Okay. 7 A. But I would need to double-check. 8 Q. Okay. And did Chevron have a public 9 position that was contrary to that statement? 10 A. Sir, I don't recall reviewing any 11 public statements that were contrary to that in 12 the documents. 13 Q. Okay. Let's pull up the first page of 14 this document, which is KT898. 15 Not the actual -- that would be 16 this one here. Do you have this whole document? 17 It's 20424055. 18 (Patterson Deposition Exhibit 70 19 marked.) 20 THE WITNESS: It's loaded. 21 Q. (BY MR. TILLERY) This is a 22 August 1969 referenced pamphlet that I want to 23 direct your attention to. It's marked as 24 Plaintiffs' Deposition Exhibit No. 70. And it 25 bears CUSA-00124055.	Page 702 1 Q. Publication Office: Standard Oil 2 Building, 225 Bush Street, San Francisco, 3 California. 4 Do you see that? 5 A. Yes, sir, I do. 6 Q. And I'll represent to you this was 7 furnished to us in production. 8 Okay? Let's go to the next page. 9 So this is a Global Outlook referencing 10 Mr. Miller's answers about social outreach over 11 the last two years. It's a discussion of the 12 business of Standard Oil-Chevron; right? 13 Right? 14 A. Sir, I'm still not as familiar with 15 this to be able to answer that. I would need 16 to -- 17 Q. Well, do you have -- 18 A. I still don't -- 19 Q. Do you have publications for your 20 company now? 21 A. I don't believe I've seen anything 22 similar to this. 23 Q. Okay. Do you have any publications 24 for your family -- I'm sorry, for your company 25 now?

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Page 703 1 Strike the question. 2 Does Chevron group of companies 3 publish a quarterly or more frequent publication 4 now? 5 A. Sir, I don't know. 6 Q. Okay. Well, let's go to page 4073. 7 So do you see here -- can you see 8 at the top, Pesticides and Herbicides? Do you see 9 that? 10 A. Yes, sir, I do. 11 Q. And it says: Because of local and 12 national attention being focused on the use of 13 pesticides and herbicides, The Oiler presents the 14 following three articles covering several facets 15 of this many-sided field, from the viewpoint of 16 Chevron Chemical People. 17 Do you see that? 18 A. Yes, sir. 19 Q. And the first is Making the Plow 20 Obsolete: a Ortho product brings marginal lands 21 into use; right? 22 A. Yes, sir. 23 Q. And do you see that that's discussion 24 of paraquat? 25 Now let's go down further on the	Page 705 1 Q. Do you see him wearing any kind of 2 personal protective equipment whatsoever? 3 A. No, sir, I don't see him wearing any 4 personal protective equipment in this picture. 5 Q. Would you agree with me that for 6 anybody, a farmer or anybody else, whoever saw 7 this picture in The Oiler magazine, The Standard 8 Oiler, that would be a ringing endorsement that 9 you could stand in the field while spray is being 10 applied, or a paraquat spray, and not have a 11 problem? Would you agree with that? 12 MR. ORLET: Object to the form. 13 THE WITNESS: No, sir. 14 Q. (BY MR. TILLERY) Okay. So was there 15 something about Mr. Shoemaker that made him safe 16 and impervious to the affects of paraquat? 17 A. No, sir. 18 Q. Do you know why he was there without 19 personal protective equipment? 20 A. No, sir. 21 Q. Okay. In fact, the public position 22 taken by Chevron was different than what it said 23 to the regulators, wasn't it? 24 MR. ORLET: Object to the form. 25 THE WITNESS: No, sir.
Page 704 1 page. And here you see the photograph. If you'd 2 pull up just a little. There we go. 3 And here we see a photograph, and 4 it says: A tanktruck sprays Paraquat and atrazine 5 on a field of rye, preparing pairing the 6 Shenandoah farmland for no-tillage planting. In 7 the foreground, S. L. Hess (left), a farm dealer 8 in Harrisonburg, Virginia, calculates for Ortho 9 Branch Manager Pete Shoemaker the number of 10 gallons of Paraquat required for the job. 11 Do you see that? 12 A. Yes, sir. 13 Q. Do you see the applicator behind them? 14 A. Yes, I see the truck behind them. 15 Q. Do you see the boom on the side at the 16 end of the truck? The spray boom? 17 A. Yes, sir. 18 Q. Do you see the spray mist coming out? 19 A. Yes, sir, from what I can tell it 20 looks like there's something coming from the back 21 of the truck. 22 Q. Right. And do you see Ortho branch 23 manager Pete Shoemaker wearing a respirator? 24 A. No, sir, he's not wearing a respirator 25 in the picture.	Page 706 1 MR. TILLERY: Okay. 2 THE WITNESS: Sir, can we have 3 another 15-minute break, please? 4 MR. TILLERY: Yes. 5 THE WITNESS: Thank you. 6 THE VIDEOGRAPHER: We are going 7 off the record at 1:04 p.m. Pacific Standard Time. 8 (Recess taken, 1:04 p.m. to 9 1:22 p.m. PDT) 10 THE VIDEOGRAPHER: We are back on 11 the record at 1:22 Pacific Standard Time. 12 Q. (BY MR. TILLERY) I'm going to direct 13 your attention at this time to Plaintiffs' 14 Deposition Exhibit No. 71 and let you take a look 15 at it. 16 (Patterson Deposition Exhibit 71 17 marked.) 18 Q. (BY MR. TILLERY) It's a two-page 19 communication internal to Chevron. 20 MR. TILLERY: Actually, it's not 21 that page, it's 0739. 22 Actually, that's not it either. 23 Maybe you just have to move forward in the 24 document. 25 So 0739. There we go.

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Page 707 1 Q. (BY MR. TILLERY) Can you look at 2 this, sir? We'll show you the second page when 3 you tell us you're finished. The entire first 4 page is displayed. 5 [Document review.] 6 A. Sir, I've finished reading the first 7 page. 8 Q. Okay, if we can pull up the second 9 page for him. 10 [Document review.] 11 A. Sir, I've completed reading. 12 Q. All right. Let's go back to the first 13 page. Who is L.R. Gardner in the Chevron Chemical 14 Company or Chevron USA hierarchy? 15 A. Sir, I don't recall his position. 16 Q. And Mr. T. W. Reed, Richmond, is the 17 same person we identified and spoke of on Tuesday, 18 wasn't it? 19 A. Yes, sir. 20 Q. And the subject of this discussion is 21 paraquat label; correct? 22 A. Yes, sir. 23 Q. And this was sent on Christmas Day, 24 1968, this letter, wasn't it? 25 A. Yes, sir.	Page 709 1 appropriate signal words to have on the paraquat 2 label related to acute toxicity and lethality. 3 Q. Let's go to the second page. 4 The second page starts, from 5 Mr. Gardner to Mr. Reed: One additional 6 suggestion -- that the warning notice to be used 7 in connection with the skull and bones and the 8 word "poison" be changed to read "generally fatal 9 if swallowed." In addition, that the legend 10 reading "see side panel for additional cautions" 11 be changed to read "warnings" -- not cautions. 12 The next paragraph says: I 13 believe there are two general ways to think about 14 this subject. One method is to ask oneself would 15 you be willing to have your son work with the 16 chemical day-to-day with the warnings we now have 17 on the label. Another way to approach the subject 18 is to visualize exactly how you would answer the 19 questions on the witness stand when under 20 aggressive attack by a tough and experienced 21 plaintiff's lawyer involving the death of a 22 person. An analysis from this angle should answer 23 the following questions. 24 1. Do we have superior knowledge 25 of the hazards and toxicity which we have not
Page 708 1 Q. And it says to Chevron Chemical 2 Company, it's on that letterhead, San Francisco, 3 California. 4 And in the second paragraph it 5 says: I believe that we should take the 6 initiative and put the skull and bones and the 7 word "poison" on the label. It seems to me that 8 it is our responsibility to give the public such a 9 warning since we have unique knowledge regarding 10 the toxicity of this chemical. 11 The public at large would be prone 12 to handle the chemical the same as carrying the 13 type of warning now used -- I'm sorry, the same as 14 other products fall within the class of chemicals 15 carrying the type of warning now used. It seems 16 to me that such a warning is not adequate for this 17 chemical due to its unique poisoning properties 18 and the absence of any practical antidotal 19 treatment. 20 Do you see that? 21 A. Yes, sir. 22 Q. From your reading of this document, 23 before we go forward on it, what was this 24 discussing? 25 A. Sir, this is discussing the	Page 710 1 given the user? 2 2. Have we classified the 3 chemical correctly based on known toxicology? 4 3. Would the user likely be 5 misled by the category of warnings we have used 6 based on his experience with other chemicals in 7 the same category? 8 Final paragraph: It is my 9 understanding that we do not incur any increased 10 liability by putting a stronger warning on the 11 label? When we once again -- gain additional 12 toxicology information which would suggest a 13 greater hazard than was previously thought if we 14 failed to take action to warn the public properly, 15 then I believe that our liability is substantially 16 increased. There is very little sympathy for big 17 corporations that fail in any respect to protect 18 the public and any failure on our part might well 19 result in restrictions on Paraquat which would 20 seriously hurt the market potential. By 21 strengthening our warnings, I believe it is in the 22 proper action to take and that it will be best 23 insure -- and that it will best insure the full 24 development and commercial exploitation of this 25 fine chemical.

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Page 711 1 Does any of that context help you 2 understand who L. R. Gardner was? 3 A. Sir, I still don't know who L. R. 4 Gardner was. 5 Q. And what did Mr. Reed do with this 6 statement or this communication? 7 A. Sir, I recall multiple responses from 8 Mr. Reed. I can't recall if he responded to this 9 or not. I thought he did, but I can't place my 10 finger -- I can't recall the exact -- the exact 11 response or where it was in the set of documents, 12 so I don't know. 13 Q. Was the label changed to do what 14 Mr. Gardner wanted done with it? 15 A. Sir, my understanding is that the 16 label was changed around the 1969 period to add 17 the poison and the skull and crossbones. 18 Q. Okay. So Mr. Gardner's statement to 19 them on Christmas Day 1968 apparently resonated, 20 didn't it? 21 MR. ORLET: Object to the form. 22 THE WITNESS: Sir, I don't know if 23 this was the -- if this was the causation or a 24 correlation with the change, but... 25 Q. (BY MR. TILLERY) Do you know whether	Page 713 1 was saying is it should be moved to a 2 classification 1; right? 3 MR. ORLET: Object to the form. 4 THE WITNESS: Sir, yes, I believe 5 that -- he's -- I believe that's what he's saying, 6 it should have the warning statements consistent 7 with a Category 1. I don't know if he was 8 familiar or not with what a Category 1 meant or 9 what the toxicology data was at the time. 10 Q. Okay. Let's move on to the next 11 exhibit, and we'll -- this is No. 72. 12 (Patterson Deposition Exhibit 72 13 marked.) 14 Q. (BY MR. TILLERY) And again, I want 15 you to look at the document. It's two pages. And 16 identify it for me and explain the context of the 17 document. 18 A. Yes, sir. 19 [Document review.] 20 Q. For the record, while he's looking at 21 this, this is CUSA-00364727 and it extends to 728. 22 [Document review.] 23 A. Yes, sir, I've completed reading the 24 document. 25 Q. All right. Let's go back to -- did
Page 712 1 or not Chevron had superior knowledge of the 2 hazards and toxicity than the user had? 3 MR. ORLET: Object to the form. 4 THE WITNESS: Sir, to the best of 5 my recollection, Chevron communicated their 6 understanding of the hazards on the labels. 7 Q. (BY MR. TILLERY) They didn't have any 8 other information personally, confidentially, that 9 wasn't conveyed and displayed on the label. Is 10 that your testimony? 11 A. Sir, not that I believe they thought 12 was a hazard or a risk to the user. 13 Q. Had Chevron classified the chemical 14 correctly based on the known toxicology? 15 A. Sir, my understanding is that they had 16 classified the chemical correctly. I believe it 17 was as a Category 2, per the standard 18 classification scheme at the time, and what this 19 letter, I believe, is referring to, is moving it 20 to the most severe or Category 1, which prompts 21 the poison skull and crossbones. 22 Q. So when it was moved up, it was 23 changed in category? 24 A. Sir, that's my understanding. 25 Q. Okay. So basically what Mr. Gardner	Page 714 1 you get the second page as well, sir? 2 A. Yes, sir, I did. 3 Q. Okay. Let's go to the first page, it 4 says Chevron Chemical Company, Ortho Division, 940 5 Hensley Street, Richmond, California, March 19, 6 1969, referencing Paraquat-Toxicity & Registration 7 Status; correct? 8 A. Yes, sir. 9 Q. Now, I want to direct your attention 10 to a few things. Before we do that, can you tell 11 me what that is? 12 We see it's from R. D. Wessel, 13 Ph.D., Manager, Research & Development of Chevron 14 Chemical Company. 15 For whom was this document 16 intended? 17 A. Sir, I don't know. It's not addressed 18 to anyone. 19 Q. Can you tell from the context of the 20 document? 21 A. No, sir, I cannot. 22 Q. Can you tell from the content of the 23 document if it is accurately reflective of 24 Chevron's understanding of the toxicity of 25 paraquat at that time?

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Page 715 1 A. Sir, can we move to page 2 again, 2 please? 3 Q. Of course. 4 A. To answer your question, yes, sir. 5 Q. It is? The answer is yes? 6 A. Yes, sir. 7 Q. All right. Let's go back to the first 8 page, third paragraph. 9 It says: The label warnings and 10 cautions this reflected the toxicity hazard and 11 have been and still are considered adequate to 12 safeguard the user and the public; correct? 13 A. I'm sorry, sir, what part are you 14 reading? 15 Q. The third paragraph, second sentence. 16 If you could read that to yourself. 17 A. So under number three? 18 Q. Yes. The third numbered paragraph, I 19 should have said. Sorry about that. 20 A. Yes, sir, please proceed. 21 Q. Okay. That sentence, and then the 22 next one where it says nose bleeding. And while 23 you're reading, if you'll follow along with me. 24 Nose bleeding and soreness of the 25 throat have been the only symptoms in man	Page 717 1 LD50 figures do not officially place paraquat in 2 the category requiring such poison labeling. 3 Do you see that? 4 A. Yes, sir. 5 Q. Now, would you say, then, after your 6 careful review of this, this was reflective of the 7 knowledge, understanding, and position that 8 Chevron had as reflected by Mr. R. D. Wessel, 9 manager of research and development, about the 10 hazards of paraquat on March 19th, 1969? 11 A. Yes, sir, generally it is consistent 12 with what I've reviewed in the documents from the 13 time frame of what we knew at the time. 14 Q. Okay. Did your views -- strike that. 15 Strike that. 16 Sorry? 17 I heard something. I'm sorry. 18 A. It wasn't me, sir. 19 Q. Okay. Did Chevron's views about the 20 hazards of paraquat change before September 1986? 21 MR. ORLET: Object to the form. 22 THE WITNESS: Sir, I believe that 23 the overall hazards as expressed on the labels 24 were consistent through 1986. 25 Q. (BY MR. TILLERY) I don't understand
Page 716 1 associated in field usage with inhalation of spray 2 mists, which do not contain significant amounts of 3 "respirable" (3-5 micron) particles. Exposure of 4 animals to inhalation of specially prepared 5 aerosols have been observed to result only in 6 direct irritation. 7 And then if we skip down: The 8 critical hazard to humans has been shown to be the 9 oral ingestion of concentrated paraquat. Drinking 10 paraquat may be fatal. 11 And then the next paragraph, four 12 says: The paraquat dermal hazard consists 13 primarily in skin burn by contact with the 14 concentrate. Hazard and damage to the eye is by 15 splashing of the concentrate into the eye. 16 Do you see that? 17 A. Yes, sir. 18 Q. Now, let's go to the second page, 19 paragraph No. 6. 20 To prevent accidents, the oral or 21 drinking hazard must be emphasized (all known 22 accidental fatalities have been due to oral 23 ingestion). To emphasize this, the label is being 24 changed to exhibit prominently the word "POISON" 25 and the skull and crossbones sign, even though the	Page 718 1 your answer. Did Chevron's views about the 2 hazards of paraquat usage change from what was 3 expressed in the last exhibit, No. 72, before 4 September 1986? 5 MR. ORLET: Same objection. 6 THE WITNESS: Sir, again, not to 7 split hairs, I want to be as direct as possible, 8 but when you say hazard of use, I understand that 9 as a risk assessment as opposed to just the 10 hazards of paraquat. So please clarify if you're 11 referring to risk or just the hazards of paraquat. 12 Q. (BY MR. TILLERY) Well, let's just put 13 it this way: Hazards in terms of harming farmer 14 applicators when they use it. That's what I mean. 15 Did Chevron's view of the hazards 16 to farmer applicators using paraquat change from 17 the time of Exhibit 72, when it was written, up 18 until the time Chevron got out of the paraquat 19 business in September 1986? 20 MR. ORLET: Object to the form. 21 THE WITNESS: Sir, I would -- 22 based on my review of the documents, I believe 23 they generally stayed the same, specifically 24 focusing on the acute lethality through drinking 25 and the effects in the lung.

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Page 719 1 Q. (BY MR. TILLERY) Right. And as far 2 as you know, there was never any indication 3 expressed to the consuming public, like a farmer 4 applicator, that they ran any risk of 5 neurological or neurotoxic injury as a result of 6 the use of the chemical; correct? 7 A. Sir, yes, that's correct based on my 8 review of the documents. 9 Q. All right. Did Chevron ever, 10 whether -- I'm not talking about labels now, okay? 11 Forget labels. Did Chevron ever at any time issue 12 any warning of any other kind to farmer 13 applicators telling them that using paraquat could 14 cause them to develop neurotoxicity? 15 A. Sir, I don't recall seeing that in any 16 of the documents I reviewed. 17 Q. Did Chevron at any time in its 18 association with paraquat from 1965 until 19 September 1986, ever warn end users, like farmer 20 applicators, that using paraquat, spraying it, 21 could cause them to develop Parkinson's disease? 22 A. Sir, based on my review of the 23 documents, no, I did not see that. 24 Q. Did it ever warn any end users about 25 any possible central nervous system effects from	Page 721 1 [Document review.] 2 A. Okay, sir, I've reviewed the document. 3 Q. I have not yet reported on the record 4 that Plaintiffs Deposition Exhibit 73 is 5 CUSA-00341060. 6 Have you had a chance to look at 7 this, please? 8 A. Yes, sir, I have. 9 Q. Now, this is a Chevron Chemical 10 Company, Ortho Division, Research and Development 11 document; right? 12 A. Yes, sir. 13 Q. It's dated March 29, 1974. 14 A. Yes, sir. 15 Q. And it's referencing a meeting, it's a 16 report of a meeting that took place between ICI 17 and Chevron; right? 18 A. Yes, sir. 19 Q. This is one of the meetings that we 20 talked about a couple of days ago in your 21 deposition that ICI and Chevron had at least a 22 couple times a year during their relationship; 23 right? 24 A. Yes, sir. 25 Q. All right. Now, let's look at the
Page 720 1 the use of paraquat? 2 A. Sir, I don't believe so, based on my 3 review of the documents. 4 Q. Did ICI at any time in Chevron's 5 association with ICI regarding paraquat, ever warn 6 farmer, applicators, end users, consumers, of 7 paraquat, that using it could cause neurological 8 injury, neurotoxicity, or Parkinson's disease? 9 A. Sir, based on the documents I 10 reviewed, I did not see that. 11 (Patterson Deposition Exhibit 73 12 marked.) 13 THE WITNESS: It's loaded. 14 Q. (BY MR. TILLERY) Okay. If you'd take 15 a look at this document. 16 [Document review.] 17 This is Exhibit 73, and it is 18 CUSA-00341060. 19 [Document review.] 20 Q. And if we could just -- could you take 21 a look at the -- it's a three-page document, two 22 and a half pages. Just go through it. I've got 23 one thing to ask you. Two, actually. 24 [Document review.] 25 Q. Tell me when you're ready.	Page 722 1 cast of folks who are there. 2 From ICI, you have K. Fletcher; 3 right? 4 A. Yes, sir. 5 Q. G. Jenkins and E. Schumacher; right? 6 A. Yes, sir. 7 Q. So they've come from England to see 8 you in California; right? 9 A. Yes, sir. 10 Q. And then from Chevron, there was 11 L. Hopkins. Who was he? 12 A. Sir, I don't recall right now who he 13 was. 14 Q. Okay. Okay. And Kamienski, we've 15 talked about him before. Who was he? 16 A. I don't recall, sir. 17 Q. All right. And then there's 18 J. N. Ospenson. You know him, right? 19 A. Yes, sir. 20 Q. What was his role? 21 A. I believe he was the -- either the 22 regulatory manager or the R&D manager. 23 Q. And then D. F. Searle, what was his 24 job? 25 A. Sir, I don't recall.

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1 Q. And then L. R. Stelzer. 2 A. Yes, sir. 3 Q. What did he do? 4 A. I believe he was either the regulatory 5 manager or the R&D manager. 6 Q. All right. And then there's 7 C. R. Tanner, also from Chevron; right? 8 A. Yes, sir. 9 Q. And then there's Standard Oil of 10 California, R. D. Cavalli; right? 11 A. Yes, sir. 12 Q. He's the toxicologist that we've 13 talked about recently -- or talked about 14 frequently in the depositions, isn't he? 15 A. Yes, sir. 16 Q. And then there's somebody from legal. 17 A. Yes, sir. 18 Q. Now, this report or summary was 19 created by Mr. F. X. Kamienski; right? If you 20 look on the third page? 21 A. I believe so. 22 Q. And he sent it to all of these -- two 23 and a half pages to everybody who attended, also 24 to Mr. Barlow, Brown, and Wierenga. Do you know 25 who they were?	1 lawyer. 2 Q. Doppelt pointed out that the evidence 3 available to the regulatory agencies implicating 4 paraquat to be hazardous, even though not 5 scientific, is legally dangerous and admissible as 6 court evidence. Searle and Doppelt felt there 7 were many shortcomings in our present label which 8 would be difficult to defend in a court of law. 9 The punitive aspects of liability are not 10 favorable at the present time. They felt that 11 preventative measures in the form of a stricter 12 label recommendations were the best course of 13 action. 14 Right? 15 A. Yes, sir, that's what it states. 16 Q. Let's go to the second page. Under 17 Toxicology, it says: It was felt that the lack of 18 chronic inhalation toxicity information and 19 epidemiological surveys were a definite weakness 20 in properly evaluating the safety of Paraquat use 21 or properly defending the safety of Paraquat. 22 Did I read that right? 23 A. Yes, sir, I believe you did. 24 Q. And it says: ICI indicated that the 25 worker-hazard study now in progress in Ireland
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1 A. Some of them sound familiar, but I 2 don't remember their title, sir. 3 Q. Okay. Let's go back to this first 4 page. And do you see here in the second paragraph 5 under History and Background? 6 A. Yes, sir. 7 Q. It says: Our present label has been 8 severely criticized as being inadequate in that 9 the instructions are not clear and can be 10 misinterpreted; right? 11 A. Yes, sir, that's what it states. 12 Q. And the concern up in the first 13 paragraph is that something's got to happen 14 because it says, Our inaction to regulatory 15 pressure could result in severe restriction of 16 Paraquat uses. Banning of Paraquat use in the 17 United States is considered a possible course of 18 regulatory action. The lack of an antidote 19 appears to be the motivating basis for the adverse 20 attitudes towards paraquat. 21 Do you see that? 22 A. Yes, sir. 23 Q. Now, let's look at Legal. And he 24 says, Doppelt. Who is Doppelt? 25 A. Sir, my understanding is that he was a	1 would aid in evaluating the potential hazard to 2 Paraquat users. 3 So would it be fair to say, if we 4 stopped right there in the document, that as of 5 1974, in March, there hadn't been enough work done 6 in those areas to get past what the toxicology 7 report was, that there was a lack of evidence 8 about chronic inhalation of paraquat? Would that 9 be a fair statement? 10 MR. ORLET: Object to the form. 11 THE WITNESS: Sir, my 12 interpretation of that is that they feel that they 13 need additional chronic inhalation toxicity 14 information and/or epidemiological surveys to 15 better understand the chronic inhalation toxicity 16 of paraquat. 17 Q. (BY MR. TILLERY) They actually used 18 the words -- the word "definite weakness in 19 properly evaluating the safety of Paraquat use or 20 properly defending the safety of Paraquat." 21 That's what they said, wasn't it? Not what you 22 said. 23 A. Yes, sir, that's what the letter 24 states. 25 Q. Yes. Dr. Fletcher felt confident that

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Page 727 1 the Ireland study will demonstrate that Paraquat 2 is safe and minimal amounts are absorbed by 3 workers after prolonged usage. That is what they 4 had hoped; right. 5 That's what Dr. Fletcher hoped? 6 A. Sir, I'm not sure that's what he -- 7 that seemed to be his opinion. 8 Q. Okay. Now, let's go to the next one 9 under ICI. 10 ICI felt there was no chronic 11 hazard to workers from prolonged exposure to 12 Paraquat. 13 That's what they told you, right? 14 A. Yes, sir, that's what this letter 15 says. 16 Q. Did Chevron accept that? 17 A. Sir, I recall subsequent documents 18 specifically related to Dr. Cavalli further 19 emphasizing that additional chronic inhalation 20 information to be gathered; so I don't believe 21 they accepted that because they were requesting 22 additional studies, whether they be animal studies 23 or epidemiology studies. 24 Q. So what studies did you do? What 25 additional inhalation studies did you do at	Page 729 1 74. This is a set of minutes from the other 2 perspective. It looks like a different meeting 3 but about the same time; correct? 4 A. Yes, sir, this appears to be an ICI 5 internal summary. 6 Q. Of their meeting with Chevron? 7 A. Yes, sir. 8 Q. And they met with Mr. Cavalli, 9 Mr. Kamienski -- the same man who drafted the 10 minutes from the document preceding this one. -- 11 Mr. J -- Dr. J. N. Ospenson, Mr. Lewis, and 12 Mr. Calderbank. Same group of gentlemen; correct? 13 A. Yes. 14 Q. And it's entitled Basis of concern. 15 Right? After at the very top, Paraquat 16 Toxicological Problems in the USA and Proposed 17 Label Change. 18 And it references notes of 19 meetings with Chevron Chemical Company Richmond on 20 February 27, 1974; right? 21 A. Yes, sir, that's what the document 22 states. 23 Q. The basis of concern was: Increasing 24 number of reports of toxicological effects of 25 paraquat to applicators in the field.
Page 728 1 Chevron? 2 A. Sir, I don't believe Chevron itself 3 did specific inhalation studies. 4 Q. Okay. That's what I was -- 5 A. But collaborated with ICI. I believe 6 that there was a -- I can't remember if it was a 7 one-week or a three-week inhalation study, that 8 was done after this. 9 Q. Okay. Chevron, however, never did one 10 at the time, did it? 11 A. In terms of a chronic inhalation 12 study, no, sir, they did not. 13 Q. All right. Now, let's look at, if we 14 can -- I think this is KP 339. 15 (Patterson Deposition Exhibit 74 16 marked.) 17 THE WITNESS: It's loaded. 18 MR. TILLERY: And this is 19 SYNG_PQ-02508147. 20 And this would be Exhibit No. 74. 21 [Document review.] 22 THE WITNESS: Sir, I've finished 23 reading. 24 Q. (BY MR. TILLERY) Now, let's identify 25 the document, please. Syngenta 02508147 through	Page 730 1 Do you see that? 2 A. Yes, sir. 3 Q. What were those reports? 4 A. Sir, I do not know what they're 5 referencing, what report they're referencing. 6 Q. Okay. Let's go to (b) general growing 7 concern amongst California State Officials brought 8 about by (a) together with fatal poisoning 9 incidents (by swallowing) and drift damage. 10 We know what fatal poisoning 11 incidents are. What's drift damage? 12 A. Sir, my understanding of drift damage 13 is when a pesticide, or in this case it looks like 14 a herbicide, would drift or spread beyond the 15 intended target and cause damage to surrounding 16 vegetation. 17 Q. And then (d) it says: There's 18 increasing pressure from labour groups and a 19 mounting number of law suits in the United States 20 largely based on negligence in labelling; right? 21 A. Yes, sir, that's what the document 22 states. 23 Q. And the real fear or basis of concern 24 is set out in (e), isn't it? 25 MR. ORLET: Object to the form.

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Page 731 1 Q. (BY MR. TILLERY) Read that into the 2 record, please. 3 A. So part (e) under Basis of concern 4 says: If incidents with paraquat continue, it is 5 believed that officials may recommend Glyphosate 6 when this is registered. Officials in California 7 (especially Dr K Maddy), are considerably 8 influenced by public pressure. 9 Q. Okay. And then (f) says: There have 10 been two deaths from paraquat in the USA already 11 this year -- one suicide, a woman, and one 12 accident, a 17-year-old boy in Hawaii drinking 13 from a beverage bottle; right? 14 A. Yes, sir, that's what it states. 15 Q. All right. If we go to the next page. 16 There's a topic, Roman numeral 17 viii. Do you see that? 18 A. Yes, sir. 19 Q. It was suggested that Chevron should 20 initiate spraying equipment and operator exposure 21 trials in California similar to those recently 22 instituted in Ireland. This suggestion was well 23 received and Mr. Cavalli will look into the 24 possibilities of arranging such a trial. 25 Was that ever done?	Page 733 1 it's also to make sure that the material can be 2 used safely, which may go hand in hand with the 3 registration. 4 Q. (BY MR. TILLERY) Okay. Let's go to 5 the final -- the third page. 6 Look at that paragraph where it 7 says: I felt that this recommendation on the US 8 paraquat label might have repercussions on our 9 markets outside the United States, and promised to 10 let Chevron have PPL and IHRL comments before 11 March 11th, or 11 March. 12 However, it seems unlikely that 13 Chevron could be persuaded that this precaution is 14 unnecessary -- even if the only justification is 15 political. Chevron believed that this added 16 precaution would not inhibit sales in the 17 United States. 18 Do you see that? 19 A. Yes, sir. 20 Q. Okay. What did that have reference 21 to? 22 A. Sir, when I look at the top paragraph, 23 I believe that gives the most context into what 24 that could be in reference to and it says: 25 Chevron are committed to the sentence on the label
Page 732 1 A. Sir, I don't know. 2 Q. Did you ever see a record confirming 3 whether it was done? 4 A. Sir, I'm not sure if this was -- if 5 the test or study is a result of this or not. 6 Q. If it is, the test or study then was 7 done in response to the possibility of the product 8 being banned as it says in paragraph (e) on the 9 preceding page; correct? 10 MR. ORLET: Object to the form. 11 THE WITNESS: Sir, no, sir. 12 Q. (BY MR. TILLERY) Well, wasn't the 13 topic here, the whole meeting, very clearly about 14 a basis of concern about the use, continued use of 15 the chemical? Do you dispute that? 16 A. Yes, sir. 17 Q. So you can look at this document, 18 along with the jury and the judge and everybody 19 else, and tell us with a straight face that this 20 wasn't about trying to save this chemical so these 21 two companies could continue to manufacture and 22 distribute it; right? 23 Is that what you're telling us? 24 MR. ORLET: Object to the form. 25 THE WITNESS: My understanding is	Page 734 1 (edict from Mr. Barlow). The reasons given that 2 most of the alleged incidents referred to eye or 3 respiratory complaints and since we warn against 4 spray-mist, we should recommend precautions which 5 would avoid any unnecessary exposure and resulting 6 discomfort such as nose bleeds, et cetera. 7 Sir, I believe it's in reference 8 to that, but they don't -- at least I couldn't say 9 where they specify the specific sentence on the 10 label that is under discussion. 11 Q. Okay. 12 A. Sir, we're going to move to a new 13 topic, can we take a short break of perhaps a 14 five- or ten-minute one? 15 MR. TILLERY: Yes. Sure. 16 THE VIDEOGRAPHER: We are going 17 off the record at 2:19 p.m. Pacific Standard Time. 18 (Recess taken, 2:19 p.m. to 19 2:38 p.m. PDT) 20 THE VIDEOGRAPHER: We are back on 21 the record at 2:38 p.m. Pacific Standard Time. 22 Q. (BY MR. TILLERY) Dr. Patterson, 23 despite what Chevron indicated to the USEPA or 24 what the label said, did Chevron take positions 25 regarding the use of personal protective equipment

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Page 735 1 that were different from the label? 2 MR. ORLET: Object to the form. 3 THE WITNESS: Sir, would you 4 please clarify the context of your question? Is 5 it related to formulation of paraquat? 6 Q. (BY MR. TILLERY) No, let's say 7 personal protective equipment. 8 A. Sir, based on my review of the 9 documents, what they've put in the labels was what 10 they believed was appropriate for their personal 11 protective equipment. 12 Q. And when it went on that label, 13 everybody followed it, was that your 14 understanding? Everybody at Chevron? 15 MR. ORLET: Object to the form. 16 THE WITNESS: Sir, I believe there 17 was some question as to how thoroughly they would 18 be followed. 19 Q. (BY MR. TILLERY) In other words, you 20 knew, as we pointed you in the early studies that 21 we've viewed today, that farmers and applicators 22 didn't necessarily follow those label 23 restrictions. That -- you were aware of that, 24 weren't you? 25 MR. ORLET: Object to the form.	Page 737 1 Q. And Chevron knew that farmer 2 applicators sometimes mixed the concentrate 3 without wearing masks? 4 A. Yes, sir, based on my review of the 5 documents -- 6 Q. Can you answer my question, sir? 7 A. No, sir. 8 Q. Okay. You can't answer the question 9 that Chevron knew that farmer applicators 10 sometimes mixed the concentrate without wearing 11 masks? 12 A. Sir, based on the review of my 13 documents, I didn't see specific PPE as being 14 called out. I only reviewed that there was the 15 possibility that PPE in a general sense would 16 not -- there was a possibility that it would not 17 always be followed. 18 Q. Did you have a consistent statement to 19 the public about whether a respirator or -- 20 full-faced respirator was required? 21 MR. ORLET: Object to the form. 22 THE WITNESS: Sir, yes, I believe 23 that the PPE on the label was consistent through 24 the years. 25 Q. (BY MR. TILLERY) Well, was it
Page 736 1 THE WITNESS: Sir, I would like to 2 answer your question as directly as I can, but 3 there's a spectrum along that. Yeah, I think the 4 expectation was that people would follow what was 5 on the label. 6 Q. (BY MR. TILLERY) Well, whether that 7 was your expectation, you knew they weren't; 8 right? 9 MR. ORLET: Object to the form. 10 THE WITNESS: My understanding 11 based on the review of the documents is there was 12 a possibility that to some extent there would be 13 some individuals that wouldn't. 14 Q. (BY MR. TILLERY) And some individuals 15 might include people who didn't wear gloves; 16 right? 17 A. Yes, sir, that's a possibility. 18 Q. Well, you use possibility. That's 19 certainly something -- let's settle on language 20 that we can agree on. That's certainly something 21 that Chevron knew could happen; right? 22 That farmer applicators wouldn't 23 always be wearing gloves. 24 A. Sir, yes, sir, they -- based on the 25 documents I reviewed, that was a possibility.	Page 738 1 required or not? 2 A. Sir, based on the label it was used 3 for certain uses and applications. 4 Q. What usages was it required for? 5 A. Sir, if I recall correctly it was that 6 there was a possibility for inhalation of the 7 spray mist or droplets. 8 Q. So if -- are we talking about when 9 it's being applied and sprayed? 10 A. Yes, sir, that's my understanding 11 based on the documents. 12 Q. All right. And that's -- was your 13 position as of about what date? 14 A. Sir, if I recall correctly I believe 15 it was consistent as of the first label that I saw 16 in 1966. 17 Q. Okay. Let's pull up now -- 18 A. But I would need to double-check to 19 make sure. 20 MR. TILLERY: Okay, let's pull up 21 now, if you wouldn't mind, CUSA-000303977. 22 (Patterson Deposition Exhibit 75 23 marked.) 24 Q. (BY MR. TILLERY) I want you to read 25 this document.

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Page 739 1 [Document review.] 2 A. Sir, just to confirm, you would like 3 me to go through the five pages of the document? 4 Q. Yes, sir, if you don't mind. 5 MR. TILLERY: This is Plaintiffs' 6 Deposition Exhibit No. 75. 7 [Document review.] 8 Q. (BY MR. TILLERY) Have you read this 9 before, sir? 10 A. Sir, it looks familiar, but I'll need 11 to read the whole thing and then I can tell you. 12 Q. Okay. 13 [Document review.] 14 A. Sir, I've finished reviewing the 15 document. 16 Q. All right. This is a multipage 17 exhibit, isn't it, sir? 18 A. Yes, sir, it is. 19 Q. All right. Exhibit No. 75 starts off 20 with a letter from R. D. Cavalli, dated April 11, 21 1979 regarding Paraquat/Human Hazard, and it's to 22 L. R. Stelzer, Chevron Chemical Company; right? 23 A. Yes, sir. 24 Q. Who are these people that are 25 referenced here, Mr. Aroyan, Assad, Barlow,	Page 741 1 regulation change; right? 2 A. Yes, sir. 3 Q. And he says, go ahead and file it. He 4 tells him to file it. Do you see that? 5 A. Yes, sir. 6 Q. Okay. Now, the next several pages, 7 two full pages and part of three, and then the 8 references, is the position paper of Dr. Cavalli, 9 isn't it? 10 A. Yes, sir, that's my understanding. 11 Q. Okay. And this was what was sent to 12 the California Department of -- let's make sure I 13 get it right -- Food and Agriculture; right? 14 A. Sir, I apologize, but would you mind 15 going back to the first page of the letter? 16 Q. Of course. Sure. So you can verify 17 that? Okay. Sure. 18 A. Sir, I guess I'm a little bit -- I'm 19 sorry to interrupt. 20 Q. Go ahead. 21 A. I'm unclear what it means when he 22 says: At this time I would advise against sending 23 it to Sacramento. I don't know if Sacramento is 24 the California Department of Food and Agriculture 25 or -- and what he means by filing it. If he means
Page 740 1 Franke, Garbett, Oспенson, and Rose? 2 A. Sir, I recognize some of the names, 3 such as Franke and Oспенson and Barlow, but I 4 can't place some of the other ones. 5 Q. Did you know that Mr. M. Rose worked 6 at ICI at that time? 7 A. Yes, sir, I do recall the name Rose 8 being associated with multiple toxicology 9 assessments from ICI. 10 Q. All right. And Mr. Cavalli says that 11 he's -- in the cover letter, saying that he's -- 12 is offering up the document in response to an 13 inquiry from the California Department of Food and 14 Agriculture regulation. Right? 15 A. Sir, I'm sorry, would you please 16 repeat that? 17 Q. This letter from Dr. Cavalli includes 18 a position paper that he attaches that is to be 19 sent to the California Department of Food and 20 Regulation -- and Agricultural Regulation. Do you 21 see that? 22 A. Yes, sir, that's my understanding as 23 well. 24 Q. All right. And it's in reference to 25 paraquat human hazard and a proposed California	Page 742 1 filing it with the Department of Food and 2 Agriculture or filing it in Chevron. So it's 3 semantics, but I don't feel comfortable 4 interpreting that based on what I just stated. 5 Q. Well, he said send it -- he says I 6 think it's a good idea to file it; right? Isn't 7 that what it says? 8 A. Yes, sir. 9 Q. And even though Dr. Maddy has changed 10 his mind. Right? That's what he says? 11 A. Yes, sir. 12 Q. Okay. 13 A. That's what he says. 14 Q. Do you have any understanding or 15 documentation that says this wasn't filed? 16 MR. ORLET: Object to the form. 17 THE WITNESS: No, sir, I've not 18 seen any documentation that says that this wasn't 19 filed. 20 Q. (BY MR. TILLERY) Okay. Now let's go 21 forward with the document. 22 Let's look at page 1, first 23 paragraph. 24 And this is where Dr. Cavalli 25 says: In a recent memorandum the Worker Health

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Page 743 1 and Safety Unit of the California Department of 2 Food and Agriculture stated that a study conducted 3 by the department of health of the State of 4 California under contract to the Environmental 5 Protection Agency has indicated that paraquat 6 mixers, loaders, and applicators can develop 7 significant lung damage with time, particularly if 8 they are smokers. 9 The memorandum further alleges 10 that there are concerns that the inhalation of 11 fine droplets of paraquat may cause lung damage in 12 man as they do in animals, and that "there are 13 also concerns" about skin absorption of paraquat 14 and points out that -- the fact that three human 15 fatalities have been related to skin exposure to 16 paraquat. 17 The memorandum also states that 18 paraquat is carried to the lung, localizes there 19 and causes damage to the tissue, and suggests that 20 paraquat mixers, loaders, and applicators should 21 wear a full-face respirator with cartridges 22 suitable for filtering out all residues of 23 paraquat; and that the skin must be protected with 24 water-proof gear so that there is no exposure of 25 the skin to any amount of paraquat.	Page 745 1 lesioned skin. 2 Q. And then the last paragraph says: Due 3 to paraquat's extremely low vapor pressure and 4 large spray droplet size generated by agricultural 5 spray equipment, a full-face respirator with 6 cartridges is not required for the degree of 7 exposure encountered through agricultural use of 8 the chemical. A requirement to use a full-face 9 respirator will only lessen the effectiveness of 10 these directions with regard to chemicals for 11 which they should be worn. Likewise, there is no 12 reason to protect the entire body with water proof 13 gear since there is no evidence which indicates 14 that the incidental exposure to skin from dilute 15 paraquat is detrimental. 16 Is that Chevron's position today 17 with respect to paraquat? 18 MR. ORLET: Object to the form. 19 THE WITNESS: Sir, I believe that 20 is mostly consistent with Chevron's position up 21 until the 1986 time frame, with the exception of 22 the respirator as it relates to application when 23 there's a chance to generate the spray mist or 24 droplet. 25 MR. TILLERY: Okay, let's go to
Page 744 1 Do you see that? 2 A. Yes, sir. 3 Q. You understand that that's what 4 Dr. Cavalli was responding to; right? 5 A. Yes, sir. 6 Q. All right. And in the next paragraph 7 he says: It is our opinion -- this is Dr. Cavalli 8 speaking. It is our opinion that the Worker 9 Safety and Health Unit has misunderstood and 10 misinterpreted the information available in the 11 California Department of Health Study on paraquat, 12 and that the suggested regulation is therefore 13 inappropriate. Our reasoning is as follows. 14 Do you see that? 15 A. Yes, sir. 16 Q. Now let's skip over to the next page 17 and let's go to the next to the last paragraph, 18 the third line from the bottom where it says The 19 main. Do you see that? 20 A. The main hazard? 21 Q. Read that into the record. 22 A. The main hazard from paraquat remains 23 accidental or deliberate ingestion of the 24 concentrate or the repeated or prolonged 25 application of concentrated material to the	Page 746 1 294. 2 We'll move to Plaintiffs' 3 Deposition Exhibit No. 76. 4 (Patterson Deposition Exhibit 76 5 marked.) 6 Q. (BY MR. TILLERY) This is kind of a 7 lengthy document, and it is CUSA-00073464. 8 A. Yes, sir, it's loaded. 9 Q. Have you seen this? 10 A. Yes, sir, I have seen this before. 11 Q. Have you read it? Looked at it at 12 least? 13 A. I've looked at it and skimmed through 14 it, sir. 15 Q. Okay. Good. That will help. 16 Now, tell the Court and jury what 17 Plaintiffs' Deposition Exhibit 76 is. 18 A. Sir, my understanding, based on the 19 title page, is that it is a document prepared by 20 ICI on herbicides. 21 Q. And involving paraquat, right? 22 A. Yes, sir, I believe paraquat is the 23 focus of this document. 24 Q. Actually, if we pull up 3482. 25 [Document review.]

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Page 747 1 Q. And this is just a referenced page, 2 for no other reason than to indicate the document 3 is referenced to paraquat sales. 4 Do you see that? 5 A. Yes, sir, I see it discusses the 6 market shares and the important paraquat markets. 7 Q. And Chevron was just selling in the 8 United States and Puerto Rico; right? 9 MR. ORLET: Object to the form. 10 THE WITNESS: Sir, based on my 11 understanding, it was primarily the -- it was only 12 in the United States and I can't recall if it was 13 ICI selling directly into Puerto Rico or 14 Chevron -- I believe -- I remember it was a 15 Gramoxone product. I would need to go back to the 16 documents to confirm Puerto Rico, sir, I 17 apologize. 18 Q. (BY MR. TILLERY) That's okay, no 19 problem. And this just demonstrates the important 20 paraquat markets for 1983 by volume of product 21 sold, if you look at this exhibit, and it shows 22 Malaysia, where the studies were being done that 23 we were looking at earlier today, is by volume the 24 biggest market, and then Japan. I'm sorry, and 25 then the United States, right? Do you see it?	Page 749 1 put it into context of how it was used. 2 Q. It was a document that was in 3 Chevron's records, wasn't it? 4 A. Yes, sir, there is a CUSA Bates number 5 on it. 6 Q. Okay. And if we go to the second part 7 of the document, Section B, under, it says 8 Contents, and that's 73508. 9 Do you see that? 10 A. It looks -- 11 Q. Yeah, it just gives a summary, and it 12 mentions the topics that are going to be discussed 13 during this question and answer session. 14 And they're going to go through a 15 series of three separate meetings, one of which 16 was in Key Biscayne, Florida; and they were going 17 to include a series of questions and then use this 18 written documentation of what happened at the 19 meetings and the questions and answers as a 20 document to be sent out for informational purposes 21 to distributors. Was that your understanding? 22 A. Sir, I apologize, again, I don't 23 recall anything about the context of how this 24 document was used. 25 Q. Okay. Well, let's go to the very next
Page 748 1 A. Yes, sir. 2 Q. Then Japan, Thailand, UK, France, 3 Brazil, Australia, Colombia, Italy, Venezuela. 4 Do you know how many of those 5 countries no longer allow it to even be sold? 6 A. Sir, I believe France, but I would 7 need to double-check. 8 Q. Were you aware -- 9 A. I don't recognize -- 10 Sorry to interrupt. 11 Q. No, go ahead. Finish. 12 A. No, I'm done, sir. 13 Q. All right were you aware that seven -- 14 that in 70 countries it is no longer lawful to be 15 sold? 16 A. No, sir, I was not aware of that. 17 Q. Okay. Now, if we can, let's try to 18 describe the document. 19 This is a document that was used 20 as a presentation guide for three separate 21 meetings that ICI was conducting as a further 22 launch of its product sales in the Americas, 23 wasn't it? 24 A. Sir, I did review the document, but I 25 don't recall other documents referencing this to	Page 750 1 page. 2 And if you see there, you'll see 3 that there's question and answer sessions being 4 conducted by three people from ICI, a three-person 5 panel answering questions, a Mr. Mike Northcott, 6 Dr. Peter Slade, Dr. Bernard Hart, with occasional 7 comments from seminar delegates. Do you see that? 8 A. Yes, sir. 9 Q. And those topics range from all 10 different kinds of things. Toxicity testing, 11 dermal toxicity tests, permeability of the product 12 with surfactant, recommended and not recommended 13 uses, spray concentrations. 14 Do you see all of those things? 15 We'll go to the next page and let 16 you look. 17 Actually, let's go to B three. 18 Sorry. 19 Oh, there it is. Recommended and 20 not recommended use. 21 Do you see that? 22 A. Yes, sir. 23 Q. What would recommended use be? That 24 would be the label usages; right? 25 A. Yes, sir, that's my understanding.

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Page 751 1 Q. So let's read this together. And it 2 says: Question: You keep referring to normal use 3 situation. What is normal use, and how does it 4 differ from "recommended use"? 5 And the answer, it says: We have 6 a responsibility to ensure that our 7 recommendations for safe use are clearly put over 8 on our product labels and literature. However, we 9 have to acknowledge that users will not always 10 follow our recommendations. Misuse is a problem 11 for all products. 12 Do you see that? 13 A. Yes, sir. 14 Q. Okay. So ICI clearly drew a 15 distinction between recommended use and -- what 16 did they call it? Normal or -- normal use. In 17 other words, normal use being what they expected 18 the applicators to actually do. And they even 19 referenced the Malaysian studies, if you go down. 20 Do you see that? 21 They have not -- the spraymen in 22 the study we conducted in Malaysia may not always 23 have used recommended methods, but they're fine. 24 No problem. 25 That's what they told all of the	Page 753 1 products throughout the Americas. 2 MR. ORLET: Object to the form. 3 Q. (BY MR. TILLERY) Do you see that. 4 Is that a fair interpretation of 5 what they did? 6 A. Sir, yes, it appears that they are 7 distinguishing between the recommended use and 8 the -- what they qualify as a normal use, which 9 they try to describe in the subsequent paragraphs. 10 Q. That's right. Now, when Chevron got 11 this document, did it voice any objection to these 12 question and answers when they received this 13 document? 14 A. Sir, I don't recall seeing anything in 15 the documents that addressed this document. 16 Q. Okay. Let's move to the next exhibit. 17 No. 77, And that would be 348. 18 (Patterson Deposition Exhibit 77 19 be marked.) 20 THE WITNESS: Sir, it's loaded. 21 Q. (BY MR. TILLERY) Okay. Would you 22 take a look at this document? 23 This is CUSA 00073980 through 24 73987. 25 A. Sir, would you like me to review all
Page 752 1 distributors in not only the United States but 2 throughout the entire Americas in these meetings; 3 correct? 4 MR. ORLET: Object to the form. 5 THE WITNESS: Sir, I would have to 6 rely on, I mean, this document speaking for itself 7 on what they told distributors, since it's 8 a [crosstalk] document. 9 Q. (BY MR. TILLERY) Let's say they did 10 exactly what I said. That's what they would have 11 been telling them, wouldn't it? 12 Right? 13 MR. ORLET: Object to the form. 14 Q. (BY MR. TILLERY) Let's say they 15 followed this document. Then what I said would be 16 accurate, wouldn't it, sir? 17 A. Sir, to clarify, you're referring to 18 the conditions in the Malaysia study as being 19 normal use? 20 Q. I'm relying on my question, whatever I 21 asked you, and that is this: That ICI was making 22 a clear distinction between normal use and 23 recommended use in their question and answer 24 session to all of the distributors in three 25 separate meetings that they used to launch their	Page 754 1 eight pages now? 2 Q. Yes, if you wouldn't mind. Just 3 familiarize yourself with it. 4 [Document review.] 5 A. Sir, I skimmed through the document. 6 Q. Okay. Now, in June of 1983, there was 7 an article on paraquat by Andrew Revkin in Science 8 Digest, apparently; right? 9 A. Yes, sir, that's my understanding. 10 Q. All right. From looking at this. So 11 this is a document produced from your files. And 12 if you look at -- I don't know if the first page 13 is -- if we look at the first page and the number. 14 Pull the first page up, please. 15 This is an article -- it's 16 referencing an article on paraquat by Andrew 17 Revkin in Science Digest, June 1983, Commentary 18 and Rebuttal (Revised version). 19 Okay? Do you see that? 20 A. Yes, sir. 21 Q. Now, what I'm trying to do is get the 22 context of this as to who at Chevron created this 23 document. 24 MR. ORLET: Object to form. 25 Q. (BY MR. TILLERY) Because if you look

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1 at the very back page, it says PS/WM 2/6/83. If 2 we can pull that up. 3 The very last page. Do you see 4 that reference? There is no signature on it. 5 This is how it was produced to us. PS/WM. 6 Who is that? 7 A. Sir, I don't know. 8 Q. You've read this before, haven't you? 9 A. Sir, I've come across the Revkin 10 article and a rebuttal in our documents. 11 Q. And the rebuttal -- 12 A. But I don't recall -- 13 Q. Sorry. 14 A. Apologize. 15 I don't recall the context of who 16 wrote this letter. 17 Q. And the rebuttal was intended to 18 address the claims and statements in the Science 19 Digest article, wasn't it? 20 A. Yes, sir. 21 Q. So when that article was published, 22 this response came, and it's -- this is called a 23 revised version. If we go to the first page, it 24 says: The article conveys -- at the very 25 beginning, Commentary and Rebuttal (Revised	1 detailed rebuttal refer to numbers added to the 2 margins of the attached copy of the article. 3 Okay? 4 A. Yes, sir. 5 Q. All right. Now, let's go over to 6 page 2 of the rebuttal comments. Paragraph D, 7 okay? 8 And it says, the article implies 9 that in many places -- and then it says, 4, 8, 11, 10 12, 22, 30, 33, 38, 40, 42, 43, 45, 47 -- that 11 paraquat is dangerous and can be fatal following 12 normal use of the product. In fact, it is our 13 position that no deaths or severe injuries have 14 resulted from the normal use of product -- of 15 paraquat. There is published evidence that 16 prolonged exposure to the product, even under 17 extreme use conditions, does not damage health. 18 For example, excellent evidence comes from the 19 epidemiological study carried out in Malaysia with 20 spray-workers who had used the product intensively 21 for long periods and suffered no health effects -- 22 no adverse health effects. 23 Is that what it says? 24 A. Yes, sir, it is. 25 Q. All right. Let's skip forward, if we
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1 version). 2 This article conveys a completely 3 wrong impression of the hazards of paraquat when 4 it is properly used and also contains a number of 5 errors of fact; right? 6 A. Yes, sir. 7 Q. It says: The treatment is 8 sensational, of course, and some of the 9 expressions, quote, The deadly cover-up, end 10 quote, (on the magazine cover); A hitherto untold 11 story of vast proportions, end quote; "A bitter 12 harvest of unforeseen hazards," bear no relation 13 to the facts; right? 14 A. Yes, sir, that's what this document 15 states. 16 Q. It says: However the article is not 17 so inaccurate that it can be refuted in its 18 entirety and Revkin is careful to quote the views 19 of "experts" in several places. It is essential 20 in response to questions to emphasise that 21 paraquat has been applied safely for many years by 22 millions... 23 So the following is a point by 24 point commentary beginning with some general 25 points. The numbers in parentheses and in the	1 can, and go to the point by point -- the actual 2 rebuttal that was settled on. 3 And this was on page 4. And that 4 would be 3983. 5 Do you see No. 1? 6 A. Yes, sir. 7 Q. Chevron wrote: Paraquat is not 8 retained in the body in the manner described. 9 Okay? 10 Then if we go to 4. This implies, 11 wrongly, that the product is dangerous when 12 sprayed. 13 Let's go to 12 at the bottom. 14 There is no evidence that paraquat poses a hazard 15 to the long-term health of users. The medical and 16 scientific evidence shows quite the reverse, ie 17 there is no long-term hazard. 18 Do you see that? 19 A. Yes, sir. 20 Q. Okay. Did you have scientific support 21 for that statement when that was made at Chevron? 22 A. Sir, related to this document, again I 23 would need to confirm that it was Chevron that was 24 writing this. 25 Q. Well, it's in your files; it's

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Page 759 1 directly responsive, bears a CUSA number. Are you 2 saying now that this document somehow magically 3 was put in there by somebody else? 4 MR. ORLET: Objection. 5 THE WITNESS: No, sir. 6 Q. (BY MR. TILLERY) All right. Did you 7 have scientific evidence to support No. 12? 8 A. Sir, I recall that this was around the 9 time frame of 1983, and I believe there were 10 multiple chronic studies that had been conducted 11 and completed near this time. And so we would 12 have used those studies to support that statement. 13 Q. Which studies -- 14 A. And so -- 15 Q. I'm sorry, finish? 16 A. I'm sorry. And so the studies that 17 were conducted in response to the RPAR. 18 Q. Can you be more specific as to which 19 ones you're referring to? 20 A. Sir, I believe there was a chronic dog 21 study, and also a rat carcinogenicity study, a 22 lifetime study, and then I believe there were also 23 possibly a mouse carcinogenicity study, but there 24 were multiple animal studies that were conducted 25 around this time in addition to, as this document	Page 761 1 product has not been diluted as recommended before 2 being sprayed. 3 Was that a correct statement at 4 the time, sir? 5 [Document review.] 6 A. Sir, I don't know, it's a very general 7 statement. 8 Q. Well, just tell me if you agree with 9 that statement. Is it okay for people using 10 paraquat to walk bare foot in freshly-sprayed 11 fields? 12 A. No, sir, that's not recommended. 13 Q. That would be a bad idea, wouldn't it? 14 MR. ORLET: Object to the form. 15 THE WITNESS: It wouldn't be 16 something that we would recommend. 17 Q. (BY MR. TILLERY) Right. Now let's go 18 to No. 25 on the next page. 19 Do you see 25? 20 A. Yes, sir. 21 Q. Inhalation of paraquat or its 22 absorption through the skin do not occur to any 23 significant or dangerous extent during normal use 24 of the product. 25 Is that something you agree with?
Page 760 1 states, the Malaysian epidemiology study. 2 Q. So that's what you were relying on 3 when you wrote No. 12; right? 4 MR. ORLET: Object to the form. 5 THE WITNESS: Sir, assuming that 6 this was written by Chevron, you know, there were 7 multiple pieces of evidence at this time, data and 8 information that we were relying on. 9 THE VIDEOGRAPHER: It seems like 10 we lost him. I don't know if we want to go off 11 the record until he reconnects? 12 (Discussion off the record) 13 THE VIDEOGRAPHER: We are going 14 off the record at 3:28 p.m. Pacific. 15 (Recess taken, 3:28 p.m. to 16 3:29 p.m. PDT) 17 THE VIDEOGRAPHER: We are back on 18 the record at 3:29 Pacific. 19 Q. (BY MR. TILLERY) Let's go to No. 15 20 on the following page. 21 Do you see that? 22 A. Yes, sir. 23 Q. Walking barefoot through 24 freshly-sprayed fields should not be harmful, 25 unless the skin is already badly damaged, or the	Page 762 1 A. Sir, again, it's a very general 2 description. I don't believe it's complete enough 3 to agree with or not. 4 Q. So you don't have an opinion on that 5 one, right? 6 A. No, sir, I don't. It's not a complete 7 portrayal of multiple variables that could occur 8 with inhalation or absorption through the skin. 9 Q. Okay. Let's go to 30 on this same 10 page. 11 There is no hazard from spraying 12 paraquat diluted according to label directions. 13 Do you agree with that statement? 14 A. No, sir. 15 Q. Why don't you agree with it? 16 A. Sir, it's a general statement, with 17 the hazard. In a blanket, no hazard I think is an 18 oversimplification of perhaps what this person is 19 trying to say, but I would need to understand what 20 line 30 was in the original Revkin document to 21 really understand the context of this. 22 But if I assumed that hazard could 23 mean potentially respiratory irritation or 24 something along those lines, then I wouldn't be 25 able to agree to that statement as written.

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Page 763 1 Q. All right. Then let's go to 40 on the 2 next page. 3 And it reads: There is no 4 evidence for adverse effects on health from 5 paraquat spraying. Millions of farmers around the 6 world use the product; we do not hear of problems 7 of this kind. 8 Do you agree with that? 9 A. No, sir. 10 Q. Okay. Well, let's take a break. I'm 11 about to start a new area, so let's take a break 12 here. 13 THE VIDEOGRAPHER: We are going 14 off the record at 3:36 p.m. Pacific standard. 15 (Recess taken, 3:36 p.m. to 16 3:54 p.m. PDT) 17 THE VIDEOGRAPHER: We are back on 18 the record at 3:54 p.m. Pacific Standard Time. 19 MR. TILLERY: The deposition, sir, 20 is concluded for today. And it's going to a 21 suspended state where we hope to finish it later 22 this summer at an agreed date that Mr. Orlet and I 23 have already talked about, a range of dates, and 24 I'm sure he's already cleared those dates with 25 you. So we'll resume at a later time. Thank you.	Page 765 1 C E R T I F I C A T E 2 3 I, DEBRA A. DIBBLE, RDR, CRR, Notary 4 Public, do hereby certify: 5 That TIMOTHY PATTERSON, the witness 6 whose deposition is hereinbefore set forth, was 7 duly sworn by me and that such deposition is a 8 true record of the testimony given by such 9 witness; 10 That pursuant to FRCP Rule 30, signature of 11 the witness was not requested by the witness or 12 other party before the conclusion of the 13 deposition; 14 I further certify that I am not related to 15 any of the parties to this action by blood or 16 marriage, and that I am in no way interested in 17 the outcome of this matter. 18 IN WITNESS WHEREOF, I have hereunto set my 19 hand on 7-2-2020. 20 21 22 23 Debra A. Dibble 24 Registered Diplomat Reporter 25 Certified Realtime Reporter Notary Public My Commission Expires 5/3/2023
Page 764 1 THE WITNESS: Thank you, sir. 2 THE VIDEOGRAPHER: Are we good to 3 conclude the deposition? 4 MR. TILLERY: Correct. 5 THE VIDEOGRAPHER: This 6 concludes -- 7 MR. TILLERY: It's being 8 suspended, not concluded. 9 THE VIDEOGRAPHER: This concludes 10 this volume of today's deposition of Tim 11 Patterson. We are going off the record at 12 3:55 p.m. Pacific Standard Time. 13 (Time noted: 4:03 p.m. PDT) 14 --o0o-- 15 16 17 18 19 20 21 22 23 24 25	Page 766 1 I HEREBY CERTIFY that I have read 2 this transcript of my deposition, and that 3 this transcript accurately states the testimony 4 given by me, with the changes or corrections, if 5 any, as noted. 6 7 8 9 10 X _____ 11 TIMOTHY PATTERSON 12 13 14 15 16 17 18 19 20 21 22 23 24 25

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1 ERRATA SHEET FOR THE TRANSCRIPT OF:
2 CASE NAME: Hoffmann v. Syngenta
3 DEP DATE: June 25, 2020
4 DEPONENT: TIMOTHY PATTERSON
5 Pg. Ln. Now Reads Should Read Reason
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