MISSOURI CIRCUIT COURT
TWENTY-FIRST JUDICIAL CIRCUIT
ST. LOUIS COUNTY

EDWARD COLELLA,)
Plaintiff,)
vs.) Cause No. 09SL-CC01972
) Division No. 7
MONSANTO CO., ET AL.,) NOTICE OF DEPOSITION
Defendants.)

MISSOURI CIRCUIT COURT
TWENTY-FIRST JUDICIAL CIRCUIT
ST. LOUIS COUNTY

LIVINGSTON HAMPTON, MAGGIE)
MOOYMAN, and RUSSELL ABBER,)
Plaintiffs,)
vs.) Cause No. 10SL-CC03428
) Division 17
MONSANTO CO., ET AL.,)
Defendants.)

MISSOURI CIRCUIT COURT
TWENTY-FIRST JUDICIAL CIRCUIT
ST. LOUIS COUNTY

NISHIDA, NICHOLAS WHITE,)
INDIVIDUALLY AND AS SURVIVOR OF)
MARK WHITE, DECEASED, AND)
ALISON TUCKER,)
Plaintiffs,)
vs.) Cause No. 09SL-CC01964
) Division No. 13
MONSANTO CO., ET AL.,) NOTICE OF DEPOSITION
Defendants.)

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MISSOURI

LIVINGSTON HAMPTON, MAGGIE)
MOOYMAN, and RUSSELL ABBER,)
)
Plaintiffs,)
)
vs.)Cause No. 4-11-CV-01662
)
MONSANTO CO., SOLUTIA, INC.,)
PHARMACIA CORP., AND PFIZER,)
INC.,)
)
Defendants.)

THE VIDEOTAPED DEPOSITION OF DR. ROBERT KALEY
CORPORATE REPRESENTATIVE OF MONSANTO COMPANY
VOLUME I

Taken on behalf of Plaintiffs
November 17, 2011

Dawn M. Bloemker, CSR, CCR, RPR
CSR License No. 084-004554
CCR License No. 1039

INDEX OF EXAMINATION

WITNESS: DR. ROBERT KALEY
.....11

INDEX OF EXHIBITS

Plaintiffs' Exhibit 1 34
Deposition Notice in the Nishida, Nicholas White, Individually and as Survivor of Mark White, Deceased, and Alison Tucker vs. Monsanto Co., et al., Matter
Plaintiffs' Exhibit 2 34
Deposition Notice in the Edward Colella vs. Monsanto Co., et al., Matter
Plaintiffs' Exhibit 3 34
Deposition Notice in the Livingston Hampton, Maggie Mooyman, and Russell Abber vs. Monsanto Co., et al., Matter
Plaintiffs' Exhibit 4 66
Santobane (DDT)
Plaintiffs' Exhibit 5 67
Polychlorinated Biphenyls Document
Plaintiffs' Exhibit 6 69
Chart
Plaintiffs' Exhibit 7 93
June 5, 1975, Letter from W.B. Papageorge to Robert Emmett
Plaintiffs' Exhibit 8 95
October 5, 1973, Document from A.J. Koenig to H.S. Bergen, Regarding PCB/PCT Replacement Business 1969 vs. 1973 on Reformulated Basis

Plaintiffs' Exhibit 9 101
Document Entitled "Liquid Dielectrics and Aroclor, a Market Survey"
Plaintiffs' Exhibit 10 106
Polychlorinated Biphenyls Document
Plaintiffs' Exhibit 11 117
Monsanto Chemicals of the Swann Products Division, Dated 1935
Plaintiffs' Exhibit 12 117
General Bulletin, 4/20/33, from Edgar Queeny
Plaintiffs' Exhibit 13 117
June 6, 1933, Document from Edgar Queeny to the Federal Trade Commission
Plaintiffs' Exhibit 14 117
Document Entitled "Faith, Hope, and $5,000" by Dan J. Forrestal
Plaintiffs' Exhibit 15 143
July 18, 1973, Memo from W.B. Papageorge
Plaintiffs' Exhibit 16 143
June 5, 1975, Memo from W.B. Papageorge to Robert A. Emmett, EPA
Plaintiffs' Exhibit 17 143
October 5, 1973, Document to H.S. Bergen from A.J. Koenig
Plaintiffs' Exhibit 18 154
February 25, 1976, Final Report, PCBs in the United States Industrial Use and Environmental Distribution, Task 1
Plaintiffs' Exhibit 19 154
May 1972 Document Entitled "Polychlorinated Biphenyl in the Environment"

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000182

5

Plaintiffs' Exhibit 20 191
Document Regarding Available Information on Biological and Environmental Reports and Studies Relating to PCBs and PCB-Containing Products

Plaintiffs' Exhibit 21 195
Cancer Index Documents that Monsanto Lawyers Gave to Dr. Kaley after he Requested Cancer Surveillance Records

Plaintiffs' Exhibit 22 219
December 27, 1966, Letter from P.G. Benignus to Bruce Bradbeer

Plaintiffs' Exhibit 23 219
February 27, 1967, Letter to Dr. Thomas from Dr. Kelly

Plaintiffs' Exhibit 24 219
November 11, 1970, Document Regarding Sales Information Bulletin No. 38, Leakage and Disposal Bulletin -- Therminol FR Fluids

Plaintiffs' Exhibit 25 225
Binder: Monsanto Customer Letters, William Papageorge, Deposition Exhibits 1 of 5

Plaintiffs' Exhibit 26 225
Binder: Monsanto Customer Letters, William Papageorge, Deposition Exhibits 2 of 5

Plaintiffs' Exhibit 27 225
Binder: Monsanto Customer Letters, William Papageorge, Deposition Exhibits 3 of 5

Plaintiffs' Exhibit 28 225
Binder: Monsanto Customer Letters, William Papageorge, Deposition Exhibits 4 of 5

6

Plaintiffs' Exhibit 29 225
Binder: Monsanto Customer Letters, William Papageorge, Deposition Exhibits 5 of 5

Plaintiffs' Exhibit 30 239
December 1, 1966, Holders of the Management Guide Document

Plaintiffs' Exhibit 31 239
October 20, 1969, Document

The original Plaintiffs' Exhibits 1 through 31 were retained by the court reporter to be attached to Mr. Stewart's transcript.

7

MISSOURI CIRCUIT COURT
TWENTY-FIRST JUDICIAL CIRCUIT
ST. LOUIS COUNTY

EDWARD COLELLA,)
)
Plaintiff,)
)
vs.) Cause No. 09SL-CC01972
) Division No. 7
MONSANTO CO., ET AL.,)
) NOTICE OF DEPOSITION
Defendants.)

MISSOURI CIRCUIT COURT
TWENTY-FIRST JUDICIAL CIRCUIT
ST. LOUIS COUNTY

LIVINGSTON HAMPTON, MAGGIE)
MOOYMAN, and RUSSELL ABBER,)
)
Plaintiffs,)
)
vs.) Cause No. 10SL-CC03428
) Division 17
MONSANTO CO., ET AL.,)
)
Defendants.)

MISSOURI CIRCUIT COURT
TWENTY-FIRST JUDICIAL CIRCUIT
ST. LOUIS COUNTY

NISHIDA, NICHOLAS WHITE,)
INDIVIDUALLY AND AS SURVIVOR OF)
MARK WHITE, DECEASED, AND)
ALISON TUCKER,)
)
Plaintiffs,)
)
vs.) Cause No. 09SL-CC01964
) Division No. 13
MONSANTO CO., ET AL.,)
) NOTICE OF DEPOSITION
Defendants.)

8

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MISSOURI

LIVINGSTON HAMPTON, MAGGIE)
MOOYMAN, and RUSSELL ABBER,)
)
Plaintiffs,)
)
vs.)Cause No. 4-11-CV-01662
)
MONSANTO CO., SOLUTIA, INC.,)
PHARMACIA CORP., AND PFIZER,)
INC.,)
)
Defendants.)

THE VIDEOTAPED DEPOSITION OF DR. ROBERT KALEY, VOLUME I, produced, sworn, and examined on behalf of the Plaintiffs, November 17, 2011, between the hours of 9:14 a.m. and 4:32 p.m. on that day, at the law offices of Husch Blackwell, LLP, 190 Carondelet Plaza, Suite 600, St. Louis, Missouri 63105, before Dawn M. Bloemker, Illinois Certified Shorthand Reporter, Missouri Certified Court Reporter, and Registered Professional Reporter.

A P P E A R A N C E S

The Plaintiffs, Edward Colella, et al., were represented by Mr. Allen M. Stewart of the law firm of Allen Stewart, P.C., 325 N. St. Paul Street, Suite 2750, Dallas, Texas 75201.

The Defendants, were represented by Mr. Adam E. Miller of the law firm of Husch Blackwell, LLP, 190 Carondelet Plaza, Suite 600, St. Louis, Missouri 63105.

The Defendants were also represented by Ms. Carol A. Rutter of the law firm of Husch Blackwell, LLP, 190 Carondelet Plaza, Suite 600, St. Louis, Missouri 63105.

Also Present: Mr. Jesse Harness, Videographer representing U.S. Legal Support, Inc., 5910 N. Central Expressway, Suite 100, Dallas, Texas 75206.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000183

9

IT IS HEREBY STIPULATED AND AGREED by and between counsel for the Plaintiffs and counsel for the Defendants that the deposition of DR. ROBERT KALEY may be taken in shorthand by Dawn M. Bloemker, a Certified Court Reporter, and afterwards transcribed into typewriting, and the signature of the witness is undetermined until the completion of the entire deposition by agreement of counsel and the witness.

* * * * *

THE VIDEOGRAPHER: We are on the record at 9:14 a.m. This is the videotaped deposition of Robert Kaley in the matter of Edward Colella vs. Monsanto Company and Nishida White vs. Monsanto Company, et al. Cause No. 09SL-CC01972 and 09SL-CC01964.

This deposition is being held at the offices of Husch Blackwell Sanders, LLP.

Will Counsel please state their name for the record.

MR. STEWART: I will. My name is Al Stewart for the plaintiffs. I would just like to note the defendant in the other matter as well which is the Hampton matter which you didn't read off.

THE VIDEOGRAPHER: Sorry.

MR. STEWART: If you want me to read it off, I'm happy to.

10

THE VIDEOGRAPHER: That would be great.

MR. STEWART: It's Hampton, et al., vs. Monsanto, et al., and that cause number is 10SL-CC03428.

THE VIDEOGRAPHER: Thank you very much.

MR. MILLER: My name is Adam Miller. I'm here today on behalf of the defendants.

MS. RUTTER: My name is Carol Rutter. I'm here today on behalf of the defendants as well.

THE VIDEOGRAPHER: Will the reporter please swear in the witness.

* * * * *

DR. ROBERT KALEY,

of lawful age, being produced, sworn, and examined on the part of the Plaintiffs, and after responding "Yes" to the oath administered by the court reporter, deposes and says:

* * *

MR. MILLER: Mr. Stewart, before we proceed with your questions, I have a note about the notices that were served to Pharmacia in connection with Dr. Kaley's 57.03(b)(4) deposition. Your notices, particularly on page 3, request that Pharmacia produce various receipts or documents, evidence in payments received from Monsanto or their attorneys to or from

11

Dr. Kaley.

We have previously responded to a discovery request propounded by the plaintiffs in these cases for these materials to which the defendants have lodged an objection based on the client-consultant privilege, and for that reason, we are not bringing those materials today.

In addition, your notice which was issued on November 4, 2011, was the first time in connection with these depositions that that request was made. Pursuant to Missouri Rules, the time to file a substantive objection to the production of those materials has not yet passed.

Subject to that, please proceed.

MR. STEWART: Okay. Thank you for telling me that.

EXAMINATION

BY MR. STEWART

Q. Can you please tell us your name.

A. Robert George Kaley, II.

Q. Mr. Kaley, do you understand that you are here as a corporate representative for Pharmacia today?

A. I do.

Q. Do you understand that you are here in that

12

capacity because of Pharmacia's relationship with Monsanto?

MR. MILLER: Let me object to the form of the question.

A. I'm not sure what you mean.

Q. (By Mr. Stewart) Why do you think you're here today on behalf of Pharmacia?

A. Because Pharmacia is -- my understanding is, basically, the Old Monsanto which was the manufacturer of PCBs.

Q. Okay. And in connection with that, can we have the understanding when I say Monsanto throughout the day that we are talking about the entity that made PCBs from the '30s to the '70s?

A. Yes.

Q. Mr. Kaley, what currently is your relationship with Pharmacia?

A. I'm an independent consultant and Pharmacia is a client.

Q. Are you a pensioner?

A. Not from Pharmacia, no.

Q. Who are you a pensioner of?

A. Well, I retired from Solutia. I don't receive a pension from them, but I did receive a payout. Lump sum payout.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000184

13

Q. Okay. And so you retired from Solutia. What's Solutia's relationship with Monsanto?

MR. MILLER: Let me first object to the form of the question. May call for a legal conclusion. To the extent you have a lay understanding, you may proceed.

A. Solutia was -- Solutia was the former chemical businesses of Monsanto -- on Old Monsanto Company which were spun off in 1997 as a separate corporation.

Q. (By Mr. Stewart) When did you first begin working for Monsanto?

A. December of 1973.

Q. When did you stop working for Monsanto or a Monsanto-related entity such as Solutia?

A. I retired from Solutia, I believe it was, August of 2003.

Q. So how long continuously did you work for a Monsanto-related entity?

A. Nearly 30 years.

Q. Now, you said you retired from Solutia, and you got a lump sum payout. What does that mean?

A. Well, when we retire, we can either elect to have a, whatever you call it, where you get paid a monthly stipend, or you could take whatever moneys had

14

accumulated in your retirement fund and take a lump sum.

Q. Okay. And how much did you take?

A. I don't have any idea. I don't remember. I'm not -- I really don't. It was in excess of a million dollars, but I don't remember what it was specifically.

Q. When you say it was in excess of a million dollars, are you saying you can't say whether it was $2 million or $3 million? You just don't remember?

A. I don't remember.

Q. So it could have been $3 million, and you wouldn't remember that?

A. I'm sure it wasn't that much.

Q. Okay. So give me your best estimate of what it was?

A. One to two. I don't -- my best estimate is one to two.

Q. So it might have been a million dollars, and it might have been $2 million?

MR. MILLER: Object to the form.

A. As I recall. The problem was is I had a 401K plan and any number of -- well, not any number. A 401K plan, and that was included, and I don't

15

remember which was pension and which was 401K, nor do I remember the number either individually or sum.

Q. (By Mr. Stewart) Again, so my question was, it could have been a million dollars; it could have been $2 million; you don't remember?

A. That's correct.

Q. Are you currently paid by a Monsanto-related entity?

A. I'm a consultant to Pharmacia.

Q. How long have you been a consultant to Pharmacia?

A. Since my retirement.

Q. The entire time?

A. Yes.

Q. How much are -- well, so that is from 2003?

A. Yes.

Q. Okay.

A. I would correct that. I -- I'm not sure. I think the New Monsanto is actually the ultimate payee of my consulting fees. Probably not Pharmacia, probably the New Monsanto.

Q. And in 2003, how were you paid by a Monsanto-related entity for being a consultant?

A. I was paid on a monthly retainer.

Q. How much was that?

16

A. $13,500.

Q. So in 2003 you made $13,500 a month?

A. Yes.

Q. Each and every month?

A. Yes.

Q. From a Monsanto-related entity?

A. Yes.

Q. Why were they paying you that money?

A. Because I was performing consulting services for them.

Q. Like what?

MR. MILLER: Object to the form. The scope of the specifics of his engagement is privileged. It's protected by a consultant-client privilege. So I'm going to instruct him not to answer with respect to specific activities he's been asked to consult on.

Q. (By Mr. Stewart) You can answer my question, sir. You understand you're here as a corporate representative of Pharmacia; correct?

A. Yes.

Q. Do you understand that the jury is entitled to know what your -- what your bias and prejudices are? Do you understand that?

A. I suppose I do, yes.

Q. Don't you think a jury is entitled to know

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000185

17

what you've been doing for these companies for -- since 2003?
MR. MILLER: Object to the form of the question.
Q. (By Mr. Stewart) You can answer.
MR. MILLER: You're asking him to -- I'm going to object to the form of the question. I'm going to object on the basis of attorney-client privilege and a client-consultant privilege as to the specific nature of the consultant-related activities in which Dr. Kaley has been engaged since 2003. That's protected and privileged.
Q. (By Mr. Stewart) My question to you, sir, is don't you think a jury is entitled to know what you've been doing for these companies since 2003?
MR. MILLER: Let me object to the form again. What you're asking him is to speculate as to what a jury would be interested in as opposed to what they're entitled to hear as a matter of law.
Q. (By Mr. Stewart) You can answer me.
A. Well, that was basically going to be my answer. I don't know what a jury is entitled to hear versus anything else.
Q. I didn't ask about what a jury was entitled to hear. I asked you if you think a jury would want

18

to know what you had been doing for these companies since 2003?
MR. MILLER: Object to the form.
A. I can't speculate as to what a jury would be interested in knowing.
Q. (By Mr. Stewart) All right. So what you're telling me is what you've been doing for these companies since 2003 is a secret?
MR. MILLER: Object to the form of the question. It's protected by privilege.
Q. (By Mr. Stewart) I'm asking you, is it a secret?
A. It's not a secret. My understanding is that because I'm working under the direction of attorneys representing Monsanto, that it's protected by whatever privilege accrues to that.
Q. Does it have anything to do with PCB?
A. Yes.
Q. Isn't this case about PCBs?
A. Yes.
Q. So what I understand today is you're not -- you haven't come here today to tell us everything you know about PCBs; right?
A. I'm here as a corporate representative, not as Robert Kaley.

19

Q. Yes. So some of the things that you know about PCBs you believe are secret; correct?
A. No. They're not secret.
Q. Okay. Then why can't you tell me about them?
MR. MILLER: Let me object to the form of the question again. You're asking to have Dr. Kaley reveal the specifics of his consulting with these entities with respect to matters that may or may not relate to PCBs. They may or may not relate to other matters.
MR. STEWART: This is the man you've chosen to be your corporate representative; true?
MR. MILLER: I'm not here to answer questions, Mr. Stewart.
Q. (By Mr. Stewart) Isn't that your understanding of why you're here today, Mr. Kaley?
A. Yes.
MR. MILLER: Dr. Kaley is here to respond to various aspects of your deposition notices that you have issued in connection with these cases. He's not here to testify about what consulting he has done on behalf of Monsanto between 2003 and today's date.
Q. (By Mr. Stewart) So there are things that you've done for Monsanto-related entities since 2003

20

that you can't answer questions about; correct?
A. I understand that I did not have to answer questions about my specific activities as a consultant to Monsanto.
Q. All right. So we were talking about 2003, and you were getting $13,500 a month for these activities that you were doing with Monsanto-related entities; correct?
A. Yes.
Q. Some of which you can't reveal to me; correct?
A. I've been instructed not to, yes.
Q. Uh-huh. And so for the entire time of the year 2003, Monsanto-related entities were paying you $13,500 a month; correct?
A. No.
Q. Okay. What portion of the year 2003 were Monsanto-related entities paying you $13,500 a month?
A. After I retired in August of that year.
Q. Okay. So from September of 2003 to the end of December 2003, you received $13,500 a month from Monsanto-related entities for consulting activities; correct?
A. Yes.
Q. Tell me about the year 2004. How much money

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000186

21

did you receive from Monsanto-related entities in the year of 2004?
A. $13,500 a month.
Q. Each and every month in the year 2004?
A. Yes.
Q. Now, in the year 2005, how much money did you receive from Monsanto-related entities in that year?
A. I believe it was the same. Somewhere in the 2005-2006 time frame, my consulting fee was raised to $15,000 a month. I don't remember the exact date.
Q. So conservatively, in the year 2005, you made $13,500 a month each and every month in that year from Monsanto-related entities; correct?
A. Yes.
Q. And if I understand you, in the year 2006, you believe that amount was raised to $15,000 a month; correct?
A. Sometime in that time frame, yes.
Q. All right. And that was each and every month in the year 2006; correct?
A. Yes.
Q. Sir, during this period of time -- let's go back to 2003 in these months that you were receiving $13,500 a month -- how much time were you spending

22

working for Monsanto-related entities?
A. I would guess over the time of my consulting arrangement, I had been working four to five hours a day. Some more, sometimes less.
Q. Well, if I understand what you just told me, that sounds like about 20, 25 hours a week?
A. That's a guess. I don't really know. Something like that -- something like that, yes.
Q. Well, I -- I need to know as specifically as you can make it.
A. I don't have any idea how even to give you a better answer than four to five, four to six hours a day most days of each month.
Q. Well, there's 30 days in a month. Are you talking about most business days in a month?
A. Yes, sir.
Q. All right. And that's why I had asked you earlier. It sounds like your best estimate of the amount of time you have spent month over month working for Monsanto-related entities since the year 2003 is approximately 20 to 25 hours a month; is that about right?
A. No.
Q. Okay. What part did I get wrong?
A. Well, if I'm working four hours a day,

23

20 hours a month, that's -- only means I only worked five days.
Q. I'm sorry. I misspoke. Thank you. Let me rephrase that. If I understand your testimony correctly, you're working 20 to 25 hours a week during the time period from 2003 when you became a consultant until the present; correct?
A. I would say that's a fair estimate, yes.
Q. So in 2006 -- we stopped in 2006. In 2007 how much money were you paid by Monsanto-related entities?
A. $15,000 a month.
Q. How about 2008? How much were you paid in 2008?
A. $15,000 a month.
Q. In 2009, what were you paid?
A. $15,000 a month.
Q. In 2010, what were you paid?
A. $15,000 a month.
Q. And in 2011 what have you been paid?
A. $15,000 a month.
Q. Besides Monsanto-related entities, who else do you consult for?
A. I have consulted for other companies.
Q. Like whom?

24

MR. MILLER: Let me object to the form of the question. You can answer, Dr. Kaley. To the extent you've got consulting arrangements with other entities, you may or may not wish to reveal the nature of that consulting. That's a protection of privilege that you and your clients have.
THE WITNESS: Okay.
Q. (By Mr. Stewart) You can answer my question.
A. I've consulted for Boeing Corporation. I've consulted for Northrop Grumman and others where I would say -- in those, my -- I've given depositions or something, so they're public, and the other ones I don't know whether I could reveal the clients' names or not.
Q. And did your consultancy with other companies -- or has your consultancy of other companies involve PCBs?
A. Yes.
Q. Any other topic besides PCBs?
A. I don't believe so.
Q. Have you acted as a corporate representative for a Monsanto-related entity before?
A. Yes.
Q. When was that?
A. There have been several occasions.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000187

25

Q. In litigation?
A. Yes.
Q. How many depositions have you given?
MR. MILLER: I'm sorry. Let me object to the form. Do you mean in the context of a corporate representative deposition or in total?
MR. STEWART: No. I mean total.
Q. (By Mr. Stewart) How many have you given?
A. I would say somewhere in the order of a dozen, maybe more. 10 to 20.
Q. And how many of those was a corporate representative of a Monsanto-related entity?
A. I don't really recall. Fewer than a quarter of them probably. I would say three or four maybe
Q. You wrote an article called "Application of Polychlorinated Biphenyls"; true?
A. I did.
Q. And when you wrote that article, it looked like it was published September 2010; correct?
A. Yes.
Q. In this article, you have an acknowledgment that says "Both authors" -- you're one of the authors; true?
A. Yes.
Q. "Both authors have consulted for and/or have

26

testified on behalf of various parties in regulatory or litigation matters in which PCBs were at issue." Right?
A. Yes.
Q. When you wrote this -- when this was published, September 2010, you were getting checks from Monsanto-related entities; yes?
A. I was consultant for Monsanto during the time I wrote that paper, yes.
Q. Well, I mean, you were getting a monthly check?
A. Yes.
Q. And you got one before you wrote the paper?
A. Yes.
Q. Got one after you wrote the paper?
A. Yes.
Q. Got one while the paper was in the process of being published?
A. Yes. But not for the paper.
Q. You didn't get paid for the paper?
A. No.
Q. But you were on the payroll?
MR. MILLER: Object to the form of the question.
A. I'm not on the payroll. I'm a consultant.

27

Q. (By Mr. Stewart) Haven't you since 2003 gotten paid each and every month a set sum from a Monsanto-related entity?
A. For my consulting services, yes.
Q. You expect to get a check every month; right?
A. For my consulting services, as long as I'm consulting, I do. Yes.
Q. And it doesn't matter how many hours a month that you work: Right? You get a set amount?
A. That's correct.
Q. Okay. Did you tell the folks at this publication that?
A. Did I tell them? What?
Q. Yes.
A. I'm sorry.
Q. Did you tell them that you get a monthly check from Monsanto or Monsanto-related entities?
A. I told them I receive compensation for consulting activities.
Q. No. You put it in the past tense. Both authors have consulted for and/or have testified on behalf of various parties in regulatory or litigation matters in which PCBs were at issue. That's what you said; right?

28

A. Yes.
Q. That's the past tense; correct?
A. At the time the paper was published, it was in the past tense.
Q. Well, another way to say that would have been that Robert Kaley, II, continually receives payments for Monsanto-related entities each and every month; right?
A. I suppose you could have said that if you like that wording better.
Q. Wouldn't that have been more accurate?
A. No.
MR. MILLER: Object to the form.
Q. (By Mr. Stewart) That wouldn't have been more accurate?
A. No.
Q. Do you think the folks who read this publication have any idea that you've been receiving systematic monthly payments for Monsanto-related entities for the past eight years?
MR. MILLER: Objection to the form.
A. I have no idea.
Q. (By Mr. Stewart) Why might they want to know that, sir?
MR. MILLER: Object to the form. Calls for

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000188

29

speculation.
A. I don't know that they would want to know it.
Q. (By Mr. Stewart) You can't think of any reason why people who would be reading this article would be interested in knowing that you had received monthly systematic payments for Monsanto for the past eight years?
MR. MILLER: Object to the form.
A. No. There's nothing in that article that anyone can't go to the literature and find.
Q. (By Mr. Stewart) So you don't think it would matter?
MR. MILLER: Object to the form.
A. No, I don't.
Q. (By Mr. Stewart) You could have said Robert Kaley, II, currently consults for Monsanto; true?
A. I could have said that.
Q. That would have been accurate?
A. It would have been accurate.
Q. Would have been more accurate; correct?
MR. MILLER: Object to the form.
A. No.
Q. (By Mr. Stewart) It wouldn't have been more accurate?

30

A. No. Because at the time somebody is reading that, I may not be employed by Monsanto or consulting for Monsanto. Excuse me. I misspoke.
Q. Is Mitchell Erickson a consultant for Monsanto --
MR. MILLER: Object to the form.
Q. (By Mr. Stewart) -- and Monsanto-related entities?
A. He has been in the past.
Q. For how long in the past has he been?
A. I don't really know the answer to that.
Q. Did Mitchell Erickson ever work for a Monsanto-related entity?
A. No.
Q. How long have you known Mitchell Erickson?
A. Probably 30 years.
Q. How many?
A. Probably -- well, probably 30 years.
Q. And when was the first time you knew of him working for Monsanto or Monsanto-related entity?
A. He never worked for a Monsanto or a Monsanto entity.
Q. When was the first time you knew Mitchell Erickson consulted for Monsanto or a Monsanto-related entity?

31

A. I would be guessing and I'm going to say that upfront, but probably sometime in the mid to late 1990s.
Q. And have you worked with Mitchell Erickson on PCB cases in the past?
A. I have consulted for Monsanto during the pendency of cases for which Dr. Erickson was a consultant, yes.
Q. So you and he have worked on the same PCB cases for Monsanto and Monsanto-related entities in the past; correct?
A. Yes. In different capacities, but yes.
Q. How many times have you all done that together in the past?
A. Well, we haven't done anything together. He's been an expert witness, and I've been consulting with the attorneys, but I would say that's probably in maybe five cases. I don't know.
Q. And you say you haven't done anything together. You wrote an article together, didn't you?
A. Not within the context of litigation which is what your question was about.
Q. So you're telling me that this September 2010 article was not in the context of litigation?

32

A. Yes. That's absolutely correct.
Q. Huh. Well, then why did you write it?
A. Because we felt it was some useful information out there that had developed since the last time similar information had been published and felt it would be useful.
Q. Did you talk to lawyers about it before you wrote it?
A. I asked -- excuse me -- I asked Monsanto counsel if they felt it would be appropriate that we would do that, yes.
Q. So Monsanto lawyers knew you were writing this article?
A. Yes.
Q. You got their approval before you wrote it; correct?
MR. MILLER: Object to the form.
A. That's probably a fair characterization. I wouldn't have done it if they had said we don't think it's a worthwhile effort.
Q. (By Mr. Stewart) Did Monsanto lawyers review it before you published it?
A. Yes.
Q. Were you aware that there was litigation pending against Monsanto and Monsanto-related entities

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000189

33

when you wrote this article?
A. Certainly, yes.
Q. And yet this article doesn't have anything to do with PCB litigation in your opinion?
A. That's correct.
Q. And during the time period that you wrote this article, were you consulting with Monsanto-related entities during that period of time on PCB litigation?
A. Yes.
Q. And was Mitchell Erickson consulting with Monsanto and Monsanto-related entities at the same time this article was being drafted and published?
MR. MILLER: Object to the form. Calls for speculation.
A. I don't -- I don't believe so. I don't recall.
Q. (By Mr. Stewart) You don't know?
A. I'm trying to recall, and I do not believe he was serving as an expert in any Monsanto cases during the time this was written, to my best recollection.
Q. Is he now?
A. No.
Q. You understand today that every answer that

34

you give will be as if Monsanto was giving that answer; correct?
MR. MILLER: Object to the form. It depends on what questions you ask and whether or not they're within the scope of the notice that you've served in connection with these cases. Understand.
Q. (By Mr. Stewart) You can answer the question.
A. I understand basically what Counsel just said, yes; that is, to the extent they're addressed in the deposition notice and don't call for my personal opinion, that I'm replying as if I were Monsanto, yes.
Q. Uh-huh. Now, the deposition notice that you have seen -- and have we made those -- let's attach these as Exhibit, 1, 2, and 3, please, to the deposition now.
(Plaintiffs' Exhibits 1, 2, and 3 were marked for identification.)
Q. (By Mr. Stewart) One of those subjects you're here to testify about is Monsanto's manufacturing sales of DDT; correct?
A. Yes.
Q. So you understand that every question I ask you about Monsanto's manufacture and sale of DDT you're answering as if you're answering on behalf of Monsanto; correct?

35

MR. MILLER: Object to the form.
A. Well, again, not unless it calls for my personal opinion or something like that. If it relates to Monsanto's manufacture, then I understand that, yes.
Q. (By Mr. Stewart) When did Monsanto begin manufacturing DDT?
A. 1947.
Q. Where were Monsanto's DDT manufacturing operations located?
A. As I recall, the initial pilot plant was at the Queeny plant in St. Louis, and the major manufacturing facility was the Krummrich. That's K-R-U-M-M-I-C-H [sic], plant in Sauget, Illinois.
Q. When did Monsanto stop manufacturing DDT?
A. 1957. Actually, I told you wrong. It's K-R-U-M-M-R-I-C-H.
Q. During that period of time, how much DDT did Monsanto make?
A. I don't know the answer to that.
Q. You're telling me that Monsanto does not know how much DDT it made?
A. I don't -- I believe that's correct, yes.
Q. Monsanto was an expert in making DDT; true?
A. I --

36

MR. MILLER: Object to the form of the question.
A. I don't know how to answer that. They may made it, but whether they were the most -- there were dozens of DDT manufacturers in that time frame, and whether we were the experts or mediocre, I really don't know.
Q. (By Mr. Stewart) So Monsanto doesn't know whether it's an expert in DDT?
MR. MILLER: Object to the form of the question.
A. Well, I don't know what expert in making DDT makes -- Monsanto made DDT. Whether they had the best process, I don't know, if that's what you mean by expert.
Q. (By Mr. Stewart) So Monsanto, when it manufactured DDT, it manufactured DDT for ten years; is that right?
A. Approximately, yes.
Q. '47 to '57?
A. Yes.
Q. You agree that Monsanto knew the chemical structure of DDT before it began making DDT?
A. Before?
Q. Yes.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000190

37

A. I have no idea.
Q. Do you agree that Monsanto knew the chemical structure of DDT when it began making DDT?
A. Yes.
Q. Now, from 1947 to 1957, Monsanto was making PCBs, too; correct?
A. Yes.
Q. And do you agree that Monsanto knew the chemical structure of PCBs when Monsanto began making PCBs?
A. Yes.
Q. Do you agree that the chemical structures of DDT and PCB are similar?
MR. MILLER: Object to form of the question. It's outside the scope of the notice.
Subject to that you can answer.
Q. (By Mr. Stewart) You can answer.
A. No.
Q. No?
A. No.
Q. Okay. Tell me why you do not believe they are similar?
A. Well, they have a different base production. I mean, their base chemical is different. Biphenyl is different than diphenylmethane. PCBs are a mixture of

38

209 materials. DDT is, depending on how you want to talk about it, 1 to 4 materials. Most PCBs -- or a lot of PCBs are very highly chlorinated. DDT is relatively sparsely chlorinated and entirely different chemicals.
Q. Do they belong to the same chemical family?
MR. MILLER: Object to the form.
A. I don't know where the "so" came from, but they both are classified by -- as, generally, as chlorinated hydrocarbons, yes.
Q. (By Mr. Stewart) Both are persistent organic pollutants; true?
MR. MILLER: Object to the form of the question. It's outside the scope of the notice.
Subject to that, you can answer.
A. We have learned that DDT and some PCBs are persistent in the environment, yes.
Q. (By Mr. Stewart) And when you say "we," you're talking Monsanto; right?
A. Yes.
Q. DDT is nonpolar; correct?
MR. MILLER: Again, this is outside the scope of the notice.
But subject to that, you can answer.
A. I would think it has some polarity.

39

Q. (By Mr. Stewart) Does DDT readily mix with water?
A. No.
Q. Do PCBs readily mix with water?
A. No.
Q. DDT bioaccumulates; true?
MR. MILLER: Object to the form. It's outside the scope of the notice.
A. One of its metabolites does.
Q. (By Mr. Stewart) PCB is bioaccumulated; true?
A. Some PCBs have been shown to be bioaccumulated, yes. Not all.
Q. In chemistry, chemicals that are structurally similar to one another often have similar characteristics; correct?
MR. MILLER: Object to the form of the question. It's vague and ambiguous. It's outside the scope of the notice.
Subject to that, Dr. Kaley, you can answer.
A. They may or may not.
Q. (By Mr. Stewart) By the way, what are you a doctor in?
A. Analytical chemistry.
Q. Do you believe DDT and PCBs have similar characteristics?

40

A. No.
Q. Why don't you believe that?
A. I mean, obviously, it's a very vague question. It depends on the characteristics you're talking about, but they have very different characteristics in a number of ways.
Q. And they have very similar characteristics in a number of ways; true?
MR. MILLER: Object to the form. Outside the scope of the notice.
A. Well, I prefer to talk about specifics, but in some -- some specific senses, they do have similar characteristics.
Q. (By Mr. Stewart) Both have two benzene rings; correct?
A. Yes. That is correct.
Q. Both have chlorines attached to those benzene rings; correct?
A. Some number which differs between the two compounds, yes, or the two groups of compounds.
Q. When did Monsanto first learn that DDT persisted in the environment?
MR. MILLER: Object to the form. It's outside the scope of the notice.
If you know the answer, you may proceed.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000191

41

A. I don't know.
Q. (By Mr. Stewart) So you don't know whether Monsanto knew that DDT persisted in the environment between 1947 and 1957; correct?
A. I don't.
Q. When was it reported in the scientific literature that DDT persisted in the environment?
MR. MILLER: Same objection. It's outside the scope of the notice.
But subject to that, you can answer, Dr. Kaley.
A. In retrospect, there were indicative publications basically throughout the 1950s. Some suggestions.
Q. (By Mr. Stewart) Is that Monsanto's position, that the first scientific reports of DDT persisting in the environment was in the 1950s?
MR. MILLER: Object to the form of the question. It's also outside the scope of the notice.
A. To the best of my ability to answer, yes.
Q. (By Mr. Stewart) While Monsanto was manufacturing and selling DDT, did it keep abreast of the literature?
MR. MILLER: Same objections.
A. I would assume it did.

42

Q. (By Mr. Stewart) And that would be literature that included DDT was persistent in the environment; true?
MR. MILLER: Same objection.
A. To the extent such papers existed, yes.
Q. (By Mr. Stewart) And if such papers existed in the 1940s, you would expect Monsanto to be abreast of that literature as well; correct?
A. I would have thought so. I just don't have any factual basis to state one way or the other.
Q. Now, you understand you're answering that on behalf of Monsanto?
MR. MILLER: Object to the form. That's not what's included in the deposition notice, and he is not here today to respond on behalf of Monsanto with respect to what literature was or was not available in the 1940s concerning the persistence of DDT in the environment.
If you can point to where in the notice it includes that topic, we'll consider looking into that issue. But with respect to the notices as they have been served, it does not appear.
Q. (By Mr. Stewart) From 1947 to 1957, Monsanto was manufacturing and selling DDT; correct?
A. Yes.

43

Q. Okay. I'm asking you, during the period of time that Monsanto was manufacturing and selling DDT, do you believe Monsanto kept abreast of the literature --
MR. MILLER: Object to the form. Calls for speculation --
Q. (By Mr. Stewart) -- relating to DDT?
MR. MILLER: Same objections with respect to the notice and also calls for speculation.
A. I think I already said I would believe that Monsanto would be abreast of that literature, but I, in my preparation for this deposition, was not able to locate any documentation that would attest to that.
Q. (By Mr. Stewart) But you would believe, more likely than not, that Monsanto would have stayed abreast of that literature in the 1940s and 1950s; correct?
MR. MILLER: Well, same objections. Calls for speculation. It's been asked and answered, and it assumes that such literature existed at the time.
Subject to that, you can answer personal belief, Dr. Kaley.
A. I believe to the extent such literature existed that Monsanto would have been aware of that literature.

44

Q. (By Mr. Stewart) Why did Monsanto stop making DDT?
A. Because it was not economically -- not economically viable for them to continue to make it.
Q. There was a competitor who could make it at a better price; correct?
MR. MILLER: Object.
A. There were apparently a number of competitors, but from what I'm able to understand from what's available at Monsanto, yes. There was, I believe, in one of the production documents, it talks about the fact there was a West Coast competitor that had a better position on the raw materials, yes.
Q. (By Mr. Stewart) When did Monsanto first begin selling PCBs for uses other than dielectric fluids?
A. They bought Swann Chemical in 1935.
Q. So you're telling me that in 1935 Monsanto began selling PCBs for uses other than dielectric fluids?
A. In limited -- in limited amounts, yes. It's my understanding.
Q. And what were those uses?
A. There was some limited plasticizer usage.
Q. Can you be more specific than that?

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000192

45

A. No.
Q. When you say plasticizer, are you talking about PCBs going into paints?
A. Probably not at that time period. Probably in that time period, it would have been rubber-type materials. Actual plastics.
Q. Well, there's a difference between plastics and rubbers; right?
A. Generally, plastics are thought to be manmade whereas rubber is a natural product, but I think they're pretty much used interchangeably. Rubbers are clearly plastic, and I guess no plastics are rubber, but there are synthetic rubbers, so there's not a large difference, no.
Q. So from the very beginning when Monsanto started selling PCBs, it sold them for uses other than dielectric fluids; correct?
A. In very limited amounts, yes, is my understanding.
Q. And where does that understanding come from?
A. Basically, early product catalogs from Swann.
Q. So when Monsanto first began selling PCBs, what other uses besides dielectric fluids were they put to?

46

A. That's the only one I think at that immediate time frame.
Q. Now, in the use you've just described to be used in as a plasticizer --
A. Yes.
Q. -- if you will; correct?
A. Yes.
Q. Is that an open use?
A. In the current -- current parlance, it would have been considered -- it would be considered an open use, yes.
Q. And an open use is one in which PCBs can -- are not in a closed contained system; correct?
A. A physically closed contained system, yes.
Q. Is it fair to say that when Monsanto first started selling PCBs, it knew that some of those PCBs would be used in open uncontrollable uses?
MR. MILLER: Object to the form.
A. Well, I guess by the way we've been talking about those, yes. I mean, that terminology didn't come into currency until the 1970s, but in retrospective, some of those uses would have been considered open uses. I'm not sure they were uncontrolled. Certainly, in polymers and plastics, the PCBs are tightly bound to the matrix of the

47

plastic itself, so it's not like they're floating around.
So, you know, everything is a matter of degree and open and -- as you -- the term you used, "uncontrolled," is a matter of degree.
Q. (By Mr. Stewart) Well, Monsanto knew when it first began selling PCBs that PCBs in an open use could get into the environment; true?
MR. MILLER: Object to the form.
A. I don't think that was a consideration, no. I believe the uses they were being sold for were -- the PCBs were either contained in a physically closed system or were in a polymer system where the PCBs would not be released.
Q. (By Mr. Stewart) Have you seen any evidence when looking at the history of Monsanto's development and marketing and uses for PCBs other than as dielectric fluids in the 1930s that Monsanto didn't think PCBs would get into the environment?
A. No.
Q. When did Monsanto first begin marketing PCBs for use in paints?
A. I don't know specifically. I would think it would be in the early 1940s possibly. Probably.
Q. In the 1940s when Monsanto first began

48

marketing PCBs for use in paints, did Monsanto attempt to determine whether or not PCBs could get out of those paints?
A. I have not seen any evidence that they have performed those experiments. It wouldn't have been expected for the same reason that they're bound in a -- tightly bound in a matrix which is intended to stay put. Excuse me.
Q. So you're saying they wouldn't have expected it; is that right?
A. I think that's true, yes.
Q. But it's true, isn't it? PCBs come out of paint; right?
A. In retrospect, we learned that since the 1960s -- late 1960s and '70s, yes.
Q. And Monsanto could have known that in the 1940s if they would have just tested for it; right?
MR. MILLER: Object to the form.
A. I don't know that they were testing, and I would say they probably weren't testing sensitivity, the kind of measurements that would have allowed that to happen. At the levels that come out of those paints, I don't think it could have been measured.
Q. (By Mr. Stewart) So if I understand you correctly, your testimony is that even if they would

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000193

49

have tested to see if PCBs came out of paints in the 1940s, they wouldn't have discovered it; is that right?

A. That's --

MR. MILLER: Object to the form. You can go ahead and answer.

A. That's my under- -- that would be my understanding, yes.

Q. (By Mr. Stewart) And what's that understanding based on?

A. My knowledge of the analytical capabilities to detect PCBs.

Q. When did Monsanto first begin marketing PCBs for use in varnishes?

A. I don't know specifically.

Q. So Monsanto doesn't know specifically?

A. I'm sure if I -- as I sit here today, I didn't memorize each one of those. You know, the product bulletin, you could probably go back to old product bulletins and find out when that happened. I didn't do that for each and every product line that ever has been mentioned in a product bulletin.

Q. So Monsanto doesn't know?

A. No. I didn't say that.

MR. MILLER: Object to the form.

50

A. I said I didn't go back to the product bulletins and identify a specific date for each and every possible application. That would be how I could do it to the extent that someone could do it. You could look at the product bulletins and see when those applications were first mentioned.

Q. (By Mr. Stewart) When did Monsanto first begin developing and marketing PCBs for use as pesticide extenders?

MR. MILLER: Object to the form.

A. Monsanto never developed those uses.

Q. (By Mr. Stewart) Did Monsanto ever market for pesticide extenders? PCBs as a pesticide extender?

A. I guess that depends on your definition of the term "market." The use of pesticide extenders was certainly mentioned in the late 1950s based on some work done by the U.S. Department of Agriculture as a possible application. I don't know that they ever went out and tried to market them as such. It was just a suggested application there, which there are a number of in Monsanto catalogs that were never commercially available.

Q. Why would you put it in a catalog if it wasn't commercially available, sir?

A. Oh, it was commercially available. I just didn't say whether it was commercially applicable, whether there were any customers buying PCBs to use as pesticide extenders.

51

Q. Why would Monsanto put pesticide extenders or use of PCB as pesticide extenders in their catalogs if they didn't intend to sell them for that use?

A. I'm sure if someone had asked them to purchase them for that use, they would have sold them. It was a suggested use that they gleaned from government literature and thought somebody might be interested in that application in the 1950s.

Q. So you would agree with me that Monsanto actively marketed PCBs for use as pesticides extenders; correct?

MR. MILLER: Object to the form.

A. Well, again, what does actively marketed -- did they list them as a potential use in their catalogs? Yes. Were they out beating the bushes at every pesticide manufacturer trying to sell them for that? No.

Q. (By Mr. Stewart) You know that for a fact, that the answer is no?

A. Well, I know for a fact that they were limited of any sales of PCBs for pesticide extenders, and I also know that non-Monsanto researchers when

52

they were -- when PCBs as pesticides extenders became an issue, actually published a paper saying that they went out and looked for such applications and couldn't find any. So if they were out beating the bushes, they did a pretty bad job.

Q. Are you here to tell us that Monsanto never sold PCBs as pesticide extenders?

A. No.

Q. In fact, Monsanto did sell PCBs as pesticide extenders; true?

A. The only document I've ever seen showed a small amount, probably a research amount of, I believe, Aroclor 1254 to the extent other Aroclors were sold as pesticide extenders which, again, was very limited. They were polychlorinated terphenyls. They were not polychlorinated biphenyls.

Q. Polychlorinated terphenyls?

A. Yes.

Q. Polychlorinated terphenyls, those have dibenzofuran in them?

MR. MILLER: Object to the form.

A. I've never seen that reported, no.

Q. (By Mr. Stewart) PCBs, those have dibenzofuran in them?

MR. MILLER: Object to the form. It's not

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000194

53

included within the scope of the notice.
Subject to that, you can answer, if you know.
A. Dibenzofuran itself, no, not that I've ever seen.
Q. (By Mr. Stewart) Have furans in them? PCBs have furans in them, sir?
A. What do you mean by furans?
Q. You don't know what I mean by furans?
MR. MILLER: Object to the form.
A. I can speculate as to what you mean.
Q. (By Mr. Stewart) Do you know what dioxins are? True?
A. To some extent, yes. Again, what do you mean by dioxins? But I know the common usage that the newspapers use for a certain group of chemicals that they call dioxins.
Q. Are you playing a word game with me, Mr. Analytical Chemist?
A. No, I'm not. I'm trying to answer --
MR. MILLER: Object to the form. Stop. Object to the form of the question. That's -- he doesn't have a real question pending.
Q. (By Mr. Stewart) Are you playing a word game with me, sir?

54

MR. MILLER: Object to the form.
A. No. Furan --
Q. (By Mr. Stewart) You are an analytical chemist; correct?
A. Furan is a specific chemical.
Q. You are an analytical chemist; correct?
A. I am.
Q. You are aware that in the study of PCBs, people have looked to see whether toxic dioxins were associated with PCBs; true?
MR. MILLER: Object to the form. It's vague and ambiguous to what you mean by associated with.
Q. (By Mr. Stewart) You can answer.
A. People have looked to see if they were polychlorinated dibenzo-para-dioxins in PCBs, yes.
Q. You're one of those people; right?
A. I don't know that I've ever looked for polychlorinated dibenzodioxins, no.
Q. Hmm.
A. I may have.
Q. Uh-huh. How about the furans, like dibenzo chlorofuran and the derivatives of furans that are also associated with chlorinated hydrocarbons? You've looked for those; yes?
MR. MILLER: Object to the form.

55

A. I've looked for polychlorinated dibenzofurans in PCBs, yes.
Q. (By Mr. Stewart) Have you found them?
A. Yes.
Q. And I was confusing you earlier with my questions?
A. No. I was just trying to clarify what we were talking about.
Q. Hmm. You weren't playing a word game with me, sir?
A. No, sir.
MR. MILLER: Object to the form of the question.
Q. (By Mr. Stewart) Okay. I take it that your answer for when Monsanto began marketing PCBs as a plasticizer would be in the 1930s; correct?
A. That's my understanding, yes.
Q. Essentially, when they first began selling PCBs, they were actively marketing them for plasticizer use; correct?
A. That's my understanding, yes.
Q. When did Monsanto first begin marketing PCBs for use as a heat transfer fluid?
A. I believe around 1940. Again, in very limited applications, but that's my understanding of

56

the first -- first dates.
Q. When Monsanto was developing and marketing PCBs for use as heat transfer fluid, when did Monsanto become aware that PCBs could get into food from heat transfer fluid?
A. Some time around 1970.
Q. And what was the information that Monsanto learned in 1970 that made them reach that conclusion?
MR. MILLER: Object to the form of the question. It's beyond the scope of the notice.
But subject to that, you can answer, if you know.
A. There was some -- beginning to be some reports in the press and from government agencies of PCB contamination in animal foods and feeds. And also, there was an incident in Japan where some Japanese PCBs had leaked from a poorly maintained heat transfer system into some rice oil. That information started to become available in the United States '69, 1970, that time frame.
Q. (By Mr. Stewart) And it is Monsanto's position that prior to 1969, 1970 while it was developing and marketing PCBs for heat transfer fluid that Monsanto did not know that PCBs were able to get into food from being used in the food processing

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000195

57

operations?
A. It's my understanding, yes.
Q. That's Monsanto's understanding?
A. Yes.
MR. MILLER: Object to the form. It's not included in the scope of the notice.
MR. STEWART: Sure it is.
MR. MILLER: Tell me where.
MR. STEWART: "The history of Monsanto's development and marketing of uses for PCBs other than as dielectric fluids."
MR. MILLER: Doesn't have -- what you just read which is paragraph 2 of your notices has nothing to do with when Monsanto first learned that PCBs could leak from poorly maintained heat transfer systems into foods. That's my objection. That issue is not contained in paragraph 2.
Dr. Kaley --
MR. STEWART: Now you have your objection on the record. That's great. He's answered the question. A judge will determine whether my question falls within the scope of No. 2 or not.
Q. (By Mr. Stewart) Now, in connection with the food processing industry, besides heat transfer fluids, is there any other way that Monsanto developed

58

and marketed PCBs for use in the food processing industry?
MR. MILLER: Same objection.
A. Well, in retrospect, based on information in documents, I think there were some concerns about coating, various coatings that could have been used in the heat -- or in the food processing industry.
Q. (By Mr. Stewart) Explain that to me in greater detail.
A. Well, I mean, some of the plasticizer uses were for coatings in industrial equipment and things like that, and those could very well have been used in the food processing industry. And as Monsanto undertook in the late 1960s and early 1970s to best understand the potential for PCBs to get into the environment or, more specifically, into food and feed -- excuse me -- they considered those various applications as potential sources.
MR. MILLER: I think you misspoke. I think you said early 1960s.
THE WITNESS: Oh, I meant late 1960s, early 1970s. Thank you.
Q. (By Mr. Stewart) So I'm unclear. Can you tell me again, other than heat transfer fluids -- and I'm just a little confused is all -- if you could

59

explain that in greater detail of how PCBs were used in the food processing industry besides as a heat transfer fluid?
MR. MILLER: Same objections with respect to the notice.
A. I don't know specifically, but I do recall reading in documents that there were concerns that coatings where PCBs had been used as plasticizers could be used in the equipment in -- in those industries.
Q. (By Mr. Stewart) What kind of equipment?
A. Packaging equipment, milling equipment, wherever -- you know, coatings could have been used, paints in the buildings where they were doing the processing, that kind of appli- -- those kinds of potential applications. I know of no specific instances where that happened, but that was one of the concerns that Monsanto undertook to understand when the potential for food contamination became known.
MR. MILLER: Al, we've been going about an hour. Do you want to take a quick break?
MR. STEWART: We can, yeah. That's fine.
THE VIDEOGRAPHER: Off the record at 10:18 a.m.
(A short break was taken.)

60

THE VIDEOGRAPHER: Back on the record at 10:28 a.m.
Q. (By Mr. Stewart) So, sir, we were discussing the history of Monsanto's development of marketing and uses for PCBs other than as dielectric fluids. I would now like to know when Monsanto first began marketing PCBs for use as wax -- or in waxes, I should say?
A. Again, I think that was a possible suggested use that was very early on, maybe early -- as even as early as Swann but probably, if not, shortly after that. So late 1930s to early 1940s. Again, conservative estimate.
Q. So we've talked about paints and varnishes, pesticide extenders, plasticizers, heat transfer fluid, other uses in the food processing industry. Does Monsanto agree that all of those are open uses?
A. Under the definitions that were developed in 1970 or so, yes. Well, no. I would disagree with that. I would say not heat transfer. I believe Monsanto believed and even into the 1970s the heat transfer systems were, if properly maintained, closed systems and could be operated as such.
Q. But Monsanto knew that those systems were capable of leaking; right?

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000196

61

MR. MILLER: Object to the form. It's outside the notice.

A. After reports of such leaks became known to Monsanto, they knew that, yes.

Q. (By Mr. Stewart) So when Monsanto first became aware that heat transfer fluid systems could leak, then they knew PCBs could get into food through that system; right?

MR. MILLER: Object to the form. It's outside the scope. Go ahead.

A. Well, yeah. I think that kind of question answers itself. But, yeah. When they knew, they knew.

Q. (By Mr. Stewart) I'll ask it a different way.

A. Okay.

Q. When Monsanto learns for the first time that heat transfer fluid systems could leak, they also knew that PCBs could get into food because of the leaking; right?

MR. MILLER: Object to the form.

A. Well, in retrospect, I guess that's true. I'm not sure that they -- exactly when they knew heat transfer systems would leak until they got reports of those leakages having occurred.

Q. (By Mr. Stewart) When did Monsanto first begin marketing PCBs for use as hydraulic fluids -- in hydraulic fluids?

A. In the early 1950s.

Q. When did Monsanto first begin marketing PCBs for use in carbonless copy paper?

A. I don't know exactly when that use -- I mean, that use was developed by NCR itself, and I'm not sure Monsanto much marketed -- I could be wrong, but I thought they had a fairly exclusive contract with NCR. So I don't know -- I mean, they were used. I'm not arguing with you that they were used in carbonless paper, but I'm not sure they were marketed for that use. I don't know.

Q. I'll ask the question differently. When did Monsanto first develop the use for PCBs in carbonless copy paper?

A. Well, again, I think, Monsanto -- it's my understanding is Monsanto didn't develop the use. NCR developed the use using Monsanto's PCBs, but Monsanto sold PCBs to NCR for that use. When that use was developed by NCR, I frankly don't recall. I think it was in the '50s or '60s, but I don't remember, frankly.

Q. When did Monsanto develop and market PCBs for use in inks?

63

A. Again, that's -- it was such a minor use, I didn't make a big effort to find that. I think, again, I think it was fairly early to the extent it was used. I'm not sure it wasn't even in some of the Swann bulletins. I just really don't recall in that particular use. It was a very minor use.

Q. When did Monsanto develop and market PCBs for use as adhesives?

A. Again, I think that was probably very early. Maybe even in the Swann days. I think the properties of PCBs lent themselves to adhesive uses, and I believe they actually -- late 1930s or early 1940s that use would have, again, started to be developed, but not widely used probably, but started to be developed.

Q. You provided some documents to us at the beginning of deposition; true?

A. Yes, I did.

Q. And they are in folders by topic; correct?

A. Yes. Numbered according to the deposition notice, yes.

Q. And how did you go about choosing the documents to put in these folders?

A. I just thought they were some documents that would help me have specific recollections to some potential questions about these topics. They're just basically memory joggers for me if I needed them.

Q. Okay. Now, with respect to Topic 1, DDT. You have one document in here. When you looked for documents related to DDT, did you find more than one document?

A. I found that document and the materials that are referenced in it.

Q. Okay. Did you -- and my question was, when you were looking for the topic of DDT, did you find more than just this one document?

A. And the references.

Q. So other than the references that are found in this one document that you provided, those are all the documents you found related to DDT?

A. Yes.

Q. Is it Monsanto's position that these are all the documents that Monsanto could locate related to their manufacture and sales of DDT?

MR. MILLER: Object to the form. Calls for speculation, and it's definitely outside the scope of your notice as to whether it's Monsanto's position that these are all the documents that relate to DDT.

But subject to that, Dr. Kaley, you can answer the question.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000197

65

A. They're all I know about.
Q. (By Mr. Stewart) These are the only ones you know about; is that right?
A. Yes. I don't know whether Monsanto has others or not.
Q. Did you choose this document, or was this document chosen by the lawyers?
A. I chose it. It was actually prepared under my direction a number of years ago.
Q. What do you mean prepared under your direction? This document was prepared under your direction?
A. Uh-huh.
Q. So you're saying that this document that you provided to us dated January 29, 1988, you directed as you put it together?
A. January 29, 1988. Okay. Yes.
Q. And who is H.C. Godt, Jr.?
A. He was a consultant. A Monsanto retiree that was a consultant. G-O-D-T.
Q. Did I pronounce his last name correctly?
A. No.
Q. Yeah, well, how do you pronounce it?
A. It's Godt (pronounced as "GOT"), but --
Q. Okay. Well, it matters to him, so it

66

matters to me.
A. Well, it doesn't matter to him anymore.
Q. Okay. I understand. I take it he's passed.
A. Yes.
Q. And what was his position at Monsanto before he retired?
A. He had some management position of the research department. I really don't know other than that.
Q. So as you sit here, you're not aware of any other document that discusses Monsanto's history of making DDT and why it got out of the business besides this one document --
A. That's correct.
Q. -- and the references; correct?
A. That's correct.
(Plaintiffs' Exhibit 4 was marked for identification.)
Q. (By Mr. Stewart) So on Topic 2 -- I tell you what, why don't we just go ahead and mark this as Topic 1, DDT. Let's just mark that as Plaintiffs' Exhibit 4.
And for Topic 2, PCB Uses Other Than Dielectric, you provided one document; correct?
A. Yes.

67

(Plaintiffs' Exhibit 5 was marked for identification.)
Q. (By Mr. Stewart) Let's mark this as Plaintiffs' Exhibit 5. And why did you select this document, sir?
A. It just has a lot of general information and talks about the various product lines and the reasons they were used in those product lines. It was just a general kind of information thing.
Q. Now, did you participate in putting this document together?
A. No.
Q. Do you know the date that this document was put together? I'm referencing Kaley Exhibit 5 now.
A. Yes. On the second to last page, there's a production number, and then below that there's a document number. And the 0680, the -- after the second dash says it was in June of 1980.
Q. Oh, I see. So you're on the second to the last page which is MONS 01649 [sic], and right down by Litho in USA, that's where you're getting your date?
A. Yes. Well, it's actually 011649.
Q. Thank you.
A. Yes.
Q. And this document was put out by Monsanto's

68

Public Relations Department; true?
MR. MILLER: Object to the form.
A. That's what it says on the back, yes. It was actually put together by a number of people from different aspects, the medical and docs and stuff, but the Public Relations Department was responsible for issuing the document.
Q. (By Mr. Stewart) So again, back to the question of history of Monsanto's development and marketing of uses for PCBs other than as dielectric fluids. We talked about adhesives, inks, carbonless copy paper, hydraulic fluids, waxes, other uses in the food process industry, in addition to heat transfer fluids, plasticizers, pesticide extenders, varnishes, paints. Monsanto considers those all open uses?
A. Yes.
MR. MILLER: Object to the form.
A. At the time the terminology came in to use in the early 1970s, yes. They would have all been considered open uses.
MR. MILLER: Misstates his prior testimony.
Q. (By Mr. Stewart) So in connection with Topic No. 3 --
A. Okay.
Q. -- which is "List of All Brands of

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000198

69

PCB-Containing Products Sold by Monsanto"?
A. Yes.
Q. Did you produce a folder for that?
A. Yes.
Q. That's Topic No. 3, and it's this little chart here; yes?
A. Yes.
Q. Who put this chart together?
A. I did.
Q. When?
A. I don't know specifically.
Q. Give me an estimate, please.
A. A year ago.
MR. STEWART: Can you mark that as Kaley 6 then, please.
(Plaintiffs' Exhibit 6 was marked for identification.)
Q. (By Mr. Stewart) Can you turn to that document?
A. Sure.
Q. You might not need to, but --
A. No. I'd be happy to look at it. It would be better.
Q. Okay. So from looking at Plaintiffs' Exhibit 6 to this deposition, have you listed on the

70

left-hand side all the trade names for which Monsanto's products were ever known?
A. As far as I know, I have, yes.
Q. And where it says "Aroclor," and says "Use: All," what do you mean by that?
A. Well, the term "Aroclor" -- the trade name Aroclor was used for products in the various classifications that we generally talk about, electrical uses, plasticizer uses, hydraulic uses, and heat transfer uses. Those are the four general categories I talk about of uses. And the term "Aroclor," products were marketed into all those uses under the Aroclor trade name at some time or another.
Q. Okay. Now, from 1935 to 1977, Aroclors were used in all those ways; correct?
A. No. It's not correct.
Q. Oh, okay. I'm sorry. Then I'm not following your chart here. Your chart says, first year Aroclor is used, 1935. Last year, 1977.
A. Right. But it's not divided up by the various classifications -- the four classifications I just talked about. When Monsanto went out of the open uses, hydraulic fluids, plasticizer uses, heat transfer fluids in the 1970-'71 time frame, obviously, the Aroclor trade name was no longer used for those

71

applications. After 1971, it was only used for the electrical fluid applications.
Q. Okay. I understand the distinction, so let me -- let me ask a question that I think better illustrates what this chart is trying to tell us.
From 1935 to 1977, the trade name "Aroclor" was in use, and PCBs were in Aroclors from '35 to '77; yes?
A. PCBs were in some Aroclors, yes.
Q. Yes. Were PCBs in most Aroclors --
MR. MILLER: Object to the form.
Q. (By Mr. Stewart) -- from '35 to '77?
A. They were in the Aroclors that were PCB-based Aroclors. There were PCT -- Polychlorinated Terphenyl-based Aroclors that were not PCB fluids.
Q. When did PCTs first -- when were they first developed by Monsanto?
A. They were developed by Swann.
Q. Oh, okay. So as long as PCBs have been around, PCTs have been around?
MR. MILLER: Object to the form.
A. Well, Monsanto went out of the PCT business in 1972.
Q. (By Mr. Stewart) Why was that?
A. Primarily, they were a very low-volume

72

product, and they were, frankly, getting associated with the PCB issue; and Monsanto made a decision that it was -- it didn't make sense to stay in that business, either.
Q. So from 1935 to 1977 an Aroclor either contained PCBs or it contained PCTs; correct?
A. No. It contained either PCBs or PCTs until 1972. After 1972, it would have only been PCBs.
Q. So when we find an Aroclor use from 1935 to 1977, it either has PCBs in it or it has PCTs in it; correct?
A. Or both, yes.
Q. Or both. Were PCTs ever used as a heat transfer fluid?
A. I don't believe so.
Q. So when we find Monsanto selling products for heat transfer fluid uses, we're finding PCBs; correct?
MR. MILLER: Object to the form.
A. Yes. I believe that's correct. Well, to the effect -- well, let me correct that. To the extent that Monsanto also marketed a number of non-PCB heat transfer fluids. So if they were selling heat transfer fluids, it didn't have to be PCBs. If they were Aroclors, they were PCBs.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000199

73

Q. (By Mr. Stewart) If they were Therminols, they were PCBs?

A. No. No. If they were Therminol FR, they were PCBs. But Monsanto continued to use the Therminol trade name after they went out of the PCB business, and Solutia continues to use the Therminol trade name today for non-PCB-containing fluids.

Q. Okay. When were non-PCB-containing heat transfer fluids available from Monsanto?

A. I believe that was like in the mid-'60s. I'm not sure, for sure, but that's my first recollection is the mid-1960s. But I would emphasize those non-PCBs fluids were not fire retardant, were non-flame resistance. They are flammable fluids.

Q. And Monsanto sold them?

A. We sold them, yes.

Q. So I'm going to go through this trade name list. The trade name Aroclor from 1935 to 1977 included products being used during that period of time that had PCBs in them; correct?

A. Yes.

Q. Inerteen which you have listed here as an electrical fluid. It was a product that was -- well, according to your chart, it was a product that was made two years; is that right?

74

A. No. I'm sorry. That's wrong. That's a missed -- that's a typo on my part. It should be 1977. I'm sorry.

Q. Okay. So let's --

A. I had not caught that.

MR. MILLER: I didn't, either.

Q. (By Mr. Stewart) Let's do this. Can you, for Plaintiffs' Exhibit Kaley 6 --

A. Yes, sure. Initial it?

MR. MILLER: Change it and initial it.

Q. (By Mr. Stewart) -- can you change that and initial it for me, please?

A. I certainly will. Sorry.

Q. Thank you. Now, Inerteen, as an electrical fluid, was first produced in 1936 and last produced in 1977; is that correct?

A. Containing PCBs. The question mark is there because I don't know whether Westinghouse continued to use that trade name after we went out of the PCB business or not. I don't believe they did, but I don't really know.

Q. Then we have Montar, and it says, "Use: Asphalt, etc." Can you explain the "etc." for me, please?

A. Well, just -- it was a -- Montars were basically the still bottoms from the PCB process. As it says, they were black solids. They were used as plasticizers where color and things didn't matter so much. So for tar, obviously, from the name, they're basically tar-like materials.

So I don't really know all that much about what applications -- they weren't sold very much, but they were sold. And I don't know other than asphalts and roof coatings and things like that what the specific applications were.

75

Q. Now, you called them still bottoms?

A. Yes.

Q. Help us understand that. What's a still bottom?

A. Okay. The final stage of the Aroclor manufacturing process was a vacuum distillation where the pure PCBs were distilled like a moonshine still. They're heated, and they evaporate. They're collected on the other side, and to get the material you want and what's left in the still is a still bottom. So it's basically a residue from the distillation process. But they would have had some PCBs left in them.

Q. Okay. The next thing you have listed for the trade name is Pydraul.

76

A. Yes.

Q. Have I said that correctly?

A. Yes.

Q. And Pydraul is listed as hydraulic fluid. It says, first year, 1951, and last year, 1972. Then you have a column that says last non-PCB year, 1986. What does that mean?

A. Okay. Pydraul was Monsanto's trade name for hydraulic fluids. From 1951 to 1972, they contained PCBs and/or Polychlorinated Terphenyls, PCTs. After Monsanto took -- removed PCBs from that product line in 1971, essentially, for PCBs in 1972, for PCTs, Monsanto continued to use the Pydraul trade name up until 1986 when they sold the business.

Q. And what did Monsanto replace the PCBs in Pydraul with?

MR. MILLER: Object to the form. Go ahead.

A. There's no easy answer to that. It depended on a lot of -- on the particular use it was being sold for. There were a number of different materials, none of them fire retardant, but there were a number of different materials that were used in the substitute fluids.

Q. (By Mr. Stewart) Was there ever a year where, between 1951 and 1986, where Monsanto did not sell

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000200

77

hydraulic fluid under the Pydraul name?
A. I don't really know the answer to that. I don't think so, but I suppose it's possible.
Q. You're not aware of a year; right?
A. No.
Q. Let me ask the question differently. Are you aware of a year in which Pydraul was sold between '51 and -- let me rephrase the question.
Are you aware of a year from 1951 to 1986 where Monsanto did not sell hydraulic fluid under the Pydraul name?
A. I think that's the same question. Not that -- not that I know of. I'm not aware of such a year.
Q. The next trade name you have listed is Pyranol?
A. Yes.
Q. Have I said that correctly?
A. Yes.
Q. And it's listed as an electric fluid. It says first year, 1935, and it says last year, 1977, with a question mark. Why the question mark?
A. Okay. Again, Pyranol was the General Electric trade name for their PCB-containing fluids up until 1977 when Monsanto withdrew from the market, and

78

the question mark is there because I don't know whether they continued to use that name after that time period. Again, I doubt it, but I don't know.
Q. The next trade name you have listed is Pyroclor. Have I said that correctly?
A. Yes.
Q. And it says it's listed for all uses. First year produced, 1935; last year -- I'm sorry. No, it doesn't. My eyes are on the wrong line. Let's try that again.
You have Pyroclor listed --
A. Yes.
Q. -- for all uses; correct?
A. Yes.
Q. All right. And you don't have a first year or last year here. Why not?
A. Pyroclor was the trade name used during some periods of time by Monsanto-Europe for their -- what were called the United States Aroclor fluids, and I don't know when they started using that, and I don't know when they stopped. I couldn't find any records about that. At some point they went -- they started using Aroclor, also, but basically, it's just the Monsanto trade name for European PCBs.
Q. When did Monsanto begin selling PCBs outside

79

the United States?
A. I don't know.
Q. Did Monsanto have licensing agreements with other companies to supply them with PCBs that could then be sold under other trade names?
A. No. Excuse me. No.
Q. Okay. So if I understand you, there would not be PCBs in the marketplace that were manufactured by Monsanto that had a different trade name than the trade names that we have listed here?
A. Oh, that's not true, no. If that's what you understand, no, that is not correct.
Q. Okay. So help me to understand the trade names of products that are not on this list that would have included Monsanto's PCBs?
A. There are numerous ones. I have no idea. I mean, I can -- there was something called Coolanol which Kuhlman Electric made. There was a Dikanol. Most -- a lot of the electrical equipment manufacturers had their own trade names for PCB-containing electrical fluids. They're listed in various EPA documents. They're listed in Dr. Erickson's book. There were -- there were numerous. I don't -- certainly don't have them memorized.

80

Q. So if I understand you, Plaintiffs' Exhibit 6 tells us the trade names that Monsanto sold PCBs under, but it is not an exhaustive list of the trade names of products that may contain PCBs that were manufactured by Monsanto; correct?
A. That's accurate, yes.
Q. So the next trade name on your list is Santicizer?
A. Yes.
Q. Have I said that correctly?
A. Yes.
Q. And it's listed as a plasticizer. The first year, 1957, and then it says, last year, 1972, and last non-PCB year, 1977, with a question mark.
A. Yes.
Q. Can you explain that for me, please?
A. Yes. Santicizer was a general purpose trade name for the whole -- or for a lot of the Plasticizers that Monsanto manufactured. Some containing PCBs; some not containing PCBs.
The first year that they contained PCBs was 1957, and I think that's when that trade name started to be used; and the last year was 1972 when Monsanto went out of the PCB business for open uses, as we've been calling them.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000201

81

The 1977 question mark is because many of the -- or most, in fact, of the plasticizers with the Santicizer trade name did not contain PCBs, and that trade name continued to be used for non-PCB-containing plasticizers until 1977 when the business was sold.

Q. So with respect to Santicizer, are you saying that every Monsanto product that was listed as Santicizer from 1957 to 1972 did or did not contain PCBs in them?

A. May or may have not. It may have. It may not have.

Q. And can you please identify the Santicizer products that did contain PCBs?

A. There's a whole list of them. I don't -- I don't have them memorized. I mean, there are a couple examples -- I don't -- I don't know. As I sit here, I don't know what the Santicizer is.

Q. Well, why don't you give me some examples that you know of?

A. Well, I was just trying to think of, and I was actually not coming up with Santicizers. I was coming up with Pydraul numbers. I can't recall any as I sit here. That information is -- it's available. I just don't -- as I sit here, I don't remember it.

MR. STEWART: Let's take a fast break.

82

MR. MILLER: Sure.

THE VIDEOGRAPHER: Off the record at 11:02 a.m.

(A short break was taken.)

THE VIDEOGRAPHER: Back on the record at 11:08 a.m.

Q. (By Mr. Stewart) Now, the next thing on your -- on your Exhibit Kaley 6, it says Santolube transmission fluid from '68 to '69; correct?

A. Yes.

Q. Now, is it my understanding -- strike that.

Is my understanding accurate that Aroclor was used as transmission fluid before there was Santolube?

A. I don't believe so. I don't -- I do not think that's true. I think Santolube, that product, was developed at that point and then quickly dropped.

Q. So Aroclors were used as electrical fluid; yes?

A. Electrical fluid?

Q. Yes.

A. Aroclors, yes.

Q. Aroclors -- were Aroclors used in asphalt applications?

A. Not per se. The Montar, the still bottoms from that process were used, yes.

83

Q. Were Aroclors used as hydraulic fluid?

A. Yes. Part and usually as mixtures, yes.

Q. And I take it, Aroclors and Pyranol are essentially the same thing?

MR. MILLER: Object to the form.

A. No.

Q. (By Mr. Stewart) They're not?

A. No.

Q. Was Inerteen and Pyranol the same thing?

A. They were both electrical fluids, but their formulations were different.

Q. Okay. Aroclors and Pyroclor, were they essentially the same thing?

A. Yes.

Q. And Aroclors were used as plasticizers in addition to Santicizer being used as a plasticizer; correct?

A. Yes.

Q. And is that going to be true for the other things that are listed here? The Aroclors, were they used as mine brake fluid?

A. I don't believe so.

Q. Were Aroclors used as heat transfer fluid?

A. Yes. Before 1962, yes.

84

Q. Were Aroclors used as vacuum pump oil?

A. Yes. Well, under that trade name? I don't -- I mean, could you go and find where we sold Aroclor as a vacuum pump oil? I don't know. I don't believe so. I think the Santovac application was specific.

Q. Aroclors were used as a pipeline turbine lubricant?

A. I do not believe so. I think those were all under -- either under the Turbinol trade name or a predecessor which was not Aroclor.

Q. What does that mean, by the way, pipeline turbine lubricant?

A. In gas transmission pipelines where fire is a big hazard, there are huge turbines at pumping stations that push the gas along the pipelines. And PCBs, because of their flame retardant properties, were used as lubricants in those pumps, those turbines, that push the gas along.

Q. And are you saying that Monsanto only sold for that use for two years?

A. No. They only used that trade name for two years.

Q. Okay. And then -- so I'm asking --

A. It was -- it was an experimental fluid

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000202

85

before that.
Q. How long was --
A. It did not have a trade name. Sorry.
Q. It's okay. How long was it an experimental fluid?
A. I don't remember when that product line was developed. It was developed basically at the request of a pipeline company. I'm going to say the early 1960s, but I'm speculating. I think that's about right, but I could be wrong.
Q. What pipeline company asked for it?
A. I believe it's Texas Eastern.
Q. And I take it, Texas Eastern used the product?
A. Yes.
Q. Do you know how long Texas Eastern used the product?
A. No. I mean, it could be another guess. I really don't know. I mean, they would have stopped in 1971 when we went out of that business, but --
Q. Well, this says '72.
A. I know, but '71-'72 time frame. I don't know exactly. I'm not -- I just -- I was -- when I put this together, I was being conservative, so I don't -- I don't know specifically when we quit

86

selling Turbinol. It was in the '71 to '72 time frame.
Q. So with respect to, I'm looking at Therminol FR here on the list. Prior to 1962, Monsanto's PCBs were used as a heat transfer fluid just under a name that wasn't Therminol FR; is that right?
A. Yes. It was Aroclor at that time.
Q. And that dated as a heat transfer fluid from the 1940s, did you say?
A. Around then. Like early 1940s was the earliest I could find.
Q. Have you since the year 2003 had an office at a Monsanto-related entity?
A. No.
Q. Where do you do your work?
A. I do some here at the Husch offices, and I do some at home.
Q. Okay. Do you maintain an office at the Husch Blackwell offices?
A. I have an office here, yes.
Q. So you have an office at Monsanto's lawyers' offices; right?
A. I do.
Q. And where is that located in proximity to

87

Mr. Miller's office?
A. Across the alley.
Q. What's the alley?
A. The alley out here between -- behind this building and the building across the alley.
Q. And how long have you maintained an office with Monsanto's lawyers?
A. I think that occurred in -- it was either 2004 or 2005.
Q. And you've had an office continuously with Monsanto's lawyers since 2004, 2005?
A. I have.
Q. Do they provide you with a secretary?
A. No.
Q. Any assistants at all?
A. No.
Q. Do they provide you with a paralegal?
A. No. Well, there is a paralegal that works for Husch that is also located there, but she doesn't work for me.
Q. How do you account for your time that you spend on Monsanto-related matters?
A. I keep a record, generally, of how many hours I spend on various things.
Q. And who gets a copy of that record?

88

A. Mr. Miller.
Q. Monsanto's lawyers?
A. Yes.
Q. Anyone else?
A. I don't know whether it's forwarded to Monsanto or not. Maybe.
Q. Do you currently have health care?
A. Medicare.
Q. Okay. Good.
A. No. It's not good. It sucks.
Q. It's better than nothing.
A. Better than nothing.
Q. A lot of people have nothing.
Do you receive any benefits from Husch Blackwell?
A. No.
Q. Do you have access to their computer system?
A. I have access to their -- yes. Some of it, yes. I have e-mail.
Q. You receive your e-mails through Husch Blackwell's system?
A. If it's Husch Blackwell business.
Q. Do you have a Husch Blackwell e-mail account?
A. Yes.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000203

89

Q. What's your e-mail address at Husch Blackwell?
A. Robert.Kaley@HuschBlackwell.com.
Q. How long have you had an e-mail account with Husch Blackwell?
A. Since whenever I was given an office here.
Q. Since 2004?
A. Since 2004, 2005, whatever.
Q. What else does Husch Blackwell provide you?
A. Nothing springs to mind. I have a computer.
Q. Office furniture, I take it?
A. Yes.
Q. Do you get to use Husch Blackwell's services like copiers, fax machine, those kind of things?
A. Yes.
Q. Were you in Husch Blackwell's offices when you wrote the paper, "Application of Polychlorinated Biphenyls"?
A. Most of that was done at home. I would say -- I wouldn't say not a single word was not written in Husch Blackwell offices, but most of that was done at home.
Q. So part of it was written in Husch Blackwell's offices; part of it was written at your house? Correct?

90

A. Yes. That's correct.
Q. And while you were in the midst of writing this paper, did you consult with Mr. Miller?
A. No.
Q. You didn't at all?
A. No. Well, what do you mean? Consult with him on the paper or consult with him as a consultant? I did not consult with him on the paper. I did not discuss the paper with him during the time I was writing the paper.
Q. During the time you were writing the paper, were you actively consulting with him in PCB litigation?
A. Yes. And others.
Q. What do you mean "and others"?
A. Well, Ms. Rutter and other attorneys that happened to have questions.
Q. Oh, okay. What other attorneys did you consult with?
A. Probably Ms. Rutter is probably the only one that springs to mind.
Q. Did you consult with Mr. Carney?
A. No.
Q. Do you get invoiced by Husch Blackwell for your use of things in the offices?

91

A. No.
Q. So you're not invoiced for the use of an office; correct?
A. That's correct.
Q. You're not invoiced to use a copy machine; correct?
A. That's correct.
Q. You're not invoiced to use the fax machine; correct?
A. We don't have a fax machine.
Q. Those are gone?
A. They are.
Q. You're not invoiced to use long distance; correct?
A. I very seldom use long distance from here, but I'm not -- were I to use it, I would not be billed for it, though.
Q. Do you have access to any particular facilities or organizations because of your relationship with Husch Blackwell?
MR. MILLER: Object to the form.
A. I don't -- I don't understand the question.
Q. (By Mr. Stewart) Are you able to go to any clubs because you are associated with Husch Blackwell?
A. No.

92

MR. MILLER: I'm not, either.
MR. STEWART: Fair enough.
Q. (By Mr. Stewart) Does Husch Blackwell buy you meals?
A. Very rarely.
Q. But they do?
A. They might buy me a meal today because I'm in this deposition, but generally, the answer is no. They do not buy me meals.
Q. Do you take vacations?
A. Certainly.
Q. Do you get the monthly amount from Monsanto-related entities even when you take a vacation?
A. Yes.
Q. Is there a minimum amount of time you have to work in order to get your monthly amount from the Monsanto-related entities?
A. Not that I know of. No. The answer is no. Sorry.
Q. So you can go a month and not do work on Monsanto business and still get a check; right?
A. I suppose I could. I haven't tried it.
Q. Have Husch Blackwell lawyers hired you to be experts in other cases for them besides Monsanto

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000204

93

cases?
A. Rarely, yes.
Q. Tell me about those.
A. Frankly, I don't remember them. I mean, and let me -- let me qualify in that they've hired me as a consultant to consult on those cases. I've not been hired as an expert in any other cases, as a testifying expert. So I don't feel I'm free to discuss them.
Q. Have you been hired as a consultant in any cases other than PCB-related cases?
A. Yes.
Q. What were those?
A. The one I can remember was a benzene case.
Q. Anything else?
A. Not that I can recall as I sit here, no.
Q. So one of the things you've come to talk about today is Monsanto's total gross sales from PCB products on a year-by-year basis; correct?
A. That was one of the topics, yes.
Q. And you provided a folder that has some documents in it?
A. Yes.
(Plaintiffs' Exhibit 7 was marked for identification.)
MR. STEWART: Let's attach these, please.

94

Make that one 7?
Q. (By Mr. Stewart) So I'm looking at from your folder what's been marked as Plaintiffs' Exhibit 7, and it's dated June 5, 1975. Do you see it?
A. I do.
Q. Okay. Now, this document lists information about both PCB sales and PCT sales; correct?
A. It does, yes.
Q. Can you please tell me why it is that this document, the years for it only start in 1957?
A. Because that's when the records started. Monsanto did not have records before that.
Q. So do I understand you to say that Monsanto cannot tell us how many PCBs it sold from the 1930s to 1956?
A. Not with the specificity that this document provides, no.
Q. Okay. Well, can you tell us how many PCBs without the specificity Monsanto sold between the 1930s and 1956?
A. I can if you want me to refer to one of these other documents, or do you want to wait till you get there?
Q. Let's wait until we get there.
A. Okay.

95

Q. I follow where you're going, so with respect to this document, this document gives us specifics of Monsanto's PCB sales from 1957 through 1974; correct?
A. That's correct, yes.
(Plaintiffs' Exhibit 8 was marked for identification.)
Q. (By Mr. Stewart) Let's tag this next document as Exhibit No. 8. It's dated October 5, 1973?
A. Yes.
Q. Tell me what this document is, sir.
A. All right. Well, the only really relevant page is the last page -- or the only page that I relied on, and it's a document that -- the document actually is comparing Monsanto's sales of PCBs and PCTs, for that matter, from before the withdrawal from open markets and after withdrawal from open markets.
And because most of the documents actually don't have dollar amounts, these -- this document happened to have dollar amounts, so I thought it gave some indication at least in a particular year, 1969, what the dollar amounts associated with the sales were in the various categories.
Q. All right. And so help me with this. There is a dollar sign up at the top with an "M" next to it.
A. Yes.

96

Q. What does that "M" stand for?
A. Thousand.
Q. "M" is thousands?
A. Yes.
Q. Okay. And so what you're telling me is that for dielectric fluids in 1969 there was $8 million worth of dielectric fluids sold?
A. Yes.
MR. MILLER: I'm sorry. Which column are you referring to, Al?
MR. STEWART: I was in the sales column, 1969, dielectric fluid.
MR. MILLER: Okay. Did you refer to -- I'm sorry. Strike that. Never mind. I apologize.
MR. STEWART: That's okay.
MR. MILLER: I got confused by the document itself.
Q. (By Mr. Stewart) And if I understand you, you're saying that by 1973 for dielectric fluids, that Monsanto sold $11 million worth of dielectric fluids in 1973?
A. That's what this document says, yes.
Q. Is this document right?
A. As far as I know. I have to rely on it. It's all I have.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000205

97

Q. Now, for -- I'm looking at this document in 1969 for Therminols. It says that a million -- approximately, $1,600,000 worth of sales occurred in 1969?

A. Yes.

Q. And these would be in the heat transfer business; correct?

A. Yes.

Q. And that in 1973 that number had grown to 2. -- almost 2.3 million; correct?

A. Yes. But those were no longer PCB-containing products.

Q. Which ones?

A. In 1973. These are sales numbers for the business groups. Not necessarily -- because at the top it says, "Dielectric and Replacement Products, 1973."

So the only -- the only sales -- the only values that are PCBs are the 1969 ones. The rest of them may or may not be PCBs and, in most cases, are not PCBs. Certainly, the Pydraul -- in fact, the only one that would be PCBs in '73 are the dialectic fluids. So that column is really not very relevant to the topic that I was being asked to address.

Q. Hmm. But what this document shows us is

98

that when PCBs come out, sales go up; right?

A. Well, the amount -- the dollar amount of the sales goes up. I don't know about the volume. I'm sure the prices went up. You know, it's not normalized at $69, so it's really -- again, it's not necessarily direct comparison, but obviously, the numbers speak for themselves.

Q. Right. So let's look at net income. When we look at net income when the PCBs came out, Monsanto has a net income, made more money in '73 than it did in '69 in dielectric fluids; right?

MR. MILLER: Object to the form.

A. Yes -- no. Dielectric fluids still had PCBs in them.

Q. (By Mr. Stewart) Okay. I'm sorry. Fair enough. So in 1973, Monsanto is selling more product that has PCBs in it for dielectric fluid purposes than they were in 1969; correct?

MR. MILLER: Object to the form. More product in volume?

THE WITNESS: Yeah -- no.

Q. (By Mr. Stewart) They have greater sales; correct?

A. They have greater dollar sales.

Q. Yes. Their sales volume is greater;

99

correct?

MR. MILLER: Object to form.

A. No. We'd have to look at a different document for that. I don't know what their sale --

Q. (By Mr. Stewart) This document right here tells us what their sales are.

A. In dollars, not in pounds.

Q. Okay.

A. We'd have to look at a different document to talk about poundage.

Q. Okay. Well, let's talk about dollars.

A. Okay.

Q. We'll deal with what the document's talking about --

A. Okay.

Q. -- in dollars. Monsanto made more dollars on dielectric fluid with PCBs in it in 1973 than it did in 1969; correct?

A. That's correct.

Q. They made a greater gross profit in 1973 than they did in 1969 on PCB-containing dielectric fluids; correct?

A. That's correct.

Q. And they made more of a net profit, this net income, on PCB dielectric fluids in 1973 than they did

100

in 1969; correct?

A. That's correct.

Q. And if we look at another one -- we won't go through all of these -- but if we look at Therminols. Monsanto had greater sales dollars for Therminol in 1973 than they did in 1969; correct?

A. Yes. But that can't be related to PCB content.

Q. We'll get there. What this is showing us is that when the PCBs come out of Therminols, Monsanto is generating more dollars from Therminols than they did when it had PCBs in it; correct?

MR. MILLER: Object to the form of the question.

A. Well, there could have been some non-PCB Therm- -- PCBs in that 1969 number, but overall, that's correct, yes.

Q. (By Mr. Stewart) And they had a greater gross profit in 1973 on their Therminol sales than they did in 1969; correct?

A. Yes.

Q. And they made a greater profit on their Therminol sales of non-PCB heat transfer fluid than they did in 1969; correct?

A. Yes.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000206

101

Q. The next document we will mark, it's called "Development Department Monsanto" as Exhibit 9.
(Plaintiffs' Exhibit 9 was marked for identification.)
Q. (By Mr. Stewart) This document is entitled "Liquid Dielectrics and Aroclor, a Market Survey." Why have you included this document, sir?
A. If you would turn to page 5, there's a chart which shows sales of Aroclor in pounds from 1938 to 1955, and this was -- this is the only document that I'd ever seen that reflected sales in that earlier time frame.
So in combination with a second chart, which is in the one of the documents -- well, in the next exhibit, which we haven't marked yet, those two graphs kind of merge up together and allows you to look at the total sales in pounds, basically, over the time frame that Monsanto marketed PCBs or Aroclor.
Q. And if I understand this chart, this chart is showing us that in 1955, for example, the sales of Aroclor were $5 million; correct?
A. Yes.
Q. And then these little units here try and tell us how much of a percentage of that $5 million is attributable to different things; correct?

102

A. That's correct.
MR. MILLER: Need something?
THE WITNESS: Huh-uh.
Q. (By Mr. Stewart) And when this chart talks about heat exchangers there, that's heat transfer fluid; right?
A. Yes.
Q. Those are the cooking applications we were talking about earlier; correct?
A. They were heat exchange applications. I don't remember us talking about cooking.
Q. Oh, well, when food is fried with heat transfer fluid, it's a cooking application; correct?
MR. MILLER: Object to form.
A. It is not fried with heat transfer fluid.
Q. (By Mr. Stewart) Is the cooking heat -- is the cooking oil warmed up with the heat transfer fluid?
A. The cooking oil itself is heated by heat transfer fluid when that is how it's used, yes. But I want to be sure there was no misunderstanding that PCBs were being used in contact with the food to cook that food.
Q. Well, PCBs did come in contact with food; correct?

103

A. Not in the heat transfer sys- -- they were not -- not in the way that -- I did not want your question to be misunderstood.
Q. Well, isn't that what happened?
A. PCBs were not -- I mean, cooking food was not fried in PCBs.
Q. Oh. I wasn't suggesting --
A. Okay. I just wanted to be sure --
Q. -- that food was fried in PCBs. I wasn't --
A. -- that we understood that. Okay. I just want to be sure. That's why I answered the question the way I did to make sure that there wasn't that possible misunderstanding.
Q. PCBs were used in frying systems that fried food; correct?
A. That's correct.
Q. And those PCBs were used to heat up the cooking oil; right?
MR. MILLER: Object to the form.
A. Yes.
Q. (By Mr. Stewart) And those PCBs could get in that cooking oil; right?
MR. MILLER: Object to the form.
A. Well, they did once or twice -- once in Japan and once in China that we know of. That's the

104

only time I know that that happened.
Q. (By Mr. Stewart) You're not aware of any other time that occurred?
MR. MILLER: Object to the form of the question. Beyond the scope of the notice.
A. Where it got into the cooking oil? No.
Q. (By Mr. Stewart) Now, the other things behind heat exchangers, it says, hydraulic fluid, casting wax, wire insulation; correct?
A. It says that, yes.
Q. All right. When all those are put together, this is a significant portion of 1955 sales; is it not?
MR. MILLER: Object to the form.
A. Yeah. I mean, it kind of speaks for itself. It looks like it's about a quarter of it. I don't know. You counted them. I didn't. I don't -- I don't know what it came out to be.
Q. (By Mr. Stewart) You could count them if you'd like.
A. I don't need to count them. I can give you a visual impression.
Q. Yes. All right. And what is your visual impression of how much the sales of Aroclor in 1955 were accounted for by plasticizers, heat exchangers,

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000207

105

hydraulic fluid, casting wax, wiring insulation, etc.?
A. Looks like about a third.
Q. So if we take a look at Exhibit No. 8. This last page of Exhibit No. 8, what we find is that between 1955, which is documented in Exhibit 9, and 1969, which is documented in Exhibit 8, that sales of Aroclors, Monsanto's PCBs, had increased fourfold; correct?
A. Well, not in absolute dollar -- in absolute dollars, yes; but again, the 69 number is not corrected for $55. It's not a direct comparison. I'm sure they increase, but I don't know that it is four times in real value. But according to these documents, those numbers that you cited were correct, yes.
Q. So I'm clear. From 1955 to 1969, Monsanto's Aroclor business grew from $5 million to $21 million?
A. That is true without considering the value of the dollar in those two time frames.
Q. Was there anything else in this document, Kaley 9, or is it just this chart?
A. That's all. I just didn't want to pull the chart out of the document.
Q. And with respect to this chart, is it your understanding that this chart is the best reflection

106

of what sales looked like in the '30s, the '40s, and up to the mid '50s?
A. That's the only thing I've ever seen, yes.
Q. And now let's go to the next document that was in that folder which is -- well, let's just mark this.
A. Okay. It's already been marked. You can mark it again. It's probably easier to mark it again. I just wanted to let you know.
(Plaintiffs' Exhibit 10 was marked for identification.)
Q. (By Mr. Stewart) Let's just mark this again. I understand. This is Kaley 10. Are we going to a different place in this document?
A. Yes. We're going to pages -- don't tell me they're not numbered.
Q. They are by section. I think if you look --
A. Okay. Well, it's -- it's the fourth page in.
Q. Is it this chart?
A. Yes. And this chart is analogous to the chart in the previous exhibit, essentially, with some gap in there between about '55 and '63, apparently, of the sales by pounds -- or in this case it's millions of pounds, but --

107

Q. All right. So help me, if you could, understand this --
A. Sure.
Q. -- this chart. I understand that the white component at the very bottom is capacitor of sales; yes?
A. Right. Yes.
Q. Then the dots on top of that are transformer sales?
A. Yes.
Q. Now, here's the part I don't understand. What's on top of that?
A. It's very difficult to read, and I apologize. On top of that would be heat transfer, but unfortunately, once we get above that, the industrial hydraulic and plasticizer are all kind of lumped together. I can't -- I can't differentiate on this copy.
Q. Do you have a non- -- I'm sorry. I didn't mean to interrupt you. Did you finish that?
A. Yes.
Q. Okay. Do you have a non-black and white copy of this?
A. Well, the original, I think, is black and white, but it probably is more differentiable than

108

this is.
Q. All right. And you're citing this chart for the proposition that it is the best estimate of sales?
A. Yes. I mean, it can be -- it can be taken in conjunction with the tables on the -- on the -- the actual numerical tables on the previous pages. I mean, that -- the pages labeled MONS 011627 and 628 are the numerical data for which 629 and 630 were generated. Is that not clear?
Q. It is. Let's turn to MONS 011627. I note that here it says that in 1967 -- or '57, rather, there was zero sales of heat transfer fluid. That's not correct, is it?
A. I don't know. I assume it is correct. I don't know. There were zero sales of Therminol FR fluids because the trade name didn't develop until 1962 --
Q. I understand, but I --
A. -- and I have document -- I've seen documents from the '40s where Aroclor was sold as a heat transfer fluid, but I don't -- I can't explain -- I don't know why there are zeros there. I don't know whether it's because they were only looking at Therminol sales as heat transfer sales or whether, actually, Aroclor was not sold in that time frame. My

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000208

109

guess is that it's the latter.
Q. What's the latter?
A. My guess -- I'm sorry. My guess is that there were Aroclor fluids being sold as heat transfer fluids, but I don't know what category in that time frame. But I don't which of the subsequent categories it would -- they would have been included in, and I'm sorry. I don't know.
Q. Let me see if I understand your explanation.
A. Okay.
Q. What I think I'm hearing you say is in 1957, '58, '59, '60, and '61, Monsanto was in the PCB heat transfer fluid business but didn't have the Therminol trade name; correct?
A. That's what I'm saying. You're correct.
Q. And so those sales of heat transfer fluids by Monsanto are probably "categoried" somewhere else other than heat transfer fluid, correct --
A. Yes.
Q. -- on the chart?
A. Yes.
Q. Anything else in this document, Kaley 10, that you were looking to for support of this issue of Monsanto's total gross sales from PCB products on a year-by-year basis?

110

A. No.
Q. Now, in connection with these numbers that we have just looked at, do these numbers include Monsanto's or sales by International units of Monsanto?
A. I'm sorry. I don't know the answer to that. I don't know whether these include the Newport sales or not.
Q. When you say Newport sales --
A. That's right.
Q. -- you're talking about Monsanto's United Kingdom operation; right?
A. Yes. The plant at Newport, yes. Which is the only one that PCBs were made at overseas.
Q. Did Monsanto not have a Japanese operation?
A. Well, it was a subsidiary. It wasn't -- there was an operation in Japan. That's correct. It was a joint venture.
Q. Did Monsanto have an operation that was a joint venture or a subsidiary anywhere else besides Japan?
A. Not that I know of. No. I'm going to speculate that these are U.S. sales. Well, strike that. Never mind.
I'll just say that there was a footnote that

111

says U.S. export sales, but not included. But that's not what we're talking about, so.
Q. Yes. Well --
A. Well -- well, no. I mean, it says "U.S. Production and Domestic Sales," so I think that answers the question.
Q. Yes. And that's where I was going to go which --
A. Okay. I'm sorry. You're way ahead of me, and we're both way ahead of her.
Q. It's okay. Let's -- let's get a good question and answer.
A. All right.
Q. From these charts, we can see that these numbers do not include Monsanto's international operations; correct?
A. That's correct.
Q. These numbers that we've been talking about are just U.S. domestic sales of PCBs; correct?
A. And U.S. production, yes.
Q. They do not account for all of the Monsanto PCBs that were sold in places other than the United States; correct?
A. They do not include sales of Monsanto PCBs that were manufactured outside the United States.

112

Q. Now, to the extent that -- from the charts that we have looked at to the extent that there are years missing, are you here to tell us that Monsanto doesn't have any information on those years?
A. That's my understanding, yes.
MR. STEWART: I suggest we take a lunch break.
MR. MILLER: That's fine.
MR. STEWART: How about we come back at like 1:10. Is that all right?
MR. MILLER: That's very specific. That's doable.
MR. STEWART: It's only an hour and fifteen. That's how I did the math.
THE VIDEOGRAPHER: Off the record at 11:52 a.m.
(A lunch break was taken.)
THE VIDEOGRAPHER: Back on the record at 1:11 p.m.
Q. (By Mr. Stewart) Sir, who do you directly report to at Husch Blackwell?
MR. MILLER: Object to the form.
A. I don't directly report to anybody.
Q. (By Mr. Stewart) How is it that you get paid? What's the manner that takes place? Do you get a

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000209

113

check?
A. Yes.
Q. Okay. Who does the check come from?
A. Directly from Husch.
Q. Is it mailed to you? Is it hand-delivered to you? How do you get it?
A. It's mailed to me.
Q. Okay. So you actually get paid by Husch Blackwell; right?
A. Yes. Well, at the first instance, that money is then billed to Monsanto, so I'm ultimately paid by Monsanto.
Q. Well, now, your check is from Husch Blackwell; right?
A. Yes.
Q. Your office is at Husch Blackwell; right?
MR. MILLER: Object to the form.
A. I have an office here.
Q. (By Mr. Stewart) Your e-mail account is from Husch Blackwell; right?
A. I have an e-mail account here.
Q. And do you get a tax statement at the end of the year, something like a W2 or W4 or a 1099 from Husch Blackwell?
A. Get a 1099 like I do from every other

114

client.
Q. From Husch Blackwell?
A. Yes.
Q. How many other clients do you have where you have an office there?
A. None.
Q. How many other clients do you have where you have an e-mail account there?
A. None.
Q. How many other clients do you have where you have computer access?
A. None.
Q. Who tells you what to do at Husch Blackwell?
A. Whichever attorney I'm consulting with at the time.
Q. So is your consulting deal with Husch Blackwell, or is it with Monsanto?
A. I guess in the first instance it's with Husch Blackwell.
Q. So you have been a consistently retained consultant for Husch Blackwell since 2003; is that right?
A. No.
Q. Okay. Tell me what's not right about what I just said.

115

A. Initially, my consulting agreement was through a North Carolina law firm.
Q. I see. Who was that?
A. I think the name now is Smith Moore Leatherwood.
Q. What was it then?
A. Smith Moore. It's been various permutations. I think at the time it may have been just Smith Moore.
Q. When did you start getting your monthly checks from Husch Blackwell?
A. Probably about whenever -- 2004, whenever my change to have an office here, about 2004. I don't know exactly when that was -- or 2005. We talked about that earlier.
Q. Before the break, we had been talking about Monsanto's total gross sales for PCB products, and I think we had gone through every document that you had in your file for that, and what I would like to know is, are you aware of any other documents that more accurately reflect Monsanto's sales volumes than the documents you provided?
A. To more accurately reflect them, no.
Q. Okay. Let's turn our attention to PCTs. Polychlorinated terphenyls is what PCT stands for;

116

correct?
A. Yes.
Q. When did Monsanto first begin selling PCTs?
A. When they bought Swann in 1935.
Q. Now, prior to Monsanto buying Swann in 1935, did Monsanto's principles have anything to do with Swann prior to 1935?
MR. MILLER: Object to the form.
A. I'm not sure what you mean by that. But when you get there, there's a document that suggests Monsanto had some interest in Swann in 1933.
Q. (By Mr. Stewart) What's the name of the man who started Monsanto?
A. Queeny.
Q. And have you seen evidence that Queeny was an investor in Swann prior to 1935?
A. Not that I recall.
Q. Well, let's turn our attention at present to the history of Monsanto's acquisition of Swann's chemical business.
A. Okay.
Q. When did Mr. Queeny first become involved with the Swann chemical business?
A. The first I know about is 1933.
Q. And tell me what you know about that.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000210

117

A. Well, it's whatever this document says. I have a folder with these in them, No. 7, if you want to go there.
Q. Okay.
(Plaintiffs' Exhibits 11 through 14 were marked for identification.)
A. Are you marking them individually?
Q. (By Mr. Stewart) I am.
A. All right.
Q. Let me tell you what order we've marked them in --
A. I've got them.
Q. -- to make sure that we've got them the same.
A. Okay.
Q. Plaintiffs' Exhibit Kaley 11 is the "Monsanto Chemicals of the Swann Products Division" that has a date on it of 1935 handwritten; correct?
A. Okay. Yes.
Q. Kaley No. 12 is a general bulletin dated April 20, 1933, that is from Edgar Queeny; correct?
A. Yes.
Q. Kaley Exhibit 13 is a document that is dated June 6, 1933, from Edgar Queeny to the Federal Trade Commission. Yes?

118

A. Yes.
Q. Exhibit 14 is a document that's titled "Faith, Hope, and $5,000," a -- it says the story of Monsanto by Dan J. Forrestal. Who's -- who's Dan J. Forrestal?
A. He was in the public relations department at Monsanto.
Q. Okay. So when he wrote this, he was Monsanto's public relations man?
A. I actually -- my understanding is that it was after he retired, but at one point or another, he was -- he did -- was in the public relations department at Monsanto.
Q. Okay. All right. Now, you were telling me that your -- that as you can glean, you believe that Queeny's first involvement with Swann was in 1933?
A. Right.
Q. What document are you referencing for that proposition, sir?
A. 12 and 13.
Q. Okay. So as I read Plaintiffs' Exhibit No. 12, this letter from Edgar Queeny to Mr. Schneider in the general bulletin, it says that they are going to acquire the controlling interest of Swann Corporation; correct?

119

A. Yes.
Q. And are you aware of whether or not Monsanto had an interest that was not a controlling interest prior to 1933?
A. I'm not aware of any such interest.
Q. You're not saying it didn't exist; you just don't know. Right?
A. That's correct.
Q. Okay. And are you saying Monsanto doesn't know?
A. I'm saying that in my efforts to uncover documents or uncover information, this is what was given to me, what I found.
Q. Well, there's a difference between what was given to you and what was found. Which is it?
A. Well, I was asked -- I asked Counsel to -- for documents that I -- that would address this question, and these were the ones they found.
Q. Okay. So what you're saying is, you asked Monsanto's lawyers to find documents that would help answer this question, and this is what they gave you?
A. That's correct.
Q. Did you go looking yourself?
A. I have no ability to do that.
Q. Why not?

120

A. I don't have access to the files of where those documents are retained.
Q. Why not?
A. Because they're under control of counsel and I'm not counsel for Monsanto.
Q. So if I understand you, you have not made an independent investigation of what Monsanto's documents show. You've relied on Monsanto's lawyers to give you those documents; correct?
MR. MILLER: Object to the form.
A. Yes.
Q. (By Mr. Stewart) And that's true for all the documents you've produced here today?
A. No. A lot of those are stuff I've known about for years.
Q. I didn't ask about whether you knew about them. I'm asking, were the documents that were produced here today, documents that were -- that were selected by Monsanto's lawyers?
A. They were documents that were selected by me from documents that are under the control of Monsanto's lawyers.
Q. Well, didn't they select them first and hand them to you?
A. In some cases, yes. For instance, this, and

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000211

121

some cases I knew the documents existed from previous work I've done for Monsanto or from my employment at Monsanto or Solutia, and I asked for them.

Q. How did you ask for them?

A. I asked the attorneys.

Q. Do you call them out by Bates number?

A. No. I describe them as what I know about them. I don't have any idea what the Bates numbers are.

Q. Okay. And which of these documents that you've produced here today are ones that you recall from memory as opposed to what were supplied by Monsanto's lawyers?

A. Well, I guess we'd have to go through them one by one. I don't -- I don't know.

Q. Of the first ones that we have already marked as exhibits, and I know Exhibit 1, 2, and 3 aren't things you provide, so --

A. Well, I was certainly aware of No. 1. I knew that existed.

Q. No. I'm sorry --

A. Oh, you're talking about the exhibit numbers, not the topic numbers. Yes, you're correct.

Q. Yes. I want to go through by exhibit number.

122

A. Okay.

Q. So Exhibit 4, was that supplied to you by Monsanto's lawyers?

A. Well, yes. But I knew it existed.

Q. Did you ask for it?

A. Yes.

Q. Did you say, give me that DDT document? Tell me what you said to them in order for them to identify this document.

A. I don't have any idea specifically what I said. I said I was aware that there was a process summary for DDT, and I think it would be responsive to that question.

Q. And is that the only thing you asked for?

A. That's the only thing I asked specifically for that I was aware of.

Q. Did you ask for all the documents that were about DDT that pertained to the subject?

A. Well, I did. Yes.

Q. And this is all you got is one document?

A. That and the references to it.

Q. You got the references, too?

A. Uh-huh. Yes, I did. I'm sorry.

Q. But you didn't supply the references here today?

123

A. My understanding is they have been produced.

Q. You have the references? You looked at the references?

A. Not specifically in preparation for this, but I have seen the references.

Q. Okay. I'm asking in preparation for this deposition, did you look at the references?

A. No.

Q. So the only thing that you looked at in preparation for this deposition for Topic No. 1 about DDT was this document, Plaintiffs' Exhibit No. 4; right?

A. That's correct.

Q. You didn't read the references?

A. Not in preparation for this document. I have read the references in the past.

Q. And -- and Monsanto's lawyers told you that they had produced the references to us previously?

A. That was my understanding, yes.

Q. Do you know whether or not that's true?

A. I have no reason to believe it isn't true.

Q. Do you have any reason to believe it is true?

A. It's got a production number on it.

Q. Oh, this document I know. I'm asking about

124

the reference materials --

A. That's --

Q. -- the reference materials 1 through 6.

A. -- just my understanding. That's my understanding.

Q. You're telling me that Monsanto's lawyers told you that they had produced to us previously References 1 through 6?

MR. MILLER: Object to the form.

A. I don't know why that's my understanding. That's my understanding that they were produced.

Q. (By Mr. Stewart) I'm asking -- I'm asking you if they told you that?

A. I don't recall.

Q. Plaintiffs' Exhibit No. 5, is this something that you asked them for?

A. No. I knew this existed.

Q. I asked if you asked them for it?

A. No. I actually had a copy of this.

Q. So this was provided by you?

A. Well, not this specific copy of it, but I was aware of its existence. This is out of the Monsanto's files, obviously.

Q. I understand that, sir. What I'm trying to get to the bottom of is, when you were responding to

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000212

125

this deposition notice as Monsanto's representative, is this a document that you said we need to use, and they went and got it, Monsanto's lawyers? Or was it a document that was provided to you by Monsanto's lawyers?

A. I said it's a document we need to use. It would be helpful to me to respond to a number of these requests.

Q. And how did you identify this document to the Monsanto lawyers so they could go find it?

A. I'm sure I called it the white paper.

Q. And why would you call it the white paper?

A. Because in its original version, it had a white cover on it, and that's pretty much just what traditionally it's been called.

Q. So Monsanto has traditionally called what is marked as Plaintiffs' Exhibit 5, the white paper --

MR. MILLER: Object to the form.

Q. (By Mr. Stewart) -- is that right?

A. Yes. I have and others. I don't know that corporate Monsanto referred to it as that.

Q. Uh-huh. Plaintiffs' Exhibit No. 6, you told me you put this together; right?

A. Correct.

Q. In the last year?

126

A. Yes.

Q. Did you put it together for purposes of litigation?

A. Yes.

Q. For these cases?

A. Yes.

Q. Plaintiffs' Exhibit No. 7, was this provided by Monsanto's lawyers?

A. Yes.

Q. And Plaintiffs' Exhibit No. 8, is that provided by Monsanto's lawyers?

A. Yes.

Q. These weren't documents that you had recalled previously; is that right?

A. That's correct.

Q. Okay. So in response to the topics that we would be talking about in this deposition, Monsanto's lawyers gave you these and said they were responsive to the requests; right?

MR. MILLER: Object to the form.

A. I'm not sure they said they were responsive. They were documents that were pertinent to the question.

Q. (By Mr. Stewart) Okay. Now, did you undertake any due diligence to determine what else was

127

in Monsanto's documents besides Plaintiffs' Exhibit 7, Plaintiffs' Exhibit 8, and Plaintiffs' Exhibit 9 and 10 regarding the sales issue?

A. Well, 9 and 10 are a different story. Obviously, we talked about 10. I was aware of that, and I knew those charts were in there.

Q. Good point. So let me reframe my question. So with respect to Plaintiffs' Exhibit 7, Plaintiffs' Exhibit 8, and Plaintiffs' Exhibit 9, did you do any independent investigation to determine whether or not there were other documents that Monsanto had that more accurately reflected what the sales volume numbers were?

A. I'm going to correct on No. 9, also, because that was a document I reviewed in the past for other purposes that I don't actually recall, and I had recollected that that sales chart was in there. So that's why I requested that one specifically, and 7 and 8, I was -- in 7 and 8, actually, were -- as we talked about eventually, were documents that were originally given to me by Monsanto's lawyers in response to information about sales and information about polychlorinated terphenyls because that was information I was not familiar with prior to preparing for this deposition. So you'll see these two

128

documents again when we start talking about terphenyls.

Q. Okay. So if I understand you correctly, Plaintiffs' Exhibit 7 and Plaintiffs' Exhibit 8, you had not seen before preparing for this deposition; correct?

A. That's correct.

Q. And with respect to Plaintiffs' Exhibit 7 and Plaintiffs' Exhibit 8, those were provided to you by Monsanto's lawyers; right?

A. That's correct.

Q. You didn't make an independent review of Monsanto's documents to then unearth Plaintiffs' Exhibit 7 or Plaintiffs' Exhibit 8; right?

A. I have no ability to do that.

Q. Well, you have the ability; you just don't do it.

MR. MILLER: Object to the form.

A. I don't have the ability. I don't have access to those document files --

Q. (By Mr. Stewart) Do you know where those documents are?

A. -- other than through Counsel. Pardon?

Q. Do you know where the documents are?

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000213

129

A. Actually, I don't.
Q. Did you say your office is right across the alley here?
A. Yes.
Q. What's the address of that building?
A. 200 South Hanley.
Q. What floor are you on there?
A. Three.
Q. Have you ever asked to look at the documents?
A. No.
Q. Do you believe you would be denied the ability to look at the documents?
A. Yes.
Q. Why do you believe that?
A. Because my understanding is that they are compiled as attorney work product, and I'm not an attorney and I don't have the ability to review those documents in their original form.
Q. Okay. So the only way you're allowed to look at Monsanto documents is if Monsanto's lawyers say you can; is that right?
MR. MILLER: Object to the form.
A. To the extent that they're documents that I haven't seen before, yeah. Yes.

130

Q. (By Mr. Stewart) Okay. So now let's go back to where we were at with Swann Chemical. You're here to tell us on behalf of Monsanto that Monsanto is unaware whether it had an interest in Swann Corporation prior to 1933; is that right?
A. As far as I know, that's correct, yes.
Q. So Monsanto is saying it may have had an interest in Swann Corporation before 1933; it just doesn't know?
MR. MILLER: Object to the form.
A. All I'm saying, there -- to my knowledge, there are no documents that would reveal or would suggest that Monsanto had any controlling or any interest in Swann prior to 1933.
Q. (By Mr. Stewart) And when you say that, you understand that's Monsanto saying that; right?
A. Yes.
Q. What is it in Plaintiffs' Exhibit No. 11, this document, that is contained that you believe helps answers the question of the relationship between Monsanto and Swann products to be?
A. Basically, just the front cover where the date is, even though apparently a little bit questionable, would suggest that certainly in 1935 it was Monsanto Chemicals in the Swann Products Division of Monsanto Chemicals which would suggest that the purchase had been completed.

131

Q. And in this document that is labeled Plaintiffs' Exhibit No. 11, Aroclors are a product that is listed; correct?
A. I didn't actually review the document. I used it for the purpose I said, but -- yes. They are.
Q. All right. And in this document it lists uses for Aroclor for lacquers; correct?
A. It does.
Q. Paint, yes?
A. Yes.
Q. And varnishes; correct?
A. Yes.
Q. It lists a typical use for them for sealing waxes; true?
A. Yes.
Q. It lists as a typical use adhesives; correct?
A. Yes.
Q. It lists as a typical use impregnation; correct?
A. Yes.
Q. And flame-proofing; right?
A. Yes.

132

Q. They were sold in steel drums; correct?
A. That's what it says.
Q. Who is W.W. Schneider?
A. I do not know.
Q. Are you telling me Monsanto doesn't know who W.W. Schneider is?
MR. MILLER: Object to the form of the question. Also, it's outside the scope of your notice as to who Mr. Schneider is.
A. At this point, I -- I don't know, and if I'm the only person who is here representing Monsanto today, then I don't know. I don't know who it is.
MR. MILLER: Move to strike.
Q. (By Mr. Stewart) You mean, Monsanto doesn't know?
MR. MILLER: Object to the form.
A. No. I mean I don't know.
Q. (By Mr. Stewart) This document that you produced to me, Plaintiffs' Exhibit Kaley 12, it's a document that you're using to support the relationship between Swann and Monsanto; correct?
A. Yes.
Q. Okay. What is the code up at the top of this document, 1-0110-001-0002? What's that mean?
A. I don't know.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000214

133

Q. What's the HIST 30-3-something mean?
A. I don't know.
Q. Okay. Can you please tell me the timeline events that led up to the accusation of Monsanto's control of Swann's Anniston's facility?
A. All I know is what is in these documents, that in 1933, there was a -- Monsanto acquired a controlling interest, and in 1935 Monsanto purchased the company. That's all I know of the timeline.
Q. Okay. So you're telling me that the only thing Monsanto knows about the history of the timeline of events leading to the acquisition of Monsanto's control of Swann's Anniston's facility is found in Plaintiffs' Exhibit 12 and 13?
A. Well, if we look at Exhibit 14, there's a narrative in this Monsanto history that basically puts some meat, I guess, on those bones. But basically, the first paragraph is what I've just said in two steps, in 1933 and 1935, Monsanto took an even bigger jump. This time into almost $9 million, mostly stock, worth of expansion and diversification. That is, as far as I know, all I know and all Monsanto knows about the timeline.
Q. Okay. So according to Kaley 14, Monsanto spent $9 million acquiring Swann?

134

A. I would have to read whether that's all Swann, but it sounds like -- since this -- this chapter is about Swann, I could make that assumption. If you want me to give a definite answer, I'd probably have to spend some more time with this document to make sure that there aren't any other companies mentioned, but I think it's basically -- that's correct. Again, it says mostly stock, so it wasn't a cash deal apparently.
Q. $9 million worth of value?
A. Yes.
Q. Okay. So Monsanto put up $9 million worth of value to buy Swann; right?
A. That's my understanding of this document, yes.
Q. And so now, if I understand you correctly, exhibits -- Plaintiffs' Exhibit Kaley 12, 13, and 14 exhaust the knowledge of Monsanto of the history and timeline of events leading to the acquisition of Swann Chemical by Monsanto; is that right?
A. My understanding, yes.
Q. That's Monsanto's understanding; right?
A. Yes.
Q. So let's return to PCTs. Polychlorinated terphenyls. When Monsanto went into the PCB business

135

in the 1930s, did it also go into the PCT business?
A. Yes. They were included in the Aroclor product line.
Q. And how do PCTs chemically differ from PCBs?
A. They have one more benzene ring and associated more chlorines on that ring.
Q. Are PCTs biodegradable?
MR. MILLER: Let me object to the form of the question. It exceeds the scope of your notice.
But subject to that, Dr. Kaley, you can answer.
A. I don't know that they've ever been tested for biodegradation.
Q. (By Mr. Stewart) So the answer is, you don't know?
A. I don't know.
Q. Do you have a suspicion?
A. Yes.
Q. What's your suspicion?
A. I suspect they're not.
Q. You suspect they're not biodegradable?
A. That's correct. Why is that your suspicion?
MR. MILLER: Let me object. It exceeds the scope of the notice.
Subject to that, you can answer, Doctor.

136

A. They're a much larger molecule than PCBs, and they're chlorinated. So to the extent that higher chlorinated PCBs turn out not to be readily degradable, I would suspect that higher chlorinated PCTs also would not be biodegradable.
Q. (By Mr. Stewart) And you were able to make that thought process based on what you know about existing higher chlorinated compounds; right?
MR. MILLER: Object to the form.
A. You know, what -- infor- --
MR. MILLER: Same objections.
A. Sorry. I don't -- what was learned after 1970 when the biodegradation of PCBs was first studied, yes.
Q. (By Mr. Stewart) So what you did in that instance was you took information that was available in the scientific literature and without any test on PCTs, you reached a reasonable conclusion about whether or not PCTs were biodegradable; true?
A. I reached --
MR. MILLER: Object to the form. Same objections.
A. I'm sorry.
MR. MILLER: That's all right.
A. I reached a suspicion. I couldn't say that

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000215

137

it's true or not. They had not been tested, to my knowledge.

Q. (By Mr. Stewart) You think it's a reasonable suspicion?

MR. MILLER: Object to the form. Same objections.

A. I would say it's reasonable, yes.

Q. (By Mr. Stewart) And what you've just done is what analytical chemists are capable of doing which is taking information they know about one type of chemical and using that information to reach logical conclusions about other chemicals that are like them; correct?

MR. MILLER: Same objections and it exceeds the scope of your notice.

A. No. I would not call them conclusions. I would say they are reasonable suspicions or reasonable hypotheses which need to be tested before one could reach a conclusion.

Q. (By Mr. Stewart) Okay. When did Monsanto stop selling PCTs?

A. 1972.

Q. And tell me again why Monsanto stopped selling PCTs?

A. Primarily, because they were, No. 1, they

138

were made in the Anniston plant which is -- was -- had already stopped manufacturing PCBs and basically was getting ready to close. And further, the decision was made as the PCB process information and process of withdrawing from markets became a larger and larger issue. I think they were -- I think that -- well, I do think -- I think there was a realization in that company that PCTs might be subject to some kinds of the same questions and felt that it just didn't make sense to put a lot of money into trying to, you know, continue that PCT business.

Q. And when you say subject to the same kind of questions, what you're talking about is the company then believed that PCTs might bioaccumulate in any environment; correct?

MR. MILLER: Object to the form.

A. That would be -- that would be one of the considerations.

Q. (By Mr. Stewart) They might be persistent in the environment; correct?

A. That might be one of the considerations.

Q. Another consideration would be they might bioaccumulate in people; correct?

A. Probably not so much. They're probably not very bioavailable. They're just -- the molecules are

139

just too big to be bioavailable.

Q. Well, by 1972, Monsanto knew that PCBs were bioaccum- -- PCBs were bioaccumulating in people; true?

A. It was just about that time that they were measured in people. I don't know that the bioaccumulation concept had really developed by that time.

Q. By 1972, Monsanto knew that PCBs were bioaccumulated in animals; true?

A. Again, the whole question of bioaccumulation is developing during that time period. I think people were testing that hypothesis and were moving in that direction, but to say they knew it, I think that's probably a little early.

Q. Did Monsanto know in the 1960s that DDT was bioaccumulated in people?

MR. MILLER: Object to the form. Exceeds the scope of the deposition notice.

If you know, you may answer, Dr. Kaley.

A. I don't know whether the bioaccumulation question was known to them or not.

Q. (By Mr. Stewart) Do you know whether it was in the literature in the 1960s that DDT was bioaccumulated in people?

140

MR. MILLER: Same objections.

A. In people?

Q. (By Mr. Stewart) Yes.

A. I don't -- I don't believe it was.

Q. All right. Do you know that it was in the literature in the 1960s that DDT was bioaccumulated in animals?

MR. MILLER: Same objection.

A. I think by 1965 that there was some indication that that was the case, yes.

Q. (By Mr. Stewart) Do you know that there was -- that it was in the literature that PCBs were bioaccumulating in people in the 1950s?

A. No.

Q. Do you know that the literature showed in the 1950s that PC- -- that DDT was bioaccumulating in animals?

MR. MILLER: Object to the form. Exceeds the scope of the notice.

Subject to that you can answer.

A. Without reviewing that literature, I wouldn't -- I wouldn't want to draw a conclusion to whether it's in there or not.

Q. (By Mr. Stewart) You don't know?

A. I don't know. As I sit here today, no.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000216

141

Q. When did Monsanto first learn that polychlorinated dibenzofurans were in PCTs?
MR. MILLER: Exceeds the scope of the notice. I'll object.
Subject to that, you can answer.
A. I don't think Monsanto knows that to this day.
Q. (By Mr. Stewart) Oh. What are the type of furans that Monsanto found in PCTs?
A. Monsanto -- I don't know that Monsanto ever found any kind of furans in PCTs.
Q. Has anyone found dibenzofurans and their family in PCTs?
MR. MILLER: Object to the form. It exceeds the scope of the deposition notice. Lack of foundation.
Subject to that, you can answer.
A. As far as I know, that's never been reported.
Q. (By Mr. Stewart) What was found in Santowax?
MR. MILLER: Object to the form of the question. It's vague and ambiguous. What time were you referring to?
Q. (By Mr. Stewart) Was Santowax investigated to see if it had furan contamination?

142

A. Yes. I believe it was.
Q. Okay. And what was found?
A. I believe there were trace levels of dibenzofuran found.
Q. And is it your understanding that those dibenzofurans were chlorinated or not chlorinated?
A. They were not chlorinated. Santowax is not chlorinated.
Q. Isn't Santowax a terphenyl product?
A. Some of it is.
Q. Aren't terphenyls chlorinated?
A. Not necessarily. You could chlorinate them, but Santowax is an unchlorinated terphenyl or biphenyl. It's an unchlorinated polyphenol.
Q. And why did you just make that distinction?
A. Well, because it's biphenyls, terphenyls, and there's probably some quarterphenyls in there.
Q. So when we see Santowax as a product, that would be a non-chlorinated product?
A. That's correct.
Q. And have chlorinated dibenzofurans been found in Monsanto's PCB products?
A. Yes.
Q. Did you find those?
A. Yes.

143

Q. Are chlorinated dibenzofurans listed as a probable carcinogen?
MR. MILLER: Object to the form of the question. It exceeds the scope of your deposition notice.
A. I don't believe they are, no. By IARC, at least. I want to specify that. I don't know -- I don't know EPA, but I'm sure IARC is not listed on this problem.
THE WITNESS: It's all caps. I-A-R-C.
Q. (By Mr. Stewart) Now, on this topic of PCTs, you provided to us some documents, yes?
A. Yes.
Q. Okay. Who selected these documents?
A. I asked counsel for documents reflecting sales of PCTs because I didn't have that information. It was not known to me.
Q. Okay. So Monsanto's lawyers did; right?
A. Yes.
Q. Okay. We're going to mark these, and we're going to discuss them.
THE COURT REPORTER: Individually?
MR. STEWART: Individually. Yes, please.
(Plaintiffs' Exhibits 15, 16, and 17 were marked for identification.)

144

Q. (By Mr. Stewart) Okay. So the first one I'm looking at that's marked Plaintiffs' Exhibit Kaley 15 is a memo from W.B. Papageorge dated July 18, 1973.
Then Kaley Exhibit 16 is from W.B. Papageorge to Robert E. [sic] Emmett, the Environmental Protection Agency, dated June 5, 1975.
And then Kaley 17 is a document to H.S. Bergen from A.J. Koenig, that is dated October 5, 1973.
Okay. So what is it that is found in Kaley Exhibit 15 that you believe is pertinent to the question of Monsanto's manufacturing sales of PCTs?
A. The second page has a year-by-year list from 1959 to 1972 of various polychlorinated terphenyl products.
Q. Okay. And can you tell us what the distinction is of the series numerology? So we have the Aroclor 2500 Series. What's that trying to tell us?
A. Okay. I'm embarrassed to say as I sit here today that I don't remember what the 2500 Series is. The 4400 Series is a mixture of chlorinated PCBs and PCTs and the 5400 Series are PCTs. Montar 5 is the still bottoms from the 54 -- from the polychlorinated terphenyl process. I believe 2500 was also a blend of

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000217

145

PCBs and PCTs, but I'm embarrassed to say I don't recall as I sit here right now.

Q. Okay. So more likely than not, in Aroclor 2500 Series, there are both PCBs and PCTs; correct?

A. Correct.

Q. And more likely than not, in Aroclor 4400 Series, it's a combination of PCBs and PCTs; correct?

A. It definitely is there.

Q. Okay. And in Aroclor 5400 Series, you believe that's all PCTs and no PCBs; correct?

A. Well, there were trace levels of PCBs in the Aroclor 5400 Series, but they were primarily polychlorinated terphenyls.

Q. Okay. And how do you define trace?

A. My recollection is it's 1 to 2 percent.

Q. Okay. So with the Aroclor 5400 series, you believe that it's 98 to 99 percent PCTs and 1 to 2 percent PCBs; correct?

A. Yes.

Q. Let's go back to the Aroclor 2500 Series. What do you believe, more likely than not, the ratio of PCBs to PCTs are?

A. I'm not even going to speculate. I just don't know.

Q. How about the Aroclor 4400 Series? What do

146

you believe the ratio of PCBs to PCTs were there?

A. My recollection is it's 60/40, but I don't remember which way.

Q. And which gets the 60 and which gets --

A. That's what I just said. I don't remember which one --

Q. Oh, I'm sorry.

A. I think it's 60 percent PCBs, 40 percent polychlorinated terphenyls, but again, I'm embarrassed to say I don't recall right now as I sit here.

Q. And now let's go to the Montar 5 which you said were the still bottoms from the PCT process; is that correct?

A. Yes.

Q. Help me understand this. Was there a process line at the Anniston plant -- that's in Alabama; correct --

A. That's correct.

Q. -- Anniston, Alabama? Was there a process line at the Anniston, Alabama, plant that produced PCBs and a different process line that produced PCTs?

A. No.

Q. Okay. Were PCTs a by-product of the PCB line?

A. No.

147

Q. All right. Then explain to me how it is at the Anniston, Alabama, plant it produced both PCBs and PCTs without having two different lines?

A. If you start with biphenyl as the reaction product, you get PCBs. If, instead, you start with terphenyl, you get PCTs --

Q. Okay.

A. -- and you can put either one into the process at the beginning.

Q. I understand. So, basically, what you're saying is there was a process at the Anniston, Alabama, plant that, depending on what the ingredients were on the front end, determined what the final product was on the back end?

A. That's correct.

Q. And if Monsanto at the Anniston, Alabama, plant wanted to make PCBs, they would put diphenyl in at the beginning of the process?

A. Yes.

Q. And if they wanted to make terphenyls at the end of the process, they would put what in at the front?

A. Terphenyls.

Q. Terphenyls. And basically, what you had at the Anniston, Alabama, plant, and I guess at Sauget,

148

too, was a plant that essentially chlorinated these phenyl products; right?

A. These phenyl -- with a "Y" -- products, yes.

Q. Okay.

A. Now, the PCTs were not made at Krummrich. They were only made at Anniston.

Q. So we had PCBs being made both in Illinois and in Alabama, but we only had PCTs being made in Alabama; right?

A. That's correct.

Q. Okay. Let's go to Kaley Exhibit 16. And tell me what it is in this document that helps you answer the question of PCT manufacture and sales.

A. Okay. I would just -- these are documents you've seen before in the PCB production sales things, but on the last page of No. 16, again, it's basically the same information that was in the previous document. The sales in tons or pounds from 1959 through 1972.

Q. And is that because prior to 1959 Monsanto didn't have any records --

A. Yes.

Q. -- of producing polychlorinated terphenyls?

A. Yes.

Q. And what you're here to tell us is they were

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000218

149

making polychlorinated terphenyls from the 1930s to 1958. Monsanto just doesn't have those records; right?

A. That's correct.

Q. Okay. And now we're on Kaley 17, and this looks like a document we've seen before as well --

A. That's correct.

Q. -- in this deposition. And what is it on this document that helps you answer questions about PCTs?

A. Well, again, the last page, which is what we looked at before, it talks about PCB and PCT products So it gives some information about the gross sales, although they're not split out between PCBs and PCTs.

Q. Is it fair to say that Monsanto sold more PCBs than PCTs?

A. By far.

Q. And was that true as far as you can tell each and every year that Monsanto was in the PCB and PCT business?

A. Yes. It's my understanding.

Q. So I want to turn our attention to the next item in the deposition notice, and I'm going to read it. It says, "To the extent that Monsanto claims in this lawsuit that PCBs were at any time or place

150

required by law, electric codes, or insurance carriers for certain uses, identify -- identification of the documents and other materials relied on by Monsanto to support such claims."

Have you brought those documents today?

A. Yes. They are, basically, exemplar documents, but they're in Folder 6 that's labeled Durfee and ITF reports.

Q. What do you mean by "exemplar documents"?

A. Well, I actually don't have any documents that -- like the electrical code, but these two documents make reference to the requirements in various situations that PCBs had to be used at various times.

Q. Okay. Can you show me specifically in these documents where Monsanto says that the law required PCBs to be used?

A. Well, what Monsanto is saying is that the government is saying that, but --

Q. Is Mon- -- I'm sorry. Is Monsanto making the claim that the law required PCBs to be used?

MR. MILLER: Let me object to the form as to what Monsanto is claiming or not claiming in the context of the lawsuit. Dr. Kaley is here to respond to the facts relating to the necessity of PCBs for

151

various applications. This may be expressed in codes or regulations.

But subject to that, you can answer.

THE WITNESS: Okay.

A. Do you want to mark these?

Q. (By Mr. Stewart) Excuse me?

A. Would you like to mark these so we know what we're talking about?

Q. We will in just a moment.

A. All right. Okay.

Q. I want an answer to my question --

A. Okay.

Q. -- which is, is Monsanto claiming in this lawsuit that PCBs were at any time or place required by law, electrical codes, or insurance carriers for certain uses?

MR. MILLER: I'm going to object. Monsanto is not producing Dr. Kaley to respond to the issue as to what it is contending in this lawsuit.

Q. (By Mr. Stewart) You can answer.

A. I don't think that's what the request says.

Q. "No. 6. To the extent that Monsanto claims in this lawsuit that PCBs were at any time or place required by law, electrical codes, or insurance carriers for certain uses, identification of the

152

documents and/or other materials relied on Monsanto to support such claims."

So I'm first asking you, sir, is Monsanto claiming in this lawsuit that PCBs were at any time or place required by law, electrical codes, or insurance carriers for certain uses?

A. I don't know. I don't know what Monsanto is claiming in this lawsuit.

Q. You're here on behalf of Monsanto; right?

A. Yes.

Q. Okay.

A. As to their knowledge when they were making PCBs.

Q. Well, you're here on behalf of Monsanto with respect to this Question No. 6; right?

A. Yes. To the -- I am here to address to the extent that those claims are being made what kinds of information is being relied on. I don't know whether those claims are even being made.

Q. Do you understand the difference?

A. Your question is -- your question to me is, is Monsanto claiming the codes require that? I don't know what Monsanto is claiming.

Q. Okay. So on behalf of Monsanto, you don't know what Monsanto is claiming with respect to this

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000219

153

lawsuit regarding whether at any time or place PCBs were required by law; right?
A. That's correct.
Q. Okay. So why did you produce these documents?
A. Well, because there are documents which would support -- if Monsanto was making those claims, which I don't know, there are documents which would support that contention.
Q. All right. And those are the documents you provided?
A. These are two documents I've provided, yes.
Q. Are there more?
A. Well, I didn't -- I did not do an exhaustive search of the electrical codes to see what the specific wording was, but these documents represent that some codes in some situations did require PCBs, and that's the kind of information Monsanto relied on.
Q. Are you aware of any other documents besides these two documents that support the idea that the law required PCBs to be used?
A. Well, my understanding from these documents, these documents, is that other such documents exist. I don't know that they are in Monsanto's control or that Monsanto even has them, but --

154

Q. You've never seen them?
A. No.
Q. Am I correct, you've never seen them?
A. The electrical codes and the electric code handbooks that are referred to here, no, I have not.
Q. All right. So now let's mark these documents.
(Plaintiffs' Exhibits 18 and 19 were marked for identification.)
Q. (By Mr. Stewart) This is Plaintiffs' Exhibit No. Kaley 18, dated February 25, 1976. And then Kaley 19 is dated May 1972, entitled "Polychlorinated Biphenyl in the Environment."
First, let's take a look at Plaintiffs' Exhibit No. 18. Please tell me in here what you are referencing specifically that says that PCBs were required at any time or place by law, electrical codes, or insurance carriers for certain uses?
A. Okay. If we go to page 86-B.
Q. Okay.
A. 86, the bottom would be -- and then it's going to carry over to 87 which is really what -- what I'm referring to. It says, "However, since the tunnel fire in 1940 caused by an oil-filled locomotive transformer, Penn Central will not allow any

155

oil-containing transformer-equipped locomotive into New York City."
Q. Okay. Wait. Who is Penn Central?
A. It's a railroad company.
Q. Okay. Is a railroad company -- do they pass laws?
A. Laws? No.
Q. Uh-huh. Are they electrical codes?
A. Could be. I don't know.
Q. Oh. Insurance carrier?
A. No.
Q. Okay. So this is basically a company, Penn Central, a railroad company, saying they're not going to let their locomotives go into New York City?
A. If they have mineral oil transformers in them, yes.
Q. Okay. It's got nothing to do with the law; right?
A. I don't know whether there was a law or whether it was just their policy.
Q. Do you see anywhere in that statement you've just read of a legal governmental entity expressing that PCBs were demanded?
A. No.
Q. Okay. Where else in this document are you

156

claiming --
A. It's similar information.
Q. Where is it?
A. Page 254, the last page, about two-thirds through the first paragraph, "Penn Central Railroad operating rules require the use of Askarels in all locomotives using the tunnels and stations in New York."
Q. Okay. Again, you would agree this is not a governmental entity requiring PCBs; correct?
A. Yes. I would agree.
Q. It's not electrical code requiring the use of PCBs; correct?
A. Correct.
Q. Okay. Anything else in this document that Monsanto is relying on to possibly support the claim that PCBs were required by law, electrical code, or insurance carrier?
A. No.
Q. Now, let me ask you a question with respect to Kaley No. 18. Is there a reason why there were only select pages of this document that was provided today?
A. They're the only pages that had relevant quotations.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000220

157

Q. How do you know that? Did you look at the whole document?
A. No, I didn't.
Q. Okay. So if I understand you correctly, what happened with Plaintiffs' Exhibit No. 18 was the lawyers looked at this document, pulled out select pages for you to review, and that's what you relied on; right?
A. No. That's not true.
Q. Okay. Then tell me what happened --
A. All right.
Q. -- with 18.
A. In the paper that Dr. Erickson and I authored earlier in a section that Dr. Erickson wrote, he quoted some of that language and I was aware of that, so I went to that reference and asked this be produced.
Q. Can you show me where that is or tell me where that is in this application of polychlorinated biphenyls?
A. It's at the top of the second column on page -- it's unnumbered, of course. It would be in Section 4.2 Transformers, and it's the top of the second column, the second bullet.
Q. Okay. And I take it with respect to

158

Plaintiffs' Exhibit No. 18, there's nothing else in there that would support a claim that PCBs were required by law; correct?
A. That's correct.
Q. Matter of fact, there's nothing in this document that says PCBs were required by law; true?
A. That's correct.
Q. Okay. Let's go to Plaintiffs' Exhibit No. 19. And what, in this document specifically, are you referencing when you provided this document to us to support Monsanto's potential claim in this lawsuit that PCBs were required at any time or place by law, electrical codes, or insurance carriers for certain uses?
A. Okay. I'm going to express my embarrassment in that I thought I had marked the pages, and I don't want to waste your time searching through that, so if we have -- when we have the next break, can I find those pages and then come back to that question?
Q. Yes, you can.
MR. MILLER: How about this. We've been going for about an hour, so why don't we.
MR. STEWART: It's a fine time to break. If you want --
THE VIDEOGRAPHER: Off the record at

159

2:16 p.m.
(A short break was taken.)
THE VIDEOGRAPHER: Back on the record at 2:30 p.m.
Q. (By Mr. Stewart) So, sir, before the break, we were talking about, "To the extent that Monsanto claims in this lawsuit, that PCBs were at any time or place required by law, electric codes, or insurance carriers for certain uses, identify the documents and materials relied on by Monsanto to support such claims."
And we had begun talking about Kaley Exhibit No. 19 before the break. You had asked for some time to look through that document --
A. Yes.
Q. -- for the specific references that you believe -- or that Monsanto believes addressed those issues. Can you please point me to those now?
A. Yes. I will. Thank you for your patience in allowing me to do that. On page 13 which is DSW-010033, the third paragraph with regard to capacitors: "Possible alternatives to PCB impregnated capacitors are capacitors impregnated with mineral oil or certain other liquids, flammable liq- -- flammable liquids and capacitors used in buildings are not" --

160

Q. Excuse me. It's flammable fluids --
A. I'm sorry. You're correct -- "flammable fluids in capacitors used in buildings are not allowed by insurance companies and building codes."
Q. Okay. Now -- now, stop. What's the support for that statement in this document, sir?
A. I don't know that there is any support for that document. It's a government document that -- where all the -- a bunch of agencies from the U.S. Government got together and discussed the PCB situation, and this document is -- is saying that. I'm just -- that's -- I don't know -- there's no citations, so I don't know what's supporting this document.
Q. You don't know whether that statement is true or not; correct?
A. I assume it's true. I have every reason to believe it's true.
Q. You do?
A. Yes.
Q. Okay. But you can't cite me any support for that statement besides that it's in this document; correct?
A. That's correct.
Q. And you're saying you assume it's true

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000221

161

because it's in a government document?
A. Not just because it's in a government document, but it's consistent with other information.
Q. From where?
A. Well, can we go on?
Q. Certainly.
A. Okay. In 52, page 52, which is DSW-010073, the top full paragraph numbered 1, about halfway through, "However, for distribution transformers which were located near congested areas and in buildings, Askarel and dry-type transformers are required by electrical codes." In this case, it does cite Reference 6, which is the National Electrical Code Handbook, 10th Edition, 1957 McGraw Hill.
Q. Yes. Have you looked at that National Electrical Code Handbook to see what it says?
A. I have not. I tried, actually, went out to Amazon and tried to find it. It wasn't available, but I may have earlier misspoke. You asked me if I looked at any of the electrical codes, and I was thinking of local codes and the whole code itself. I actually have looked at the materials produced by Dr. Shifrin in his deposition with regard to this issue, and there are excerpts from the electrical codes which are -- which are actually consistent with what's said in

162

here, that in certain conditions and buildings, that either dry type or Askarel transformers are required.
Q. Yes. So that gives you an option; correct? You can have a dry-type transformer; correct?
A. Yes.
Q. Okay. So if you have a dry-type transformer, do you have to have PCBs?
A. No. But there are other considerations as to reliability and costs that have to be taken into consideration, so in many, many cases, the Askarels have huge advantages, so there was an option, yes.
Q. There was no law that said you to have PCBs; correct?
A. As far as I know, that's correct. As far as I know, the code said you had to have either Askarel or dry type if you didn't have a concrete vault.
Q. Yes. And so when someone was choosing how to build their building, they always had an option of not using PCBs; right?
A. Okay. With regard to the National Electrical Code, that's true. I -- I don't know about local codes. Local codes may have been different. I didn't locate any. I didn't -- actually, I didn't even know how to locate local codes from that time period, so I don't know what they said. They may very

163

well have said that. This information suggests that some local codes did say things like that, so.
Q. Where does it suggest that, sir?
A. Well, back in the other previous one. Flammable liquids in capacitors used in buildings are not allowed by insurance companies and building codes, and those were the only fluids available that were non-flammable.
Q. What's the cite for that?
A. There is no citation.
Q. Correct. It's just a statement without support; right?
A. It is a statement in a government document that reviewed these issues, yes.
Q. Without a footnote so we could verify it was true; correct?
A. That's correct.
Q. Okay. Now, this next place that you brought us at page 52, it tells us that there were options, dry-type transformers and Askarel transformers, in congested areas; correct?
A. Yes.
Q. Okay. And so in congested areas, one did not have to use PCBs; correct?
A. No. They could have used dry types. That's

164

correct.
Q. All right. Where else in this document are you referencing?
A. Page 78. Excuse me. I'm looking for something. I'm trying to find out what the source is.
On page 78, basically, the statement at the bottom of the page, "Clearly, there is no substitute for PCB-filled transformers where fire protection is required." And this is after a discussion of the disadvantages of dry-type transformers.
Q. Uh-huh. And, sir, is there a cite to this statement? "Clearly, there is no substitute for PCB-filled transformers where fire protection is required"?
A. No, there's not.
Q. Okay. Where else?
A. That's all.
Q. So you've now listed for me the entirety of the documents and materials that Monsanto relies on for the proposition of the law, electrical codes, or insurance carriers required PCBs in certain uses; is that right?
A. That and the documents produced by Dr. Shifrin, yes.
Q. Did you bring those documents from

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000222

165

Dr. Shifrin?
A. No.
Q. And what documents specifically from Dr. Shifrin are you speaking of?
A. I would have to review those. Primarily, the excerpts from the National Electrical Codes. I don't remember the specific documents.
Q. Okay. Well, you're saying that on behalf of Monsanto, and Monsanto -- we've asked Monsanto to tell us what documents they're relying on for this proposition. And you've brought us Kaley Exhibit 19. You've brought us Kaley Exhibit 18. Did you bring us anything else?
A. No. But those different documents are a part of this litigation, so they're part of the documents that Monsanto is relying on.
Q. Okay. And what specifically in those Shifrin documents are you as a Monsanto representative relying on for the proposition that Monsanto -- should Monsanto claim that PCBs, at any time or place, were required by law, electrical codes, or insurance carriers for certain uses?
A. The excerpts from the National Electrical Code.
Q. Anything else?

166

A. Not that I recall. Those were the ones that I've paid the most attention to because I was trying to address this specifically. I don't remember what else was in there that might have bearing on that question.
Q. And yet as you sit here today, you don't know whether Monsanto is making the claim at all that the law, electrical codes, or insurance carriers require PCBs; is that right?
A. That's correct.
Q. When were alternatives to PCBs available for capacitor fluid?
A. I suppose there were always flammable alternatives available. That document so much as says that, but they were not acceptable because they were flammable.
Q. There was a market that the PCBs competed in; correct?
MR. MILLER: Object to the form. I'm sorry. For what product? What time period?
MR. STEWART: Capacitor fluids.
A. Well, my -- my understanding is that capacitors were well over 95 percent, PCBs capacitors, to the extent that the fluid was included. So there wasn't much competition in the capacitor industry, as

167

I understand it.
Q. (By Mr. Stewart) So you're --
A. They were so -- they were so perfectly adapted for that application because of the fire protection that there were essentially no viable alternatives.
Q. So you're saying that nothing else was used for capacitor fluids from the 1930s to 1977 besides PCBs?
A. Probably. I don't know about the early 1930s. From about the mid '50s on, I would say that 95 percent-plus of the capacitors contained PCBs.
Q. So we're clear. You're saying that there wasn't a capacitor essentially in existence from the '50s to 1977 that didn't have PCBs in it?
MR. MILLER: Object to the form. Misstates his testimony.
A. Well, I would think that 5 percent is not the same as essentially none, and clearly, there were capacitors that did not have any fluid in them. Capacitor is a very broad statement, but to the extent that the capacitors had fluid in them which was required for their operation, they had PCBs in them, my understanding is, about 95 percent of the time.
Q. (By Mr. Stewart) Okay. And so what you've

168

just told us is that with respect to capacitors, a capacitor didn't necessarily have to have fluid in it; true?
A. For some applications. The large capacitors did have to have fluid in them. The capacitors that were used by the electrical industry to distribute power did have to have fluid in them. The non-PCB, non-fluid capacitors were typically the little carbon capacitors that are in radios and things like that.
Q. All right. Now, with respect to capacitors that required fluid, you're here to tell us that the market from the 1950s to 1977 was 95 percent Monsanto, 5 percent other; right?
MR. MILLER: Object to the form. It exceeds -- exceeds the scope of your deposition notice.
Subject to that, you can answer.
A. That's my personal understanding, yes, that 95 percent of all fluid-filled capacitors contained PCBs.
Q. (By Mr. Stewart) So that 5 percent, was that an alternative to PCBs?
A. I don't -- I guess it would be hard to argue with that proposition, but I don't know exactly what conditions that those were used in, so I --

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000223

169

Q. Well, I'm asking --
A. They must have been -- they were -- they may have been an alternative where flammability and flame protection was not required. They were an alternative.
Q. To the extent to which alternatives to PCBs were available on a year-by-year basis for capacitor fluids. So you're telling me each and every year that Monsanto was selling PCBs for capacitor fluids, they competed against something. Are you telling me that?
A. I don't know whether they were competing against them or not because I don't know the applications where those other 5 percent or so, I guess, were being used. If they were being used where flame protection was not required, then I don't -- Monsanto probably wasn't competing.
Q. Okay. I'm not asking you. I'm asking Monsanto. What's Monsanto saying?
A. Well, I'm speaking to the best of my knowledge what Monsanto's knowledge is.
Q. Okay. And what you're telling me is Monsanto doesn't know?
MR. MILLER: Object to the form. Misstates his testimony.
A. Yeah. I don't think that's what I said.

170

Q. (By Mr. Stewart) Okay.
A. I said Monsanto, to the extent that Monsanto was selling into that market, it is Monsanto's understanding that there was no acceptable substitutes for PCBs and capacitors where flame retardancy was required.
Q. After 1977, were there other things that were used for capacitor fluids besides PCBs?
A. Obviously. All of which are flammable. Yes.
Q. We still have electricity; right?
A. Certainly.
Q. Okay. So there was an alternative to the Monsanto PCB product; right?
MR. MILLER: Object to the form.
A. But not an alternative acceptable to the electrical industry until Monsanto went out of the PCB business.
Q. (By Mr. Stewart) So once Monsanto went out of the PCB business, the electrical industry replaced Monsanto's PCBs with something else; right?
MR. MILLER: Object to the form. Misstates his testimony, and it also, it's -- assumes facts not in evidence.
Q. (By Mr. Stewart) You can answer.

171

A. There was a transition period in which Monsanto and others tried to develop electrical fluids in anticipation of Monsanto's withdrawal from the PCB market, and flammable alternative fluids were developed and are used today. And the electrical codes had to be changed to allow the use of those fields --fluids.
Q. How do you know that?
A. I believe it's in some of these documents. I've read that somewhere. I don't know where I've read it, but I've read that.
Q. So what would --
A. That was part of the --
Q. -- have to happen was the code had to be changed, the language had to be changed, and then they could be used; right?
MR. MILLER: Object to the form.
A. That's not all that had to be -- happen.
Q. (By Mr. Stewart) How do you know?
A. Because I've read the documents that talk about the testing that was required before the electrical industry could implement those changes -- the Underwriters Laboratory Testing that had to be undertaken. There was lots of things that had to go on.

172

Q. (By Mr. Stewart) Uh-huh. And it happened; right?
A. It did happen.
Q. Any reason that couldn't have happened in the '60s?
MR. MILLER: Objection. Calls for speculation.
A. I don't --
MR. MILLER: It's outside the bounds of your -- your deposition notice.
But subject to that, you can speculate, Doctor, if you know.
A. There was no reason to undertake those. They had perfectly good fluid that was functional and met the requirements of the electrical industry.
Q. (By Mr. Stewart) So you just didn't say it couldn't be done; you said it wasn't done. Right?
MR. MILLER: Same objections.
A. I don't know whether it could have been done or not.
Q. (By Mr. Stewart) What is the fluid that ultimately replaced PCBs in capacitors?
A. There are a variety of them.
Q. Name them, please.
A. The only one I can name specifically is

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000224

173

dioctyl phthalate. P-H-T-H-A-L-A-T-E.
Q. And how long has that been around?
A. Been around a long time.
Q. Huh. So it was replaced by something that had been around a long time; right?
A. Yes.
Q. So it wasn't something that was newly invented in the 1970s that replaced PCBs; right?
A. No. It was something that was flammable, and the electrical manufacturer, electrical equipment manufacturers, did not want to, and in certain cases, could not use flammable fluids in their capacitors.
Q. But then they could?
A. After the laws were changed, yes.
Q. Why do you say the laws were changed?
A. Or the -- after the code --
Q. What laws are you referencing?
A. After the code was changed. I'm sorry.
Q. We just went through that. What laws are you referencing?
MR. MILLER: Hey, stop it.
A. After the code was changed.
MR. STEWART: Don't tell me to stop it.
MR. MILLER: Do you want to take a break?
MR. STEWART: No. I don't.

174

MR. MILLER: Then stop yelling at the witness.
MR. STEWART: I'm not yelling at him.
MR. MILLER: You are.
MR. STEWART: I'm yelling at you.
MR. MILLER: I hear that, but go ahead. Start over. Ask a question. I don't know if one is pending.
Q. (By Mr. Stewart) What law were you referencing?
A. I misspoke. The codes had to be changed.
Q. What code are you referencing?
A. My understanding is the National Electrical Code was changed after PCBs, or during the process for PCBs, to remove their requirements or the alternatives for PCBs as Askarel fluids.
Q. What's that based on?
A. My reading.
Q. Of what?
A. I don't recall as I sit here.
Q. Hmm.
A. Probably the task force report among other things.
Q. So you're saying the National Electrical Codes required PCBs to be used. Is that what you're

175

saying?
A. No. I'm saying that there were -- there were situations in which some PCBs were an alternative, a desirable alternative for use in buildings, yes.
Q. Isn't it true, sir, that there's no electrical codes that required PCBs to be used; right?
A. Yes. As far as I know, that's correct.
Q. I'm correct; right?
A. As far as I know, that's correct.
MR. MILLER: Are you talking about in capacitors?
THE WITNESS: Well, we kind of drifted. I kind of drifted. I don't know about capacitors. I'm -- kind of drifted to transformers. Thank you, Adam.
A. I would -- I don't know the capacitor codes. I would have to check those. I was more reviewing the transformer codes when I did my review.
Q. (By Mr. Stewart) So you don't know if it was required for capacitors or not; right?
A. Other than what was in the document we discussed earlier, that's true.
Q. All right. Well, let's go to transformers. Are there any code, law, that Monsanto is aware of

176

that required PCBs to be used in transformers, ever?
A. Not that I'm aware of other than if there were some -- something in that National Electrical Code that was referenced in the -- or in that handbook that was referenced.
But as far as I know, PCBs were one of the desirable or one of the required alternatives if transformers were in buildings.
Q. So I don't understand. Did you just say they were required or they weren't required?
A. They were one of the required alternatives.
Q. They were an option; correct?
A. Yes.
Q. An option is different than a requirement; true?
A. Yes.
MR. MILLER: Object to form.
A. But not in the -- I mean, they were one of the required alternatives. It was an option, yes.
Q. (By Mr. Stewart) Monsanto cannot tell me today that PCBs were ever required by law or electrical code to be used exclusively for any use; correct?
A. As far as --
MR. MILLER: Object to the form. Misstates

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000225

177

his prior testimony.
Q. (By Mr. Stewart) Go ahead.
A. As far as I know, that is correct. I have not found any specific requirement.
Q. So when were alternatives available for PCBs for transformer fluids?
A. They've always been available.
Q. When were alternatives to PCBs available for plasticizers?
A. They've always been available.
Q. When were alternatives --
A. But -- but those applications in which PCBs were used for plasticizers were very minor, and they have very specific properties which were obviously desirable to the people that were using them. But there were alternatives.
Q. What did you just mean by minor? They were very minor. What's that mean?
A. PCBs as a plasticizer was a very -- was a small, very small part of the PC- -- or the plasticizer business, even of Monsanto's plasticizer business. If you look at the Monsanto plasticizer handbooks, the section on Aroclors is 10 percent or less of the available plasticizers, but they had specific properties which made them desirable in

178

specific applications.
Q. Monsanto readily sold them for plasticizers; true?
A. Yes.
Q. Encouraged people to use them for plasticizers; true?
A. Suggested uses where they might be -- I don't know whether they readily encouraged them or not. But they certainly suggested uses where they might be applicable, yes.
Q. And the whole time that they were suggesting that Monsanto's PCBs be used in plasticizers, paints, lacquers, those kinds of things, there were alternatives to using PCBs; right?
A. Probably, but -- yes. But they were -- had the -- those op- -- excuse me.
Those options were less desirable for some of those applications. Where corrosion resistance or flame retardants or certain other properties, PCBs had those properties that were far and -- excelled the other alternatives.
Q. Okay. So what you're saying is, PCBs seem to be better in some applications than other things; right?
A. I wouldn't say "seem." They were better in

179

some applications than other things.
Q. My question to you is, were they necessary? Were PCBs ever necessary, an absolute needed item of paint?
A. I don't know.
Q. You would agree with me that there was always an alternative to putting PCBs in plasticizers; true?
A. Well, there was -- there were alternatives for the use of PCBs as plasticizers, yes.
Q. PCBs competed against other things to be plasticizers; correct?
A. Yes.
Q. The entire time they were sold; right?
A. Yes.
Q. And PCBs competed against other things to be heat transfer fluids; right?
A. Yes.
Q. The entire time they were sold as heat transfer fluids; right?
A. Yes. But they were flame retardant, and all the others weren't. So they had a very desirable property that the manufacturers of heat transfer systems and the person -- people using those systems found very desirable for their applications so they

180

didn't have disastrous fires.
Q. When PCBs stopped being used for heat transfer fluids, did the heat transfer business go out of business?
MR. MILLER: Object to the form.
Q. (By Mr. Stewart) Did that stop?
A. No.
Q. Kept going; right?
A. Yes.
Q. So it was not necessary to have PCBs in order to have a heat transfer fluid business; right?
MR. MILLER: Object to the form.
A. It was necessary if the customers wanted a fire retardant heat transfer fluid. It was necessary for them to have PCBs when they were available.
MR. STEWART: Well, I object to the responsiveness of that answer. That's not what I asked you.
Q. (By Mr. Stewart) I asked the question, was it -- were PCBs necessary for there to be a heat transfer fluid business?
A. No.
MR. MILLER: Object to the form.
THE WITNESS: Sorry.
Q. (By Mr. Stewart) Now, the hydraulic fluid

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000226

181

business, did PCBs have to be in hydraulic -- hydraulic fluid?

A. If you wanted a flame resistant hydraulic fluid, they did.

MR. STEWART: I'll object to the responsiveness of that answer.

Q. (By Mr. Stewart) Did hydraulic fluid exist after PCBs were manufactured?

A. Yes.

Q. Still exist today; right?

A. Yes.

Q. Now, in connection with hydraulic fluids, there were always alternatives the entire time PCBs were sold for use in hydraulic fluids to PCBs; right?

A. No. They were alternative hydraulic fluids. I don't think they were alternative to PCBs because the PCBs were fire retardant. That was precisely the reason foundries, for example, and others came to Monsanto for flame retardant fluid so they wouldn't have disastrous fires in their foundries.

So the alternatives were not alternatives to PCBs, although they were alternative heat transfer fluids.

Q. Can you please tell me the names of the disastrous fires that have taken place since PCBs went

182

off the market that were a result of PCBs not being around?

A. No. I mean, there's one examp- --

Q. Can you name any?

A. Yeah.

MR. MILLER: Object to the form. Beyond the scope of your deposition notice.

Q. (By Mr. Stewart) Please name them.

A. Yes. There was a situation in North Carolina, I believe, in the 1980s where -- and a large number of people were killed in a food processing plant because of the heat transfer fire. Now, I will agree that the reason the people were killed was because the back door was locked. But if there had been PCBs in that heat transfer system, there would not have been a fire.

Q. Where was that?

A. North Carolina.

Q. Where in North Carolina?

A. I don't know. It's a number of years ago.

Q. And if the back door is unlocked, people aren't dead; right?

A. Probably. But there wouldn't have even been a fire. Wouldn't have been an issue. I'm just -- you just asked if there were examples where there were

183

fires. There were disastrous fires where PCBs would have prevented that disaster.

Q. Okay. Can you name others?

A. No. Not specifically.

Q. Carbonless copy paper. What happened to carbonless copy paper after PCBs stopped being manufactured by Monsanto?

MR. MILLER: Object to the form. Exceeds -- the question exceeds the scope of your notice.

Q. (By Mr. Stewart) Go ahead.

A. I assume it continued to be manufactured for a while.

Q. Were there alternatives to PCBs for carbonless copy paper?

MR. MILLER: Object to the form. At what time period?

MR. STEWART: Any time period.

A. Well, I know from my readings that the NCR spent years looking for alternatives to PCBs for a number of reasons and never found any acceptable ones until they were -- they were informed that they were to go out of business, and even those were less acceptable, so that's my understanding.

Q. (By Mr. Stewart) Okay. So is your answer "yes," there were alternatives by certain time

184

periods?

A. There were less suitable alternatives, yes.

Q. Okay. When was that?

A. 1971 or 1972. Whenever Monsanto withdrew from that business.

Q. Uh-huh. And do you know when NCR went out of the carbonless copy paper business?

A. No.

Q. Are you aware that NCR stayed in the carbonless copy paper business even after they weren't getting PCBs from Monsanto?

MR. MILLER: Object to the form.

A. Yes.

Q. (By Mr. Stewart) Because they had an alternative to PCBs; right?

A. A less suitable alternative, yes.

Q. Well, they had an alternative; right?

A. Yes.

Q. They still could sell the product; right?

A. Yes.

Q. Were there always alternatives to PCBs available to be put in ink?

A. I know less about these minor applications. I would say they were, yes.

Q. All right. And were there always

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000227

185

alternatives to PCBs available for adhesives?
A. I would assume there were, yes.
Q. And were there always alternatives available to PCBs to be put into paints?
A. We talked about that. I believe that's true, yes.
Q. Were there always alternatives to PCBs to be put into pesticides for extenders?
MR. MILLER: Object to the form.
A. Well, we talked about that, too. I don't know that PCBs were ever commercially used as P- -- as pesticide extenders, but they're obviously, to the extent there were pesticide extenders, there were alternatives because if they were using them, they weren't using PCBs at least very much.
Q. (By Mr. Stewart) Were there always alternatives to PCBs in waxes?
MR. MILLER: Object to the form.
A. Again, I -- I don't know that business as well as some of the others. I assume there were, yes.
Q. (By Mr. Stewart) Were PCBs used in dental appliances?
A. They were used in casting dental appliances to a certain extent.
Q. What's that mean?

186

A. It means they were used to create the molds which were then used to create the dental appliances
Q. And when we say dental appliances, what are we talking about?
A. I'm talking about false teeth.
Q. Okay. So PCBs were used in the manufacture of false teeth, to cast the false teeth; correct?
A. That's my understanding to some extent. I don't think it was a large market at all, but it was --
Q. It was a market.
A. -- a use. It was one of the uses that has been discussed, yes.
Q. Yes. Monsanto promoted it for that use; correct?
A. Again, I don't know whether they promoted it. I'm sure it was mentioned in their brochures.
Q. Isn't that a way of promoting it?
A. Yes.
Q. PCBs used in chewing gum?
A. No.
Q. Never?
A. Not that I -- not that I've ever been able to document.
Q. And why do you say you weren't able to

187

document it? Did you look?
A. Yes.
Q. Because you've heard that?
A. Yes. And because there's a paper --
Q. Where did you hear it?
A. It's been part of the apocrypha for years.
Q. The "apocrypha"? What do you mean by that?
A. The tales that have been built up around PCBs. But if you go back to the original source of that information, which is cited in my paper, the author of that, a Monsanto employee, says PCBs have even been suggested for use in chewing gum. It never says they were ever used. It said they were suggested for use.
Q. Okay. So let me get this straight. What you're telling me is, a Monsanto employee said to other Monsanto employees --
A. No, sir.
Q. -- in a document -- hold on.
A. No.
Q. Let me finish --
A. Okay.
Q. -- and then you can answer.
Are you saying that a Monsanto employee said to other Monsanto employees in a document that PCBs

188

have been suggested for use in chewing gum?
MR. MILLER: Object to the form.
A. No.
Q. (By Mr. Stewart) All right. What are you telling me?
A. I'm telling you that a Monsanto employee published a paper in the public literature which says that.
Q. Which says what?
A. That PCBs even had been suggested for use in chewing gum.
Q. Oh, who was that Monsanto employee?
A. I don't remember his name.
Q. How do you know that's not true?
A. How do I know what's not true?
Q. That PCBs had -- how do you know that it's untrue that PCBs were suggested for use in chewing gum?
A. They were suggested for use. I'm saying that there was never any evidence that they were actually used.
Q. Who suggested that they be used in chewing gum?
A. I don't know. Whoever that guy was referring to when he made that statement.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000228

189

Q. Okay. So the person who said PCBs were suggested for use in chewing gum was a Monsanto employee?
A. That is correct.
Q. And you're not saying what he was saying was untrue; correct?
MR. MILLER: Object to the form.
A. No. I'm sure it was true.
Q. (By Mr. Stewart) Okay. So you agree that PCBs were suggested for use in chewing gum?
A. By someone, yes. In the 1930s.
Q. Have you seen any in evidence in the 1930s that Monsanto recommended against that?
A. No.
Q. What other apocryphal tales are there of PCBs being used for?
A. I don't know.
Q. Really? You don't?
A. Not as I sit here today.
Q. Are there any mentioned in your paper?
A. There may be. There's a little section about apocryphal tales, but I think we say that we don't want to prolong the agony.
Q. Yeah. That is what you say.
A. I don't remember what specifically was being

190

referred to.
Q. You called it folklore, right --
A. Okay.
Q. -- in your paper?
A. Yes. I believe that's the word that's used in the paper.
Q. Okay. But this concept of chewing gum, it's not folklore; right?
A. The use is, as far as what we know. It's never been documented that it actually happened. The suggestion was made by someone to someone from Monsanto, but that doesn't mean it happened.
Q. Isn't it true that Monsanto doesn't have its sales records from the 1930s? Isn't that true?
A. Yes.
Q. Okay. So the evidence that Monsanto does have is someone saying that in the 1930s, it was suggested to use PCBs for chewing gum; right?
A. Yes.
Q. And you've seen no evidence that Monsanto discouraged that use; correct?
A. That's correct.
Q. Okay. So that is some evidence that PCBs were used in chewing gum; right?
MR. MILLER: Object to the form.

191

A. No.
Q. (By Mr. Stewart) It's not?
A. No.
Q. What evidence do you have that PCBs weren't used in chewing gum in the 1930s?
A. None.
Q. Let's go to Topic No. 9. Topic No. 9 is "Toxicological Studies Conducted and/or Sponsored by Monsanto with Regard to PCBs from 1930 to Present." And you have brought something with you, yes?
A. Yes.
(Plaintiffs' Exhibit 20 was marked for identification.)
Q. (By Mr. Stewart) This is marked as Kaley Exhibit 20. Who put this document together, sir?
A. I believe the attorneys for Monsanto.
Q. All right. Did you --
A. Go ahead. I'm sorry.
Q. Did you review this document to see that it was complete?
A. Yes. In fact, I helped in the creation of it.
Q. All right. And how did you help in the creation of it? What did you do?
A. Well, I was asked to, to the best of my

192

ability, recall the toxicological studies I was aware of conducted by Monsanto. I prepared that list and then asked the attorneys to confirm what information was available on those studies -- obviously, this was, as part of the preparation for the deposition of Ms. Samples -- and then asked them for other similar information either on the particular topics or by the laboratories that did some of the work to be sure the list was as complete as it could be.
Q. So in connection with this list, Kaley 20, is it Monsanto's convention -- contention that every item on this list was either conducted by or sponsored by Monsanto?
A. Yes.
Q. And there were, according to Monsanto, no other toxicological studies conducted by or sponsored by Monsanto beyond what's listed in Kaley Exhibit 20; right?
MR. MILLER: Let me object. I had an exchange of e-mails with your office, Mr. Stewart, regarding the scope of the notice. And I have an e-mail, if you want to see it, that limited the time frame relevant to these questions to when Monsanto manufactured and sold PCBs. But there may be some additional information contained in Exhibit No. 20

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000229

193

that goes beyond that time frame.
But subject to that, you --
MR. STEWART: Can I see the e-mail?
MR. MILLER: You know, I'll find it at a break. I don't want to interrupt now.
Q. (By Mr. Stewart) Okay. So my question was, does Exhibit No. 20, Kaley 20, does it set forward all the toxicological studies conducted by or sponsored by Monsanto with regard to PCBs from 1930 to the present?
A. To the extent documents exist to document those studies, yes. But I know of no others for which documents don't exist.
Q. Are there studies on Exhibit No. 20 that you personally participated in?
A. I'm sure there are, yes.
Q. Okay. Which ones are those?
A. If you can turn to page 11, to start with, because I didn't join the company until 1973. And I didn't join the company till 12 of '73, so I guess we can go to the bottom of page 11.
No. 213, I certainly did some work on biodegradation of PCBs, although this report is dated January 1, 1974, so on this particular report, I probably didn't participate in the work reported there, but I did work along those lines.

194

214, I'm -- I would almost be sure I participated in that.
218, I probably participated in that.
219, I think, as I recall, I was the principal author, but I certainly participated in it.
I don't know about 220.
221, I participated in.
I probably participated in 222, but I may not be listed on the auth- -- as one of the authors.
230, I probably participated in some of the materials referred to in that.
231, again, I participated in that.
I don't know about 232.
236, I would have had some participation. I don't know if I'm listed on the author's sheet or not.
Same with 241 and 242.
I don't know about 247. That's not really a toxicology study anyway. I don't know why it's on there.
248, these are large reports. I probably had some contribution to those, but I would have to look at the specific documents.
258, I'm sure I had participation in.
259, I know I did.
Probably 260, 261, 262, and 263.

195

Probably 265.
That would be all, I think.
Q. Let's go to No. 10, please. The subject is, "Cancer Surveillance of Monsanto's Employees, as Conducted by Dr. Emmet Kelly During his Tenure as Monsanto's Medical Director."
Have you brought something in relation to that?
A. Yes.
MR. STEWART: Okay. Now, let's mark that, please.
(Plaintiffs' Exhibit 21 was marked for identification.)
Q. (By Mr. Stewart) When was the first time you saw this document, sir?
A. This morning.
Q. You've never seen this document before this morning?
A. No.
Q. How long have you been involved in PCB litigation, sir?
A. In litigation?
Q. Yes.
A. I don't know. 20 years, maybe.
Q. 20 years. And in 20 years of being involved

196

in the PCB litigation, you never saw this document before today; is that true?
A. That's correct.
Q. Do you know why you've never seen this document before today?
A. I guess because I've never asked to see it before today.
Q. You've never been asked questions before about Dr. Emmet's cancer surveillance?
A. Yes.
Q. Have you read Dr. Emmet Kelly's depositions before?
A. Yes.
Q. Have you seen the attachments to his depositions before?
A. Not that I --
MR. MILLER: You mean exhibits?
MR. STEWART: Yes. I mean exhibits.
Q. (By Mr. Stewart) Have you ever seen exhibits that were attached to Dr. Kelly's depositions?
A. I may have. I don't recall.
Q. Have you ever seen this document as an attachment, as an exhibit, to any of Dr. Kelly's depositions?
A. Well, I think I just said I never saw it

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000230

197

till this morning.
Q. So your answer is no; right?
A. That's correct.
Q. So what is this document, sir?
A. My understanding is that this is Dr. Kelly's cancer surveillance records.
Q. Where did you get that understanding from?
A. Well, I asked the attorneys if that document existed, and this is what I was given.
Q. Okay. So Monsanto's lawyers have told you that this is Dr. Kelly's cancer surveillance stack?
A. I don't know if they specifically said that. But this is -- when I asked about whether it existed, this is what I was given.
Q. Okay. What investigation have you done to determine that this, what's been marked as Kaley Exhibit 21, is, in fact, Dr. Emmet Kelly's cancer surveillance information?
A. None.
Q. So you're just basically telling me what the lawyers told you; right?
MR. MILLER: Object to the form.
A. No. I'm basically saying that according to Dr. Kelly's testimony, such a surveillance list was kept. I had never seen it. I asked the attorneys if,

198

in fact, it existed, and this was what I was given. And based on the information on this document, it makes perfectly good sense that this is exactly what that was.
Q. (By Mr. Stewart) Does it say in this document that it's Dr. Kelly's?
A. I haven't looked at every page, but it says Cancer Index, and that's what he called it. So, no. I don't know that it says, written by Dr. Kelly, no.
Q. Can you verify this was written by Dr. Kelly?
A. Not as I sit here today, no. I mean, I probably could find something with his writing on it and compare the handwriting, but I haven't done that.
MR. STEWART: Adam, where did this document come from?
MR. MILLER: I'm not here to answer your questions. You have a document request --
Q. (By Mr. Stewart) Do you know where this document came from? Do you know where this document came from?
A. I could assume -- I was -- I mean, I -- I assume it came from the Monsanto archive files.
Q. Huh.
MR. STEWART: Adam, is this document over in

199

the Monsanto archive files?
MR. MILLER: I don't have a background as to the source of that document right now. I'm sorry. I don't.
MR. STEWART: So you can't tell me whether it is over there or not; right?
MR. MILLER: I don't believe it is in the collection that you have asked to look at that is now and has been available for the last 18 months for you to look at.
You have been provided other documents, also, that are not within the collection that is in the building you referred to.
MR. STEWART: Has this document ever been produced in any other PCB litigation?
MR. MILLER: As I sit here, I don't have answers for you right now.
MR. STEWART: Hmm.
Q. (By Mr. Stewart) Sir, you cannot tell us based on personal knowledge this is Dr. Emmet Kelly's work; correct?
A. I suppose that's correct. I have every confidence that it is, but I have no further documentation that it is.
Q. How did you get every confidence that it is

200

when you just saw it this morning?
A. Well, I knew from his previous testimony that at some point something had -- something called his cancer index had existed, and when I was asked -- or when I asked the attorneys does it, in fact, exist? because I had not seen it before, I was provided this document. I'm very confident that's exactly what this is.
Q. Because that's what the lawyers told you it is?
MR. MILLER: Object to the form.
A. No. Because it's consistent with what my understanding of that index would have looked like had I seen it before. It's exactly what Dr. Kelly has always described in his previous testimony. It was a list of, by year, of cases of cancer at the various Monsanto facilities.
Q. (By Mr. Stewart) But you would agree with me, it's never shown up in any litigation you've been a part of for the last 20 years; right?
A. No. I can't say that. I've not seen it in any of that litigation, but I certainly don't review every document that's been produced in every piece of litigation that I've been involved in by any stretch of the imagination.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000231

201

Q. How long have you been involved in this piece of litigation, sir?
A. I don't know. Probably since shortly after it was filed.
Q. Uh-huh. And the first time you've seen it in this litigation is this morning; right?
A. That's correct. There would have been no reason for me to see it.
Q. Hmm. You can't think of any reason why you would maybe see this document in the last 20 years being involved in PCB litigation?
MR. MILLER: Object to the form. Calls for speculation.
A. No specific reason, no.
Q. (By Mr. Stewart) Hmm. You've read Dr. Kelly's depositions in the past; yes?
A. Some of them. Portions of them. I don't know that I've --
Q. And you looked at the exhibits; yes?
A. I think I testified that I don't recall that --
THE WITNESS: I'm sorry.
THE VIDEOGRAPHER: Oh. No. That's fine.
THE WITNESS: I know I'm covering it up. I'm sorry.

202

A. I don't recall having looked at the exhibits. I said -- I think I said that before.
Q. (By Mr. Stewart) So you don't know whether you looked at the exhibits or not?
A. I don't recall whether I did or not. That's right.
Q. Hmm. All right.
THE VIDEOGRAPHER: We actually have five minutes of tape.
MR. STEWART: Good time to break.
THE VIDEOGRAPHER: All right. Off the record at 3:20 p.m.
(A short break was taken.)
THE VIDEOGRAPHER: Back on the record at 2:31 p.m -- 3:31 p.m. Excuse me.
Q. (By Mr. Stewart) Sir, the next topic on the deposition notice is for Monsanto's corporate representative was "Any Epidemiology Studies Conducted with Respect to Current and Former Monsanto Employees Exposed to PCBs."
What epidemiol- -- epidemiology studies have been conducted with respect to current or former Monsanto employees exposed to PCBs?
A. In the -- in 1970s, there was a -- it really wasn't an epidemiology study, but it was kind of a

203

prelude to an epidemiology study that was -- that looked at workers at the Krummrich plant. Essentially inconclusive of the -- that was followed up in the 1979-1980 time period by a more formal epidemiology study carried out in-house at Monsanto.
That study has not been published externally, but it's been made available to the government regulatory agencies and is widely available to anyone that wants it. That's, really, the only specific studies.
There are also studies of more general studies of the plant populations, but not limited to those with PCB exposure for both Krummrich and Anniston. Those primarily are from the 1990s.
Q. Okay. Well, let's take them in turn. You said there was a study that was begun in the mid '70s, did you say?
A. That's correct.
Q. And you said it was not formal. What do you mean by that?
A. Well, it was basically one of our toxicologists who was not an epidemiologist was asked by the medical director to -- to think about questions around whether it was even possible to do an epidemiology study of the Krummrich PCB workers. That

204

person did a collection of death certificates, made an initial look at those, decided that he wasn't capable, not being an epidemiologist, to really interpret that data.
The data were sent to a -- the Eppley Cancer Institute in Nebraska where an epidemiologist there looked at the data. Basically concluded that there were really not enough subjects in that -- in that study to do a meaningful study. Did notice that there was an excess of cancers in -- apparent excessive cancers in that group of persons that he looked at, but said without smoking history -- lung cancers -- I'm sorry -- lung cancers, but without smoking history, it was impossible to attribute any meaning to that. And that's pretty much where it stopped until the further study was done.
Q. Okay. So Emmet Kelly was the medical director; correct?
A. No. George Roush.
Q. Oh, George Roush at that time?
A. Yes.
Q. Okay. Prior to George Roush was Emmet Kelly; is that true?
A. He was the medical director, yes.
Q. Was Emmet Kelly the medical director prior

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000232

205

to George Roush?
A. Yes.
Q. Immediately prior?
A. Yes.
Q. Emmet Kelly was not an epidemiologist; true?
A. That's -- I don't know that -- he was an M.D. I don't know -- I mean, he certainly didn't tout himself as an epidemiologist. I don't know whether he had any training or not, but he was a medical doctor. He was not -- as far as I know, never called himself an epidemiologist.
Q. George Roush, not an epidemiologist; true?
A. Correct.
Q. And then what I heard you say was, in the mid '70s, information was gathered about PCB workers at the Krummrich plant; correct?
A. Yes. Correct.
Q. And Krummrich is the plant that's located in Illinois?
A. Yes.
Q. And it's Sauget, Illinois?
A. Yes.
Q. Now, when that data was looked at by epidemiologists, they found that there was an increase of lung cancer amongst the population; true?

206

A. Yes.
Q. And then I think I heard you say that that study was not completed; is that right?
A. Well, it was never formalized or never written up or anything like that. That's correct. Because, as we said, the numbers were very small. There were not enough numbers to have meaningful statistics, and the lung cancer excess without smoking history is, basically, you can't interpret that at all.
Q. Well, you could ask people their smoking histories; right?
A. Not when they're dead.
Q. I see. So it was a mortality study?
A. Yeah. I said they collected death certificates.
Q. Okay. I'm sorry. You did say that. My apologies.
A. That's fine.
Q. So in connection with the mortality study, there was an excess of lung cancers, but there was not an investigation of smoking history; is that right?
A. Right. There was no -- no records related to their smoking histories. That's correct.
Q. And Monsanto didn't try and go talk to their

207

families about whether or not the person smoked?
A. No. That's not standard practice, no. They did not.
Q. You're saying that's not standard practice for epidemiologists to do?
A. That's correct. Mortality studies are based on the death certificate. They are very rarely followed up with any kind of personal contacts or anything like that.
Q. So you're saying epidemiologists in a mortality study do not go back and try and figure out whether or not someone had a smoking history from family members?
A. They typically do not do that, no.
Q. How do you know that?
A. I've read a lot of epidemiology studies and talked to a lot of epidemiologists, and in all the studies I've read, I, frankly, can't remember one where they've done that. It's often a criticism of epidemiology studies when lung cancer excess is reported. They almost always say, but we didn't have a -- we don't have smoking histories.
Q. Hmm. So it's your position that in mortality studies you can't correct for smoking; is that right?

208

MR. MILLER: Let me object to the form of the question. It exceeds the scope of the deposition notice. There's no foundations for Dr. Kaley to provide those opinions or -- on this area.
Subject to that, if you want his personal opinion without foundation, you can answer.
Q. (By Mr. Stewart) Go ahead.
A. I don't remember the question.
Q. I said, are you saying that in epidemiology mortality studies, they can't correct for smoking?
A. No. I said they typically do not.
Q. You haven't ever read one where they did?
MR. MILLER: Object to the form.
A. Certainly not with regard to PCBs or other chemicals that I've read studies with regard to. I don't have a recollection where they actually went back and tried to verify smoking histories.
Q. (By Mr. Stewart) Okay. So you've now told us about the study that was begun but not completed where there was an excess of lung cancer. Then you mentioned --
A. Well, let me -- let me clarify. It wasn't -- it really wasn't a study that was begun but not completed. It was an investigation to see if a study could be done. If -- so that's all that was

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000233

209

ever intended to be. It was not a study that they started and said, oh, we don't like this. There's not enough information. We're going to stop. That was -- there was not anything that formal.

Q. Is that it?

A. Yes.

Q. Okay. Well, who's decision was it to start looking at whether or not people at the Monsanto Krummrich plant had an excess of cancer?

A. My understanding it was Dr. Roush's.

Q. Okay. And when they started looking, they started finding excess of cancer; right?

A. That -- they found an excess, a small excess of lung cancer in that preliminary information, yes.

Q. Okay.

A. But the epidemiologists whom they were consulting said there is not enough information here to do a formal study.

Q. That was the end of that?

A. For two years until Monsanto then undertook to do a formal study.

Q. Okay. And the formal study that Monsanto undertook to do was with whom? Who did the study?

A. A Monsanto epidemiologist and a summer intern.

210

Q. Who was the Monsanto epidemiologist?

A. Judy Zack, Z-A-C-K.

Q. Where is Judy Zack now?

A. I don't know. She may be deceased. I don't know. Let me stop at I don't know.

Q. When was the last time you had communication with Judy Zack?

A. I had never had communication with Judy Zack.

Q. Okay. Anyone outside of the Monsanto company involved in that epidemiology study?

A. Well, I mean, the summer student was a summer student, but he was certainly employed by Monsanto at the time, so other than that, no.

Q. All right. So in answer to my question, it's true that no one besides Monsanto employees were involved in conducting the study, an epidemiology study of Monsanto workers related to PCB; correct?

A. To the extent a summer intern could be termed an employee -- and I'm just trying to be clear -- but to the extent he was drawing a paycheck from Monsanto at the time, that is correct.

Q. Now, who was that summer employee?

A. His name was David Musch.

Q. And where is David Musch now?

211

A. I don't know.

Q. How do you spell Musch?

A. M-U-S-C-H.

Q. In connection with that epidemiology study that was conducted by Monsanto people, was that just focused on Monsanto PCB workers?

A. To the extent it could be focused there, yes. I mean, obviously, those workers had other exposures, but it was the people who had worked in the Monsanto department -- or excuse me -- in the PC- -- PCB department at the Krummrich plant.

Q. How many people were in that study?

A. I don't recall. I think around 100, but I'd have to look at the study to be sure.

Q. So you did not bring that study with you today?

A. No.

Q. Any reason why?

A. I, number one, I understood that you had it. And number two, I thought I knew about -- enough about it to answer your questions. I didn't know how specific you were going to be.

Q. Was that study ever published?

A. Not formally, no.

Q. When you say "not formally," what do you

212

mean?

A. Well, it was distributed. It was not published in a peer-reviewed publication.

Q. Who was it distributed to?

A. The CDC among others. The EPA.

Q. When was it distributed to the CDC and the EPA?

A. Shortly after it was typed up in the early 1980s -- late 1970s or early 1980s.

Q. And what's your recollection of what Monsanto said that study showed?

A. It was similar. I think it was a bigger follow-up than had been done previously, but there was also an excess of -- a small excess of lung cancer.

Q. Amongst PCB workers?

A. Yes. But again, without smoking history.

Q. And is that because that was a mortality study as well?

A. Yes, it was.

Q. Okay. So we now have talked about the initial look at the PCB workers in the 1970s, and we've talked about the subsequent look at the PCB workers by Monsanto folks in the 1970s. Any other epidemiology studies that Monsanto has done or had done on its workers --

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000234

213

A. Not of the PC- --
Q. -- its PCB workers?
A. Not of the PCB workers, no.
Q. Have you seen the raw data that underlies the study that the Monsanto epidemiologists conducted?
A. No.
Q. So now have you told me about all of the epidemiology studies that have been conducted with respect to current or former Monsanto employees exposed to PCB?
A. Well, I mentioned there are more general studies that involved PCB workers as a subgroup, but not split out as a subgroup. There are more general studies of the Krummrich plant as a whole and of the Anniston plant as a whole.
Q. Okay. Well, tell me --
A. What we'll call surveillance studies.
Q. Okay. Tell me about those.
A. Well, basically, the Anniston study is easy. There was, basically, when they looked at the whole Anniston population, I believe in the 1995 time frame, there was no evidence of any excesses of cancers in that population. The Krummrich study -- there have been other Krummrich studies.
Q. I'm sorry. Let me just stop you there.

214

A. Sure.
Q. Was that study published anywhere?
A. No. It's -- it's, in fact, I think it's a Solutia internal publication -- or internal paper.
Q. And what's -- approximately what's the date of that?
A. Well, if I'm correct that it's Solutia, it has to be after 1997. As I sit here today, I would have thought -- no. It has to be sometime after 1997. I know it was a Solutia-done study.
Q. Okay. All right. So that's one you've mentioned. And now you've said there was a study with respect to the Krummrich plant?
A. Yeah. There have been other studies at Krummrich plant -- the Krummrich plant, but not specifically related to PCBs. In fact, specifically not related to PCBs. There was one --
Q. Okay. Now you've confused me.
A. Well, there was one done of benzene workers at the Krummrich plant.
Q. Okay. Who conducted that study?
A. A Monsanto epidemiologist, Jim Collins.
Q. Anyone else?
A. There were other people on the publication. I don't remember their names.

215

Q. Okay. But Jim Collins was the Monsanto epidemiologist in charge of that study?
A. Yes.
Q. And in connection with the Krummrich plant, what did that study show?
A. Guess what? An excess of lung cancer. Yes. There was a small excess of lung cancer in that study, also --
Q. Amongst whom?
A. -- which had nothing to do with -- amongst benzene workers. Now, in regards to all that, and it's mentioned in some of the -- I believe it's mentioned specifically in the benzene study, there is an excess of lung cancer in the county in which that plant exists, and so the comparisons were made to national statistics -- statistics, not to local statistics.
So aside from the smoking history, it's -- there was -- no attempt was made to correct for the fact that there is a higher rate of lung cancer in that whole county. Just for information. That is mentioned in the benzene paper. It is not mentioned in the PCB paper.
Q. So am I correct that every time someone has looked at a Monsanto PCB plant, they found an excess

216

of lung cancer?
MR. MILLER: Object to the form.
A. No.
MR. MILLER: Misstates his testimony.
Q. (By Mr. Stewart) Okay.
A. Well --
Q. Oh. Let me back up. When the Anniston plant was looked at, I think you said there was -- when Monsanto looked at the Anniston plant, did they look specifically at PCB workers?
A. It was Solutia. And no, they did not.
Q. Okay. They just looked at the worker population in general; is that correct?
A. That's correct.
Q. And the Anniston plant did more things than just make PCBs; right?
A. That's correct.
Q. What percentage of the Anniston work force was, if you can, working on PCBs versus working on other things?
A. At the time that study was done? Well, that could lead to a smarty-pants answer which I won't give you. Obviously, the study was done in 19- -- in the late 1990s, so none were. My understanding -- and I know that's not your question -- my understanding was

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000235

217

that there were actually very few former PCB workers in that -- and that would be included in that population because they hadn't made PCBs at that plant in 25 years.

Q. Okay. So when we --

A. There were some, but not --

Q. So when we look at the Anniston epidemiology study, you would agree that it does not include very many PCB workers; correct?

A. Yes. Definitely.

Q. So now let's go to the Krummrich study that you were mentioning earlier by Jim Collins --

A. Okay.

Q. -- there. How many of those workers were former PCB workers?

A. I don't know.

Q. A small number?

A. I don't know.

Q. Don't know one way or the other?

A. I don't know. I don't know if it was assessed. I don't know one way or the other.

Q. And was the Jim Collins epidemiology study a mortality study?

A. Yes.

Q. Has there been an epidemiology study at a

218

Monsanto PCB facility that was not a mortality study?

A. Well, there was a cross-sectional study done at the Krummrich plant that had nothing to do with PCBs. Basically, a morbidity study or looking at the -- that section in time health experience of the Krummrich workers.

Q. Was that published?

A. No.

Q. Okay. So out of these studies that have been done at the Monsanto PCB facilities, how many of them have been published in the peer review literature?

A. Well, the ones with regard to PCB specifically, none. The benzene study has been published in the peer review literature.

Q. What part of the Krummrich plant was using benzene?

A. I don't know specifically. It was -- it was fairly widely used, actually. It was an important raw material at that plant, but I don't really know the specific product chemistries.

Q. At the Krummrich plant, did Monsanto use benzene to make the diphenyl?

A. No. That was all done at Anniston.

Q. Okay. So the Anniston plant transformed

219

benzene into diphenyl and then shipped diphenyl to Krummrich?

A. That's correct.

Q. And so I'm clear, there are no published peer reviewed studies of PCB workers at Monsanto plants; right?

A. That is correct.

MR. MILLER: Object to the form.

THE WITNESS: Sorry.

A. That is correct.

Q. (By Mr. Stewart) The next topic is "The History of any Warnings Provided by Monsanto to its Customers and/or End Users of PCBs, with Respect to the Need to Prevent PCBs from Being Released to the Environment." And you've provided documents with respect to this?

A. Yes.

Q. Well, let's -- those two in the box?

MR. MILLER: Yeah.

Q. (By Mr. Stewart) Okay. All right. Fair enough. So let's label the ones in the folder first.

A. Okay.

(Plaintiffs' Exhibits 22 through 24 were marked for identification.)

Q. (By Mr. Stewart) Okay, sir. The first

220

document that I have that has been labeled for this deposition Kaley Exhibit 22 is dated December 27, 1966. It's a letter from P.G. -- how do you pronounce this person's last name?

A. Benignus.

Q. -- Benignus to Bruce Bradbeer at General Electric. And why have you selected this document in relation to the subject of the history of warnings provided to Monsanto to its customers with respect to the need to prevent PCBs from being released into the environment?

A. Well, the earliest information Monsanto got about the presence of PCBs in the environment was in December of 1966 based on the work in Sweden. And this just indicates that almost immediately we sent information regarding that -- that report to General Electric who was our largest customer.

Q. Okay. Then Kaley Exhibit 23 says February 27, '67. What's this document?

A. It's basically the same type of document showing that two months later in February we, in fact, let our -- the NCR Company, another huge customer of PCBs, become aware of the situation that was developing in Sweden and transmitting the originals, Jenson paper, to NCR.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000236

221

Q. All right. And then Kaley 24 is what, sir?
A. This is just an example of the kind of efforts Monsanto was making specifically in the Therminol, the heat transfer fluid area to alert its customers to the need to control and eliminate leakage in their heat transfer systems.
Q. So this document is dated November 11, 1970; correct?
A. Right. Yes.
Q. So help me understand this document, Kaley 24, where it talks about checking for the source of leakage. On the third page, it talks about reconditioning. What is that?
A. It's basically taking the used fluid and sending it some place to have it purified, so it could be reused.
Q. Okay. Why would it need to be purified? I don't understand.
A. Well, if it was leaking, it may have had contamination or oxidation products in it, so it would need to have those materials cleaned out. Or if it leaked into a -- onto something, it may have particulates or something for wherever the leak occurred so it would be, before you could put it back in the system, you would have to basically reconditior

222

it to its former state as a pure Therminol heat transfer fluid.
I mean, in the bottom, they talk about moisture, acid number, viscosity, and contaminates, and that's what the re- -- reconditioning was --
Q. I'm sorry. Where is that at?
A. Just the -- the last paragraph on the page you're on under where it says "reconditioning."
Q. I see. Yes. Okay. What would cause moisture?
A. Well, if it's -- if it's gotten out of the system into the atmosphere, it could absorb moisture from that -- from the atmosphere.
Q. Well, what would cause acid?
A. I'm not sure what acid number is. It's basically a breakdown. Sometimes if they're exposed to the atmosphere, the breakdown products are acidic which can cause corrosion. You've just reached the limit of my knowledge.
Q. Yeah.
A. Pardon. Yes.
Q. Okay. So you don't know what that means?
A. Well, I know it's a measure of acidity which is undesirable in the fluid. That's all I know.
Q. And that's what I was trying to get at.

223

You -- you don't know what's causing that acidity. You just know they were -- there was a number range for the acidity that if, it got above a certain number, then it was -- it made sense to recondition the product?
A. That's correct.
Q. Okay. And viscosity, what would cause the viscosity to change?
A. Again, probably breakdown of the original fluid somehow or dilution during the leak process if it got diluted with some other material.
Q. Oh. Okay. Well, this is stuff that didn't readily break down; right?
A. That's true. It did not readily break down, but if you had a leak -- heat -- a heat transfer system was obviously hot, and if you had a leaky system, there is the potential for breakdown, some small level. But any small level will adversely affect the product.
Q. Well, in that sense, is it the PCBs that are breaking down or the contaminants within the PCBs that are breaking down?
A. To some -- to a certain low extent, it's the PCBs that are breaking down.
Q. And then you said contaminants, and these

224

contaminants would be what?
A. We talked about it. I mean, probably the moisture or soils from wherever the leak was occurring. I don't know specifically what they're addressing, but those are things that would spring to mind as I think about a leaking heat transfer system.
Q. All right. Now, there's some boxes behind you?
A. There are.
Q. And what is in those boxes?
A. That is a -- as complete as possible, as I understand, set of all the Monsanto warning letters from about March of 1970, or maybe a little earlier, when that program went into effect through later in the 1970s, actually, of all the letters that was sent to our customers in all the various business categories of electrical, heat transfer, hydraulics, plasticizers.
Number one, informing them of the awareness of the PCB environmental situation in the first instance and then, as we withdrew from products distribution in the open uses, explaining when we were going to do it; why we were doing it; how we would help them through those transitions, etc., etc. So it's basically a -- a collection of that whole set of

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000237

225

warning letters.
Q. Who put that together?
A. The attorneys.
MR. STEWART: Can we go off the record for a moment?
THE VIDEOGRAPHER: Yeah. Off the record at 4:01 p.m.
(Plaintiffs' Exhibits 25 through 29 were marked for identification.)
THE VIDEOGRAPHER: Back on the record at 4:03 p.m.
Q. (By Mr. Stewart) So, sir, you had mentioned that there were some documents in some boxes that you had brought as well, and I've marked those as Exhibits 25 through 29.
A. Yes.
Q. As -- this is, as you stated, as complete a record as you believe exists of the warnings that Monsanto provided to its customers and end users of PCBs with respect to the need to prevent PCBs from being released into the environment; correct?
A. No.
MR. MILLER: Object. It misstates his prior testimony. Go ahead.
Q. (By Mr. Stewart) I'm sorry. What are they?

226

A. No. These are the letters and mailing lists of the series of letters that Monsanto sent to customers, as I described earlier, describing the evolving PCB situation, describing our decisions to either substitute or remove products from the product line, describing regulations that were occurring. So it's just basically a set of warning letters undertaken pursuant to Monsanto's decision in early 1970 to notify customers as we moved along.
There are numerous other things that Monsanto did and said with regard to warnings to customers and others. This is just a set of the warning letters that have been used in other litigations and have been requested. So that's -- the set existed, and I thought it was relevant to that particular question but by no means exhausts Monsanto's efforts to notify and warn customers or others.
Q. What else exists besides what you provided?
A. Well, there's -- Monsanto PCB products have had labels on them since forever with -- with use information and in 19- -- starting in 1970 and 1971, Monsanto put an environmental label on every shipment of PCBs that went out warning the customers not to allow this material to get into the environment.

227

Monsanto continued to send information, you know, to the government and other people about the evolving knowledge of PCBs. They put warnings in their product bulletins, environmental warnings, for instance, an environmental warning in the -- in the plasticizer bulletin about, be sure that these materials are not used in a situation for which they could get into environmental situations to be released into the environment.
Dr. Papageorge and Dr. Benignus and others worked on committees, national committees, standards committees on developing, handling, and safe use standards for the Askarel fluids, so I mean, there was just a plethora of things.
There were also Monsanto salesman, during their calls on customers, would be sure the customers understood what the situation was going on and asked, you know, handing -- giving them documents, making them aware of what was going on, warning them that they need to control potential releases of the PCB-containing fluid.
So there was just a whole rhapsody, really, of efforts to be sure that all of our customers knew and understood the seriousness of the situation and to do everything within their power to prevent

228

environmental releases.
Q. Okay. So I'm clear. Monsanto did not begin warning its customers or end users of PCBs about preventing PCBs from being released into the environment until 1971?
A. No.
MR. MILLER: Object to the form.
A. No.
Q. (By Mr. Stewart) Or in what year did Monsanto --
A. Well –
Q. -- first do that?
A. Well, I think the first two letters that we talked about in these -- in these -- in this section, the letters to GE and NCR were basically warning them that there was a potential developing environmental situation. Certainly, it may not have said, don't release them. It was certainly making them aware of a situation that was developing.
There were also personal communications throughout the time period. There were labels throughout the time period. There were customer contacts throughout the time period. The setup documents in those binders is the formal notification letters where Monsanto was being sure that they were

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000238

229

notifying all of their customers in all of their product groups about the situation and to continue to keep them involved. But clearly, it's not the universe of --

Q. All right.

A. -- things, and things clearly happened before March of 1970 or whenever the first documents in there are.

Q. Are you aware of Monsanto warning any customer or end user of PCBs with respect to the need to prevent PCBs from being released into the environment before December 27, 1966?

A. No. I'm not aware of that.

Q. And what you cited as something that was a warning was Kaley 22, the letter from Benignus -- I said that wrong?

A. Benignus.

Q. Benignus. Mr. Benig- -- Benignus. It's Dr. Benignus?

A. I think it's "Mr.," but I'm not sure.

Q. Okay. Mr. Benignus to Bruce Bradbeer at General Electric; right?

A. Yes.

Q. And where does it say in this document, December 27, 1966, don't release this stuff into the

230

environment?

A. I said earlier, it does not say that. But it is -- it is alerting them to a situation which is developing.

Q. And this February 27, 1967, document that is Plaintiffs' Exhibit Kaley No. 23 from Emmet Kelly to M.J. Thomas at National Cash Register, where does it say don't release this stuff into the environment?

A. My answer is the same. It doesn't say that. It's alerting them, though, to an evolving situation.

Q. So this letter actually says, "As far as the section on toxicology is concerned, it is true that chloracne and liver trouble can result from large doses." Right?

A. That's what Dr. Kelly says, yes.

Q. And then he goes on to say, "Whether or not this is at all relevant to small quantities existing in human fat is, of course, an entirely different question." Correct?

A. Yes.

Q. So it's clear that as of February 27, 1967, Dr. Emmet Kelly was aware with that PCBs were showing up in human fat; correct?

A. That was part of the Jenson article.

Q. So that's a yes?

231

A. Yes.

Q. So I guess he knew even before February 27, 1967; correct?

A. Yes.

Q. He knew in 1966; right?

A. Late, yes. Well, I'm not sure when we actually got that article. I don't -- I don't know the -- I don't remember exactly when that article came, but it was in that time frame, December '66 to February of '67.

Q. And then Dr. Kelly says, at any rate, I believe before we worry about the toxicological part of the problem, we should settle the analytical part; correct?

A. That's what the letters says, yes.

Q. This is Dr. Kelly telling NCR to not yet worry about the toxicology; right?

A. Yes. The reason for that is because there was, at that time, early on some discussion and potential discrepancy between what was being reported as PCBs, whether it was biphenols with an "O" or biphenyls with a "Y." So there was some initial confusion in some circles around that question.

Q. Was Monsanto confused about that?

A. Early on, yes.

232

Q. What does "early on" mean?

A. In that time frame. I think fairly quickly after that, it became clear it was biphenyls with a "Y."

Q. Now, you said from forever Monsanto had been providing warnings on its products. What do you mean by that, "forever"?

A. Well, there were labels -- I'm sorry. That was a very poor choice of words. But Monsanto had labels for use, appropriate use of its products on products from, certainly, 1940 or shortly before on through the whole time they manufactured that product line as they did on all their products.

Q. Are those anywhere in what you provided?

A. No.

Q. What did the labels say on Monsanto's Aroclor products in the 1930s?

A. Basically, don't use the mix- -- elevated temperatures, and if you use them at elevated temperatures, make sure there's proper ventilation.

Q. So it said not to use them in elevated temperatures?

A. Well, no. I'm sorry. It said if you use them at elevated temperatures, make sure there's appropriate ventilation.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000239

233

Q. Why did it say that?
A. Basically, because the studies done at Harvard in the late 1930s had indicated that at high-temperatures, PCBs could be volatilized at levels that cause physical changes in rats and to be -- have precaution that those -- those -- I'm sorry -- those animal results indicated that proper use by humans would be to be sure that they weren't exposed to those high levels of volatilized PCBs. The way to do that is if PCBs are at high temperatures to provide ventilation.
Q. And by providing the ventilation, what would happen to those volatilized PCBs?
A. They would be removed from the work area.
Q. And go into the environment; right?
A. Well, they'd go into the air and immediate vicinity of the plant, yes. I'm sure they come out very quickly.
Q. So that by providing ventilation of volatilized PCBs, that was a pathway for PCBs to get into the environment; right?
MR. MILLER: Object to the form.
A. Yes. To a certain extent.
Q. (By Mr. Stewart) And that was true in the '30s, the '40s, the '50s, the '60s, and the '70s;

234

right?
A. To the extent that PCBs were being used at elevated temperatures in open systems, yes.
Q. Well, that was how they were being used in heat transfer systems; right?
A. No. Those are closed systems.
MR. MILLER: Object to the form.
Q. (By Mr. Stewart) Are you saying that in heat fluid transfer systems that there was no means by which PCBs would be volatilized?
MR. MILLER: Object to the form. Exceeds the scope of your notice.
Subject to that, you can answer. Calls for speculation. If you remember the question now, go ahead and answer it.
A. Not at high temperatures because by the time it got out of the heat transfer system, it would have quickly dropped to atmospheric or ambient temperatures, and they would not be volatile anymore.
Q. (By Mr. Stewart) PCB products ever carry a cancer warning?
MR. MILLER: Object to the form.
A. No. There was no evidence that they caused human cancer. They would not. Our current MSDSs notes that PCBs have been shown to be animal

235

carcinogens. But the PCBs products themselves, as far as I know, never carried any such warning.
Q. (By Mr. Stewart) If they were being made now, they would have to carry such warning; true?
MR. MILLER: Object to the form. Calls for a legal conclusion. It calls for speculation. There's no foundation. It's beyond the scope of your notice.
Q. (By Mr. Stewart) Go ahead. You can answer.
A. Probably in California. Otherwise, I don't believe there's any regulation that would require that. It would have to be noticed on the MSDS. And not that they caused cancer, but that they were listed as probable carcinogens by certain regulatory agencies. They wouldn't have to say they cause cancer because no one has ever -- regulatory agency has ever said that.
Q. Hmm. Can you tell me one regulatory agency that says that PCBs probably don't cause cancer?
MR. MILLER: Object to the form of the question. It's beyond the scope of your notice. There's no foundation.
Q. (By Mr. Stewart) Go ahead.
A. No. Because none of them say anything like that about any chemical. Well, that's not true.

236

Well, is it true? That is not true. IARC does have a Class D which says they probably -- or the evidence is such that they probably do not cause cancer or something to that effect.
So, no. I cannot tell you any regulatory agency that has said that about PCBs.
Q. Isn't it true that every governmental regulatory agency that you're aware of that has looked at the PCB issue has determined that PCBs more likely than not cause cancer?
MR. MILLER: Object to the form of the question. It's outside the scope of the notice. There's no foundation with this witness, and it's vague and ambiguous in terms of what you mean by "probably."
But to the extent you can answer, go ahead.
A. Well, you didn't say "probably." You said "more likely than not," and no agency has ever said that.
Q. (By Mr. Stewart) More likely than not?
A. Correct.
Q. Isn't that what "probably" means?
A. Not in agency terms, no.
Q. You don't think "probably" means "more likely than not" in agency terms?

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000240

237

A. No.
MR. MILLER: Object to the form.
A. No.
Q. (By Mr. Stewart) What do you think it means in agency terms?
A. I think it means --
MR. MILLER: Object to the form.
THE WITNESS: Sorry.
A. I think it means that PCBs have found to be -- been found to be carcinogens in animal studies, and there is limited or suggestive evidence from human studies.
Q. (By Mr. Stewart) Okay. And so you don't think that -- when they say it's probably a carcinogen, they mean more likely than not it's a carcinogen?
A. No.
MR. MILLER: Object to the form of the question. Objections -- previous objections stand. It's beyond the scope of your notice. There's no foundation with this witness. Now you're just bickering about what the agency's classifications scheme say.
Subject to that, you --
Q. (By Mr. Stewart) Go ahead. You can answer.

238

A. I think that was the same question. No. I think that -- I don't remember what the question was.
The agency classifications are based on definitions in those agency documents that basically say, to be classified a probable human carcinogen, the criteria is for known animal carcinogen or sufficient evidence for animal carcinogenicity which is more -- more precise and either limited or suggested evidence for human carcinogy -- carcinogenicity.
Nowhere in any of those documents does the term "more likely than not" exist.
Q. No. They use the term "probable"; right?
A. Yes.
Q. And you're saying that "probable" in those documents doesn't mean "more likely than not"?
A. Yes.
MR. MILLER: Object to the form of the question. Exceeds the scope of the notice. There's no foundation.
Subject to that, you can answer.
A. That's what I'm saying.
Q. (By Mr. Stewart) Okay. The next topic is "Monsanto's Internal Standards of Conduct, with Respect to the Production, Marketing, and Sales of Chemicals from 1930 to 1977."

239

And you produced a document in connection with this. What is it?
A. These are -- these two documents are exemplars from Monsanto Management Guides which existed. The earliest the attorneys were able to locate was 1938 through the time that Monsanto manufactured PCBs. And these are just examples of those documents or even -- they're not even examples of the whole document. They're examples of portions of those documents which -- which give the kinds of information that is in those Management Guides.
MR. STEWART: Can you please mark those as exhibits?
Q. (By Mr. Stewart) So you said the first one was 1938. Where is that?
A. No, no. I said these are exemplars. The first one that I reviewed to respond to this document was 1938. These are -- there are a number of documents. These are just exemplars. It's not -- I wasn't asked to produce it, so I just brought the exemplars that I thought would be helpful in responding to your request for information.
(Plaintiffs' Exhibits 30 and 31 were marked for identification.)
Q. (By Mr. Stewart) Okay. So in Kaley

240

Exhibit 30, it's a December 1, 1966, document; correct?
A. Yes.
Q. And what do you think in this document is responsive to the question or the topic of "Monsanto's Internal Standards of Conduct with Respect to the Production, Marketing, and Sales of Chemicals from 1930 to 1977"?
A. In -- on the third page.
Q. Okay.
A. Talks about process toxicity. I mean, all of these basically address the standards under which Monsanto was operating with regard to its products and production control and finished goods inventory. All of those have to do with it, but this one I selected because it addresses specifically products, process tox- -- toxicity, and waste disposal.
Q. Now, you just said you selected this one.
A. Yes.
Q. Well, the lawyers selected, and then you selected it?
A. I asked the lawyers for -- for what information was available on this. I didn't know from the time that Monsanto was making them what standards were available. The lawyers made -- formed a

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000241

241

collection of those standards which I reviewed, and these were exemplars that -- that I brought.

Q. How many did you review?

A. I don't remember. 10, 20. 10 or 20. I don't remember how long the list was.

Q. So you examined some from the '30s?

A. One, I believe. Yes.

Q. Okay. And you didn't bring it?

A. No.

Q. You examined some from the '40s?

A. I don't recall.

Q. Did you examine some from the '50s?

A. Yes.

Q. And didn't bring them?

A. No.

Q. You examined these from the '60s; right?

A. And others.

Q. Okay. And you brought two?

A. Yes.

Q. Examined some from the '70s?

A. Yes. I believe so.

Q. Okay. Didn't bring them?

A. Yes. That's correct. I did not.

Q. Okay. All right. And so you selected this one, Kaley Exhibit 30, and you've pointed out that

242

there's a section here on process toxicity?

A. Right.

Q. Okay.

A. And then two pages later, there's the position title, the director of the medical department, and talks about what his function is and a number of his duties which seem to me to be relevant to what you might be interested in with regard to that topic.

Q. And what -- what is -- what is this document out of? It looks to me like it's out of some sort of policy guide or --

A. Well, there is something called the Monsanto -- or I don't know. It's called the Management Guide which is -- this is a memo addressed to holders of the Management Guide. That was an Evergreen document which underwent numerous revisions through the years, and these are basically example -- or these are updates of that particular document which address these particular topics.

It didn't -- the document was not itself updated in whole every year or every two years. As appropriate changes were determined, then those sections would be revised, and these are examples of those kinds of revisions.

243

Q. Okay. And take a look at Kaley Exhibit 30. Is this a document that has been put together for purposes of litigation? And here's what I mean by that. This document is consecutively Bates stamp numbered. Is this how the document is originally found?

MR. MILLER: Object to the form. I think it's vague. Sorry. I don't understand your question.

Q. (By Mr. Stewart) Do you?

A. I think I do.

Q. Then answer it.

A. Okay. No. These -- these Bates stamps were put on here as I -- or these product -- production numbers were put on here, as I understand, because these documents were being produced today, and Monsanto wants to keep a record of all the documents that are produced to you in this litigation. So these are very recent numbers, probably at the end of all the other documents you have received throughout this litigation.

So, no. These do not occur sequentially in that set of documents that I reviewed. They only numbered those which I've selected as exemplars to discuss with you today.

Q. I understand. So that when we -- when we

244

look at Exhibit No. 30, it is two pages taken from somewhere, another page taken from somewhere else, or two pages --

A. No. No. I think this document -- well, that could be. That's probably true.

Q. Okay. So -- so I'm clear --

A. I mean, it's -- it's -- it's all out of the document with this cover sheet, but it may not be every piece of paper in that original document, as I recall.

Q. And so I'm clear, Plaintiffs' Exhibit No. 30 are selected portions of a December 1966 holders of the Management Guide; is that correct?

A. That's my recollection of what I did, yes.

Q. It's not everything that was in the Management Guide; it's just selected portions that was -- of what was in the Management Guide. Correct?

A. Yes. Looking at -- yes. Looking at the index, I'd say that's correct. Yes.

Q. When did Monsanto first start putting together a Management Guide?

A. Well, I think I said the earliest I found was in the '30s. I think that's the date. I could be wrong on that. '30s or '40s. But sometime in that time frame.

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000242

245

Q. So do I understand you to say that Monsanto since the 1930s has always had a Management Guide?
A. I believe that's correct.
Q. So we should expect to see in Monsanto's document Management Guides from the '30s and the '40s, the '50s, the '60s, the '70s, etc.; right?
A. In what Monsanto documents?
Q. In the Monsanto documents for this litigation?
MR. MILLER: Let me object to the form. I don't know if Dr. Kaley would have any foundation to know what was produced in connection with this case, specifically, with respect to the documents that you've requested in your request for production of documents. He likely does not have that information, nor do I believe the Management Guides were the subject of a specific document requested from the plaintiffs in this litigation.
MR. STEWART: Are you telling me the Management Guides aren't over in the document repository?
MR. MILLER: I don't know whether or not they are. I don't think they were ever requested.
MR. STEWART: I'm requesting them now. I would like all the Management Guides from the '30s,

246

the '40s, the '50s, the '60s, and the '70s.
MR. MILLER: And since you're a Missouri lawyer, then you know how to issue a document request pursuant to the Missouri Rules of Civil Procedure?
MR. STEWART: I do and I will. Because I don't believe that's something that is not covered under things we've already asked for, so.
MR. MILLER: I don't want to sit here and debate the minutia of your document request.
MR. STEWART: It's not minutia.
Q. (By Mr. Stewart) So before -- when did you first see these Management Guides that you reviewed in order to get down to these two?
A. I would say probably two months ago.
Q. Okay. Now, with respect to Kaley 31, it's something else out of the Management Guide; right?
A. Well, it's a memo transmitting updates to the manager -- Management Guide.
Q. And what in this is pertinent, in your opinion, to Monsanto's internal standards of conduct with respect to production, marketing, and the sales of chemicals from 1930 to 1977?
A. Well, I think the second page talks about relations with shareholders -- shareowners in relations with plant communities. And the Corporate

247

Development Committee talks about -- the third and fourth page, I'm sorry, talk about the responsibilities of the Corporate Development Committee, and some of those address operating standards for the products manufactured by the company.
Q. And am I right, again, that this document is another example of pieces that were pulled from different places and put together into one document?
A. Yes.
MR. MILLER: Al, it's 4:30. We've been going an hour. I think I need a break. Can we go off here?
MR. STEWART: Sure. Go ahead and take it.
THE VIDEOGRAPHER: Off the record at 4:32 p.m.
(Whereupon the deposition was continued to the next day, November 18, 2011, and the witness was excused.)

248

REPORTER CERTIFICATE

I, Dawn M. Bloemker, Certified Shorthand Reporter, Registered Professional Reporter, and Certified Court Reporter, do hereby certify that there came before me at Husch Blackwell LLP, 190 Carondelet Plaza, Suite 600, St. Louis, Missouri 63105

DR. ROBERT KALEY

who was by me first duly sworn; that the witness was carefully examined; that said examination was reported by myself, translated and proofread using computer-aided transcription; and the above transcript of proceedings is a true and accurate transcript of my notes as taken at the time of the examination of this witness.

I further certify that I am neither attorney nor counsel for nor related nor employed by any of the parties to the action in which this examination is taken; further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto or financially interested in this action.

Dated November 25, 2011.

_____
Dawn M. Bloemker, CSR, RPR, CCR

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000243

249

CERTIFICATE OF REPORTER
AND STATEMENT OF DEPOSITION COSTS

EDWARD COLELLA,)
)
Plaintiff,)
)
vs.) Cause No. 09SL-CC01972
) Division No. 7
)
MONSANTO CO., ET AL.,) NOTICE OF DEPOSITION
)
Defendants.)

MISSOURI CIRCUIT COURT
TWENTY-FIRST JUDICIAL CIRCUIT
ST. LOUIS COUNTY

LIVINGSTON HAMPTON, MAGGIE)
MOOYMAN, and RUSSELL ABBER,)
)
Plaintiffs,)
)
vs.) Cause No. 10SL-CC03428
) Division 17
MONSANTO CO., ET AL.,)
)
Defendants.)

MISSOURI CIRCUIT COURT
TWENTY-FIRST JUDICIAL CIRCUIT
ST. LOUIS COUNTY

NISHIDA, NICHOLAS WHITE,)
INDIVIDUALLY AND AS SURVIVOR OF)
MARK WHITE, DECEASED, AND)
ALISON TUCKER,)
)
Plaintiffs,)
)
vs.) Cause No. 09SL-CC01964
) Division No. 13
MONSANTO CO., ET AL.,)
) NOTICE OF DEPOSITION
)
Defendants.)

250

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF MISSOURI

LIVINGSTON HAMPTON, MAGGIE)
MOOYMAN, and RUSSELL ABBER,)
)
Plaintiffs,)
)
vs.)Cause No. 4-11-CV-01662
)
MONSANTO CO., SOLUTIA, INC.,)
PHARMACIA CORP., AND PFIZER,)
INC.,)
)
Defendants.)

I, Dawn M. Bloemker, hereby certify that the original deposition of DR. ROBERT KALEY, taken on November 17, 2011, is in the custody of Allen Stewart, P.C., 325 N. St. Paul Street, Suite 2750, Dallas, Texas 75201.

TAXED IN FAVOR OF PLAINTIFFS

Total: $
FOR: Allen Stewart, P.C., 325 N. St. Paul Street, Suite 2750, Dallas, Texas 75201.

TAXED IN FAVOR OF DEFENDANTS
Total: $
FOR: Husch Blackwell, LLP, 190 Carondelet Plaza, Suite 600, St. Louis, Missouri 63105.

251

Upon delivery of transcript, the above charges had not been paid. It is anticipated that all charges will be paid in the normal course of business.

I have hereunto set my signature on November 25, 2011.

_____
Dawn M. Bloemker, CSR, RPR, CCR

6a3063f2-a1cc-4d3e-9237-90885887191e
HARTOLDMON0000244

A

abber 1:9 2:4 3:14 7:11 8:3 249:11 250:3
ability 41:20 119:24 128:15,16,19 129:13,18 192:1
able 43:12 44:9 56:24 91:23 136:6 186:23,25 239:5
abreast 41:22 42:7 43:3,11,16
absolute 105:9,9 179:3
absolutely 32:1
absorb 222:12
acceptable 166:15 170:4,16 183:20,23
access 88:17,18 91:18 114:11 120:1 128:20
account 87:21 88:24 89:4 111:21 113:19,21 114:8
accounted 104:25
accrues 18:16
accumulated 14:1
accurate 28:11,15 29:19,20,21,25 80:6 82:12 248:8
accurately 115:21,23 127:12
accusation 133:4
acid 222:4,14,15
acidic 222:17
acidity 222:23 223:1,3
acknowledgment 25:21
acquire 118:24
acquired 133:7
acquiring 133:25
acquisition 116:19 133:12 134:19
acted 24:21
action 248:11,13
actively 51:13,16 55:19 90:12
activities 16:16 17:10 20:3,7,22 27:20
actual 45:6 108:6
adam 8:18 10:6 175:16 198:15,25
adapted 167:4
addition 11:8 68:13 83:17
additional 192:25
address 89:1 97:24 119:17 129:5 152:16 166:3 240:12 242:20 247:4
addressed 34:9 159:17 242:15
addresses 240:16
addressing 224:5
adhesive 63:11
adhesives 63:8 68:11 131:18 185:1
administered 10:16
advantages 162:11
adversely 223:18
affect 223:19
age 10:14
agencies 56:14 160:9 203:8 235:15
agency 144:6 235:16,18 236:6,8,18,23,25 237:5 238:3,4
agencys 237:22
ago 65:9 69:13 182:20 246:14
agony 189:23
agree 36:22 37:2,8,12 51:12 60:17 156:9,11 179:6 182:13 189:9 200:18 217:8
agreed 9:1
agreement 9:8 115:1
agreements 79:3
agriculture 50:17
ahead 49:6 61:10 66:20 76:17 111:9,10 174:6 177:2 183:10 191:18 208:7 225:24 234:15 235:9,23 236:16 237:25 247:14
air 233:16
al 1:5,11,23 3:9,11,14 7:6,14,23 8:15 9:13,19 10:2,3 59:20 96:10 247:11 249:6,14,23
alabama 146:17,19,20 147:2,12,16,25 148:8 148:9
alert 221:4
alerting 230:3,10
alison 1:19 3:9 7:20 249:20
allen 8:16,16 250:10,15
alley 87:2,3,4,5 129:3
allow 154:25 171:6 226:25
allowed 48:21 129:20 160:3 163:6
allowing 159:20
allows 101:16
alternative 168:22 169:3,5 170:13,16 171:4 175:4,4 179:7 181:15,16,22 184:15,16,17
alternatives 159:22 166:11,14 167:6 169:6 174:15 176:7,11,19 177:5,8,11,16 178:14,21 179:9 181:13,21,21 183:13,19,25 184:2,21 185:1,3,7,14,17
amazon 161:18
ambient 234:18
ambiguous 39:17 54:12 141:22 236:14
amount 21:17 22:19 27:10 52:12,12 92:12,16 92:17 98:2,2

amounts 44:21 45:18 95:18,19,21
analogous 106:21
analytical 39:23 49:11 53:19 54:3,6 137:9 231:13
animal 56:15 233:7 234:25 237:10 238:6,7
animals 139:10 140:7,17
anniston 138:1 146:16,19,20 147:2,11,16,25 148:6 203:14 213:15,19,21 216:7,9,15,18 217:7 218:24,25
annistons 133:5,13
answer 16:15,17 17:5,20,22 19:14 20:1,2 22:12 24:2,8 30:11 33:25 34:2,7 35:20 36:3 37:16,17 38:15,24 39:19 40:25 41:10,20 43:21 49:6 51:22 53:2,20 54:13 55:15 56:11 64:25 76:18 77:2 92:8,19 110:6 111:12 119:21 134:4 135:11,14,25 139:20 140:20 141:5,17 148:13 149:9 151:3,11,20 168:17 170:25 180:17 181:6 183:24 187:23 197:2 198:17 208:6 210:15 211:21 216:22 230:9 234:13,15 235:9 236:16 237:25 238:20 243:11
answered 43:19 57:20 103:11
answering 34:24,24 42:11
answers 61:12 111:6 130:20 199:17
anticipated 251:2
anticipation 171:3
anybody 112:23
anymore 66:2 234:19
anyway 194:18
apocrypha 187:6,7
apocryphal 189:15,22
apologies 206:18
apologize 96:14 107:14
apparent 204:10
apparently 44:8 106:23 130:23 134:9
appear 42:22
appli 59:15
appliances 185:22,23 186:2,3
applicable 51:1 178:10
application 25:15 50:3,18,20 51:11 84:5 89:17 102:13 157:19 167:4
applications 50:6 52:3 55:25 58:18 59:16 71:1,2 75:7,10 82:24 102:8,10 151:1 168:4 169:13 177:12 178:1,18,23 179:1,25 184:23
appropriate 32:10 232:10,25 242:23
approval 32:15
approximately 22:21 36:19 97:3 214:5
april 117:21
archive 198:23 199:1
area 208:4 221:4 233:14
areas 161:10 163:21,23
arent 121:18 134:6 142:11 182:22 245:20
argue 168:23
arguing 62:11
aroclor 4:2 52:13 70:4,6,7,12,13,19,25 71:6 72:5,9 73:18 75:15 78:19,23 82:12 84:4,11 86:8 101:6,9,18,21 104:24 105:17 108:20 108:25 109:4 131:9 135:2 144:18 145:3,6,9 145:12,16,20,25 232:17
aroclors 52:13 70:14 71:7,9,10,13,14,15 72:25 82:18,22,23,23 83:2,4,13,16,21,24 84:1,7 105:7 131:4 177:23
arrangement 22:3
arrangements 24:3
article 25:15,18,21 29:5,10 31:20,24 32:13 33:1,3,7,13 230:24 231:7,8
aside 215:18
askarel 161:11 162:2,15 163:20 174:16 227:13
askarels 156:6 162:10
asked 16:16 17:25 22:17 32:9,9 43:19 51:7 85:11 97:24 119:16,16,19 121:3,5 122:14 122:15 124:16,18,18 129:9 143:15 157:16 159:13 161:19 165:9 180:18,19 182:25 191:25 192:3,6 196:6,8 197:8,13,25 199:8 200:4,5 203:22 227:17 239:20 240:22 246:7
asking 17:6,17 18:11 19:7 43:1 84:24 120:17 123:6,25 124:12,12 152:3 169:1,17,17
aspects 19:20 68:5
asphalt 74:23 82:23
asphalts 75:8
assessed 217:21
assistants 87:15
associated 54:10,12,23 72:1 91:24 95:21 135:6
assume 41:25 108:14 160:17,25 183:11 185:2 185:20 198:22,23
assumes 43:20 170:23
assumption 134:3
atmosphere 222:12,13,17

atmospheric 234:18
attach 34:13 93:25
attached 6:12 40:17 196:20
attachment 196:23
attachments 196:14
attempt 48:1 215:19
attention 115:24 116:18 149:22 166:2
attest 43:13
attorney 114:14 129:17,18 248:10,12
attorneyclient 17:8
attorneys 10:25 18:14 31:17 90:16,18 121:5 191:16 192:3 197:8,25 200:5 225:3 239:5
attributable 101:25
attribute 204:14
august 13:17 20:19
auth 194:9
author 187:11 194:5
authored 157:14
authors 25:22,22,25 27:22 194:9,15
available 5:1 42:16 44:10 50:22,24,25 56:19 73:9 81:23 136:16 161:18 163:7 166:11,14 169:7 177:5,7,8,10,24 180:15 184:22 185:1 185:3 192:4 199:9 203:7,8 240:23,25
aware 32:24 43:24 54:8 56:4 61:6 66:10 77:4 77:7,9,13 104:2 115:20 119:2,5 121:19 122:11,16 124:22 127:5 153:19 157:15 175:25 176:2 184:9 192:1 220:23 227:19 228:18 229:9,13 230:22 236:8
awareness 224:19

B

b 3:6,21 4:14,16 10:22 144:3,5
back 21:24 49:19 50:1 60:1 68:3,8 82:5 112:9 112:18 130:1 145:20 147:14 158:19 159:3 163:4 182:14,21 187:9 202:14 207:11 208:17 216:7 221:24 225:10
background 199:2
bad 52:5
base 37:23,24
based 11:5 49:10 50:16 58:4 136:7 174:17 198:2 199:20 207:6 220:14 238:3
basically 12:9 17:21 34:8 41:13 45:21 64:2 75:1,5,21 78:23 85:7 101:17 130:22 133:16 133:17 134:7 138:2 147:10,24 148:16 150:6 155:12 164:6 197:20,23 203:21 204:7 206:9 213:19,20 218:4 220:20 221:14,25 222:16 224:25 226:7 228:15 232:18 233:2 238:4 240:12 242:18
basis 3:25 17:8 42:10 93:18 109:25 169:7
bates 121:6,8 243:4,12
bearing 166:4
beating 51:18 52:4
began 36:23 37:3,9 44:19 45:23 47:7,25 55:15,18 60:6
beginning 45:15 56:13 63:17 147:9,18
begun 159:12 203:16 208:19,23
behalf 2:17 8:10 10:7,9 12:7 19:23 26:1 27:23 34:24 42:12,15 130:3 152:9,14,24 165:8
belief 43:22
believe 13:16 19:2 21:9,17 24:20 33:16,19 35:23 37:21 39:24 40:2 43:3,10,14,23 44:11 47:11 52:13 55:24 60:20 63:12 72:15,20 73:10 74:20 82:15 83:23 84:5,9 85:12 118:15 123:21,22 129:12,15 130:19 140:4 142:1,3 143:6 144:11,25 145:10,17,21 146:1 159:17 160:18 171:9 182:10 185:5 190:5 191:16 199:7 213:21 215:12 225:18 231:12 235:11 241:7,21 245:3,16 246:6
believed 60:21 138:14
believes 159:17
belong 38:6
benefits 88:14
benig 229:18
benignus 5:8 220:5,6 227:10 229:15,17,18,18 229:19,21
benzene 40:14,18 93:13 135:5 214:19 215:11 215:13,22 218:14,17,23 219:1
bergen 3:23 4:19 144:8
best 14:16,18 22:18 33:21 36:13 41:20 58:14 105:25 108:3 169:19 191:25
better 22:12 28:10 44:6,13 69:23 71:4 88:11 88:12 178:23,25
beyond 56:10 104:5 182:6 192:17 193:1 235:7,21 237:20
bias 16:22
bickering 237:22
big 63:2 84:15 139:1
bigger 133:19 212:12
billed 91:16 113:11
binder 5:15,17,20,22 6:1

binders 228:24
bioaccum 139:3
bioaccumulate 138:14,23
bioaccumulated 39:10,12 139:10,17,25 140:6
bioaccumulates 39:6
bioaccumulating 139:3 140:13,16
bioaccumulation 139:7,11,21
bioavailable 138:25 139:1
biodegradable 135:7,21 136:5,19
biodegradation 135:13 136:13 193:22
biological 5:2
biphenols 231:21
biphenyl 4:24 37:24 142:14 147:4 154:13
biphenyls 3:18 4:4 25:16 52:16 89:18 142:16 157:20 231:22 232:3
bit 130:23
black 75:2 107:24
blackwell 8:11,18,21 9:16 86:20 88:15,22,23 89:2,5,9,21 90:24 91:20,24 92:3,24 112:21 113:9,14,16,20,24 114:2,13,17,19,21 115:11 248:4 250:18
blackwells 88:21 89:13,16,24
blend 144:25
bloemker 2:22 8:12 9:4 248:2,19 250:9 251:9
boeing 24:9
bones 133:17
book 79:23
bottom 75:14,20 107:5 124:25 154:21 164:7 193:20 222:3
bottoms 75:1,11 82:25 144:24 146:12
bought 44:17 116:4
bound 46:25 48:6,7
bounds 172:9
box 219:18
boxes 224:7,10 225:13
bradbeer 5:8 220:6 229:21
brake 83:22
brands 68:25
break 59:21,25 81:25 82:4 112:7,17 115:16 158:18,23 159:2,5,13 173:24 193:5 202:10 202:13 223:13,14 247:12
breakdown 222:16,17 223:9,17
breaking 223:21,22,24
bring 164:25 165:12 211:15 241:8,14,22
bringing 11:6
broad 167:21
brochures 186:17
brought 150:5 163:18 165:11,12 191:10 195:7 225:14 239:20 241:2,18
bruce 5:8 220:6 229:21
build 162:18
building 87:5,5 129:5 160:4 162:18 163:6 199:13
buildings 59:14 159:25 160:3 161:10 162:1 163:5 175:5 176:8
built 187:8
bullet 157:24
bulletin 4:7 5:12,13 49:19,22 117:20 118:23 227:6
bulletins 49:20 50:2,5 63:5 227:4
bunch 160:9
bushes 51:18 52:4
business 3:24 22:15 66:12 71:22 72:4 73:6 74:20 76:14 80:24 81:5 85:20 88:22 92:22 97:7,15 105:17 109:13 116:20,23 134:25 135:1 138:11 149:20 170:18,20 177:21,22 180:3,4,11,21 181:1 183:22 184:5,7,10 185:19 224:16 251:3
businesses 13:8
buy 92:3,7,9 134:13
buying 51:2 116:5
byproduct 146:23

C

c 8:14,16 65:18 250:11,15
california 235:10
call 13:4,24 34:10 53:17 121:6 125:12 137:16 213:17
called 25:15 75:11 78:19 79:17 101:1 125:11 125:15,16 190:2 198:8 200:3 205:10 242:13 242:14
calling 80:25
calls 28:25 33:14 35:2 43:5,9,18 64:20 172:6 201:12 227:16 234:13 235:5,6
cancer 5:5,6 195:4 196:9 197:6,11,17 198:8 200:4,16 204:5 205:25 206:8 207:20 208:20 209:9,12,14 212:14 215:6,7,14,20 216:1 234:21,24 235:13,15,19 236:3,10
cancers 204:10,11,12,13 206:21 213:22
cant 14:9 18:4 19:4 20:1,10 29:4,11 81:22

100:7 107:17,17 108:21 160:21 199:5 200:21 201:9 206:9 207:18,24 208:10
capabilities 49:11
capable 60:25 137:9 204:2
capacities 31:12
capacitor 107:5 166:12,21,25 167:8,14,21 168:2 169:7,9 170:8 175:17
capacitors 159:22,23,23,25 160:3 163:5 166:23,23 167:12,20,22 168:1,4,5,8,9,10,19 170:5 172:22 173:12 175:12,14,21
capacity 12:1
caps 143:10
carbon 168:8
carbonless 62:5,12,15 68:11 183:5,6,14 184:7 184:10
carcinogen 143:2 237:15,16 238:5,6
carcinogenicity 238:7,9
carcinogens 235:1,14 237:10
carcinogy 238:9
care 88:7
carefully 248:7
carney 90:22
carol 8:21 10:8
carolina 115:2 182:10,18,19
carondelet 8:12,19,21 248:4 250:18
carried 203:5 235:2
carrier 155:10 156:18
carriers 150:1 151:15,25 152:6 154:18 158:13 159:9 164:21 165:22 166:8
carry 154:22 234:20 235:4
case 18:19 93:13 106:24 140:10 161:12 245:12
cases 11:3 19:21 31:5,7,10,18 33:20 34:6 92:25 93:1,6,7,10,10 97:20 120:25 121:1 126:5 162:10 173:11 200:16
cash 134:9 230:7
cast 186:7
casting 104:8 105:1 185:23
catalog 50:23
catalogs 45:21 50:21 51:5,18
categoried 109:17
categories 70:11 95:22 109:6 224:17
category 109:5
caught 74:5
cause 1:4,10,21 2:6 7:5,13,22 8:5 9:14 10:3 222:9,14,18 223:7 233:5 235:15,19 236:3 236:10 249:4,13,22 250:5
caused 154:24 234:23 235:13
causing 223:1
ccr 2:22,24 248:19 251:9
cdc 212:5,6
central 8:24 154:25 155:3,13 156:5
certain 53:16 150:2 151:16,25 152:6 154:18 158:13 159:9,24 162:1 164:21 165:22 173:11 178:19 183:25 185:24 223:3,23 233:23 235:14
certainly 33:2 46:24 50:16 74:13 79:24 92:11 97:21 121:19 130:24 161:6 170:12 178:9 193:21 194:5 200:22 205:7 208:14 210:13 228:17,18 232:11
certificate 207:7 248:1 249:1
certificates 204:1 206:16
certified 8:12,13 9:5 248:2,3
certify 248:3,10 250:9
change 74:10,11 115:13 223:8
changed 171:6,15,15 173:14,15,18,22 174:11 174:14
changes 171:22 233:5 242:23
chapter 134:3
characteristics 39:15,25 40:4,6,7,13
characterization 32:18
charge 215:2
charges 251:1,2
chart 3:19 69:6,8 70:18,18 71:5 73:24 101:8 101:13,19,19 102:4 105:21,23,24,25 106:20 106:21,22 107:4 108:2 109:20 127:17
charts 111:14 112:1 127:6
check 26:11 27:5,18 92:22 113:1,3,13 175:18
checking 221:11
checks 26:6 115:11
chemical 13:8 36:22 37:2,9,12,24 38:6 44:17 54:5 116:20,23 130:2 134:20 137:11 235:25
chemically 135:4
chemicals 4:5 38:5 39:13 53:16 117:17 130:25 131:1 137:12 208:15 238:25 240:7 246:22
chemist 53:19 54:4,6
chemistries 218:21
chemistry 39:13,23
chemists 137:9

chewing 186:20 187:12 188:1,11,17,22 189:2 189:10 190:7,18,24 191:5
china 103:25
chloracne 230:13
chlorinate 142:12
chlorinated 38:3,4,10 54:23 136:2,3,4,8 142:6,6,7,8,11,21 143:1 144:22 148:1
chlorines 40:17 135:6
chlorofuran 54:22
choice 232:9
choose 65:6
choosing 63:22 162:17
chose 65:8
chosen 19:12 65:7
circles 231:23
circuit 1:1,1,6,7,12,13 7:1,1,8,9,17,17 249:8,9 249:17,17
citation 163:10
citations 160:13
cite 160:21 161:12 163:9 164:11
cited 105:14 187:10 229:14
citing 108:2
city 155:2,14
civil 246:4
claim 150:21 156:16 158:2,11 165:20 166:7
claiming 150:23,23 151:13 152:4,8,22,23,25 156:1
claims 149:24 150:4 151:22 152:2,17,19 153:7 159:7,11
clarify 55:7 208:22
class 236:2
classifications 70:8,21,21 237:22 238:3
classified 38:9 238:5
cleaned 221:21
clear 105:16 108:9 167:13 210:21 219:4 228:2 230:21 232:3 244:6,11
clearly 45:12 164:7,12 167:19 229:3,6
client 12:19 114:1
clientconsultant 11:5 17:9
clients 24:6,13 114:4,7,10
close 138:3
closed 46:13,14 47:12 60:22 234:6
clubs 91:24
coast 44:12
coating 58:6
coatings 58:6,11 59:8,13 75:9
code 132:23 150:11 154:4 156:12,17 161:13 161:16,21 162:15,21 165:24 171:14 173:16 173:18,22 174:12,14 175:25 176:4,22
codes 150:1 151:1,15,24 152:5,22 153:15,17 154:4,18 155:8 158:13 159:8 160:4 161:12 161:20,21,24 162:22,22,24 163:2,6 164:20 165:6,21 166:8 171:6 174:11,25 175:7,17 175:19
colella 1:3 3:11 7:3 8:15 9:12 249:2
collected 75:18 206:15
collection 199:8,12 204:1 224:25 241:1
collins 214:22 215:1 217:12,22
color 75:3
column 76:6 96:9,11 97:23 157:21,24
com 89:3
combination 101:13 145:7
come 18:22 45:20 46:21 48:12,22 93:16 98:1 100:10 102:24 112:9 113:3 158:19 198:16 233:17
coming 81:21,22
commercially 50:22,24,25 51:1 185:11
commission 4:10 117:25
committee 247:1,4
committees 227:11,11,12
common 53:15
communication 210:6,8
communications 228:20
communities 246:25
companies 17:1,15 18:1,8 23:24 24:16,17 79:4 134:6 160:4 163:6
company 2:13 9:13,13 13:9 85:8,11 133:9 138:8,13 155:4,5,12,13 193:18,19 210:11 220:22 247:6
compare 198:14
comparing 95:14
comparison 98:6 105:11
comparisons 215:15
compensation 27:19
competed 166:17 169:10 179:11,16
competing 169:11,16
competition 166:25
competitor 44:5,12
competitors 44:9
compiled 129:17

complete 191:20 192:9 224:11 225:17
completed 131:2 206:3 208:19,24
completion 9:7
component 107:5
compounds 40:20,20 136:8
computer 88:17 89:10 114:11
computeraided 248:8
concept 139:7 190:7
concerned 230:12
concerning 42:17
concerns 58:5 59:7,18
concluded 204:7
conclusion 13:4 56:8 136:18 137:19 140:22 235:6
conclusions 137:12,16
concrete 162:16
conditions 162:1 168:25
conduct 238:23 240:6 246:20
conducted 191:8 192:2,12,16 193:8 195:5 202:18,22 211:5 213:5,8 214:21
conducting 210:17
confidence 199:23,25
confident 200:7
confirm 192:3
confused 58:25 96:16 214:18 231:24
confusing 55:5
confusion 231:23
congested 161:10 163:21,23
conjunction 108:5
connection 10:21 11:9 12:11 19:21 34:6 57:23 68:22 110:2 181:12 192:10 206:20 211:4 215:4 239:1 245:12
consecutively 243:4
conservative 60:13 85:24
conservatively 21:12
consider 42:20
consideration 47:10 138:22 162:10
considerations 138:18,21 162:8
considered 46:10,10,23 58:17 68:20
considering 105:18
considers 68:15
consistent 161:3,25 200:12
consistently 114:20
consult 16:16 23:23 90:3,6,7,8,19,22 93:6
consultancy 24:15,16
consultant 12:18 15:9,10,23 20:3 23:6 26:8 26:25 30:4 31:8 65:19,20 90:7 93:6,9 114:21
consultantclient 16:14
consultantrelated 17:10
consulted 23:24 24:9,10 25:25 27:22 30:24 31:6
consulting 15:20 16:9 19:8,22 20:22 21:10 22:2 24:3,5 27:4,7,8,20 30:2 31:16 33:7,11 90:12 114:14,16 115:1 209:17
consults 29:17
contact 102:22,24
contacts 207:8 228:23
contain 80:4 81:3,8,13
contained 46:13,14 47:12 57:17 72:6,6,7 76:9 80:21 130:19 167:12 168:19 192:25
containing 74:17 80:19,20
contaminants 223:21,25 224:1
contaminates 222:4
contamination 56:15 59:19 141:25 221:20
contending 151:19
content 100:8
contention 153:9 192:11
context 25:5 31:21,24 150:24
continually 28:6
continue 44:4 138:11 229:2
continued 73:4 74:18 76:13 78:2 81:4 183:11 227:1 247:17
continues 73:6
continuously 13:18 87:10
contract 62:9
contribution 194:21
control 120:4,21 133:5,13 153:24 221:5 227:20 240:14
controlling 118:24 119:3 130:13 133:8
convention 192:11
cook 102:22
cooking 102:8,11,13,16,17,19 103:5,18,22 104:6
coolanol 79:17
copiers 89:14
copy 62:5,16 68:12 87:25 91:5 107:18,23 124:19,21 183:5,6,14 184:7,10
corp 2:7 8:6 250:6
corporate 2:13 11:22 16:18 18:24 19:13

HARTOLDMON0000251

24:21 25:5,11 125:21 202:17 246:25 247:3
corporation 13:10 24:9 118:25 130:5,8
correct 15:6,18 16:19 19:2 20:1,8,11,15,23 21:14,18,21 23:7 25:19 27:11 28:2 29:21 31:11 32:1,16 33:5 34:2,20,25 35:23 37:6 38:21 39:15 40:15,16,18 41:4 42:8,24 43:17 44:6 45:17 46:6,13 51:14 54:4,6 55:16,20 63:19 66:14,15,16,24 70:15,16 72:6,11,18 72:20,21 73:20 74:16 78:13 79:12 80:5 82:9 83:18 89:25 90:1 91:3,4,6,7,9,14 93:18 94:7 95:3,4 97:7,10 98:18,23 99:1,18,19,22,23 100:1,2,6,12,17,20,24 101:21,25 102:1,9,13 102:25 103:15,16 104:9 105:8,14 108:13,14 109:14,15,18 110:17 111:16,17,19,23 116:1 117:18,21 118:25 119:8,22 120:9 121:23 123:13 125:24 126:15 127:14 128:6,7,11 130:6 131:5,9,13,19,22 132:1,21 134:8 135:22 137:13 138:15,20,23 142:20 145:4,5 145:7,10,18 146:13,17,18 147:15 148:10 149:4,7 153:3 154:3 156:10,13,14 158:3,4,7 160:2,16,23,24 162:3,4,13,14 163:11,16,17 163:21,24 164:1 166:10,18 175:8,9,10 176:12,23 177:3 179:12 186:7,15 189:4,6 190:21,22 196:3 197:3 199:21,22 201:7 203:18 204:18 205:13,16,17 206:5,24 207:6 207:24 208:10 210:18,22 214:7 215:19,24 216:13,14,17 217:9 219:3,7,10 221:8 223:6 225:21 230:19,23 231:3,14 236:21 240:2 241:23 244:13,17,19 245:3
corrected 105:11
correctly 23:5 48:25 65:21 76:2 77:18 78:5 80:10 128:3 134:16 157:4
corrosion 178:18 222:18
costs 162:9 249:1
couldnt 52:3 78:21 136:25 172:4,17
counsel 9:2,2,8,17 32:10 34:8 119:16 120:4,5 128:23 143:15 248:11,12
count 104:19,21
counted 104:17
county 1:2,7,14 7:2,9,18 215:14,21 249:9,18
couple 81:15
course 157:22 230:18 251:3
court 1:1,6,12 2:1 6:12 7:1,8,17 8:1,13 9:5 10:16 143:22 248:3 249:8,17 250:1
cover 125:14 130:22 244:8
covered 246:6
covering 201:24
create 186:1,2
creation 191:21,24
criteria 238:6
criticism 207:19
crosssectional 218:2
csr 2:22,23 248:19 251:9
currency 46:21
current 46:9,9 202:19,22 213:9 234:24
currently 12:16 15:7 29:17 88:7
custody 250:10
customer 5:15,17,20,22 6:1 220:17,22 228:22 229:10
customers 51:2 180:13 219:13 220:9 221:5 224:16 225:19 226:3,9,12,17,24 227:16,16 227:23 228:3 229:1

D

d 3:1,6 205:7 236:2
dallas 8:17,24 250:11,15
dan 4:12 118:4,4
dash 67:18
data 108:8 204:4,5,7 205:23 213:4
date 19:23 21:11 50:2 67:13,21 117:18 130:23 214:5 244:23
dated 4:6 65:15 86:9 94:4 95:8 117:20,23 144:3,6,8 154:11,12 193:22 220:2 221:7 248:15
dates 56:1
david 210:24,25
dawn 2:22 8:12 9:4 248:2,19 250:9 251:9
day 8:11 12:13 22:4,13,25 141:7 247:18
days 22:13,14,15 23:2 63:10
ddt 3:16 34:20,23 35:7,9,15,18,22,24 36:5,9 36:12,13,17,17,23,23 37:3,3,13 38:1,3,16,21 39:1,6,24 40:21 41:3,7,16,22 42:2,17,24 43:2,7 44:2 64:3,5,10,15,19,23 66:12,21 122:7,12,18 123:11 139:16,24 140:6,16
dead 182:22 206:13
deal 99:13 114:16 134:9
death 204:1 206:15 207:7
debate 246:9
deceased 1:18 3:8 7:20 210:4 249:20
december 5:8 6:4 13:13 20:21 220:2,14

229:12,25 231:9 240:1 244:12
decided 204:2
decision 72:2 138:3 209:7 226:8
decisions 226:4
defendant 9:21
defendants 1:5,11,24 2:9 7:7,15,24 8:8,18,20 9:3 10:7,9 11:4 249:7,15,25 250:8,17
define 145:14
definite 134:4
definitely 64:21 145:8 217:10
definition 50:14
definitions 60:18 238:4
degradable 136:4
degree 47:4,5
delivery 251:1
demanded 155:23
denied 129:12
dental 185:21,23 186:2,3
department 50:17 66:8 68:1,6 101:2 118:6,13 211:10,11 242:6
depended 76:18
depending 38:1 147:12
depends 34:3 40:4 50:14
deposes 10:17
deposition 1:5,23 2:12 3:7,11,13 5:15,18,20 5:23 6:2 7:6,24 8:9 9:3,8,11,15 10:22 19:20 25:6 34:10,12,15 42:14 43:12 63:17,20 69:25 92:8 123:7,10 125:1 126:17 127:25 128:5 139:19 141:15 143:4 149:8,23 161:23 168:15 172:10 182:7 192:5 202:17 208:2 220:2 247:17 249:1,6,24 250:10
depositions 11:10 24:11 25:3 196:11,15,20,24 201:16
derivatives 54:22
describe 121:7
described 46:3 200:15 226:3
describing 226:3,4,6
desirable 175:4 176:7 177:15,25 178:17 179:22,25
detail 58:9 59:1
detect 49:12
determine 48:2 57:21 126:25 127:10 197:16
determined 147:13 236:9 242:23
develop 62:15,18,24 63:7 108:16 171:2
developed 32:4 50:11 57:25 60:18 62:7,19,21 63:13,15 71:17,18 82:17 85:7,7 139:7 171:5
developing 50:8 56:2,23 139:12 220:24 227:12 228:16,19 230:4
development 47:16 57:10 60:4 68:9 101:2 247:1,3
dialectic 97:22
dibenzo 54:21
dibenzodioxins 54:18
dibenzofuran 52:20,24 53:4 142:4
dibenzofurans 55:2 141:2,12 142:6,21 143:1
dibenzoparadioxins 54:15
didnt 9:22 17:24 26:20 31:20 46:20 47:18 49:18,21,24 50:1 51:1,6 62:18 63:2 72:3,24 74:6 75:3 90:5 104:17 105:22 107:19 108:16 109:13 119:6 120:16,23 122:24 123:14 128:12 131:6 138:9 143:16 148:21 153:14 157:3 162:16,23,23,23 167:15 168:2 172:16 180:1 193:18,19,24 205:7 206:25 207:21 211:21 223:12 236:17 240:23 241:8 241:14,22 242:21
dielectric 44:15,19 45:17,24 47:18 57:11 60:5 66:24 68:10 96:6,7,12,19,20 97:16 98:11,13 98:17 99:17,21,25
dielectrics 4:2 101:6
differ 135:4
difference 45:7,14 119:14 152:20
different 31:12 37:23,24,25 38:4 40:5 61:14 68:5 76:20,22 79:9 83:12 99:3,9 101:25 106:14 127:4 146:21 147:3 162:22 165:14 176:14 230:18 247:9
differentiable 107:25
differentiate 107:17
differently 62:14 77:6
differs 40:19
difficult 107:13
dikanol 79:18
diligence 126:25
diluted 223:11
dilution 223:10
dioctyl 173:1
dioxins 53:12,15,17 54:9
diphenyl 147:17 218:23 219:1,1
diphenylmethane 37:25
direct 98:6 105:11
directed 65:15

direction 18:14 65:9,11,12 139:14
directly 112:20,23 113:4
director 195:6 203:23 204:18,24,25 242:5
disadvantages 164:10
disagree 60:19
disaster 183:2
disastrous 180:1 181:20,25 183:1
discouraged 190:21
discovered 49:2
discovery 11:2
discrepancy 231:20
discuss 90:9 93:8 143:21 243:24
discussed 160:10 175:23 186:13
discusses 66:11
discussing 60:3
discussion 164:9 231:19
disposal 5:13 240:17
distance 91:13,15
distillation 75:16,21
distilled 75:17
distinction 71:3 142:15 144:17
distribute 168:6
distributed 212:2,4,6
distribution 4:21 161:9 224:22
district 2:1,1 8:1,1 250:1,1
diversification 133:21
divided 70:20
division 1:4,10,22 4:6 7:5,13,23 117:17 130:25 249:5,13,23
doable 112:12
docs 68:5
doctor 39:22 135:25 172:12 205:9
document 3:18,23 4:1,4,9,12,18,23 5:1,12 6:4 6:6 52:11 64:4,6,7,11,14 65:6,7,11,14 66:11 66:13,24 67:5,11,13,17,25 68:7 69:19 94:6 94:10,16 95:2,2,7,10,13,13,18 96:16,22,23 97:1,25 99:4,5,9 101:1,5,7,10 105:20,23 106:4,14 108:19 109:22 115:18 116:10 117:1,23 118:2,18 122:7,9,20 123:11,15,25 125:2,4,6,9 127:15 128:20 130:19 131:3,6,8 132:18,20,24 134:5,14 144:7 148:12,18 149:6,9 155:25 156:15,22 157:2,6 158:6,9 158:10 159:14 160:6,8,8,11,14,22 161:1,3 163:13 164:2 166:14 175:22 186:24 187:1 187:19,25 191:15,19 193:10 195:15,17 196:1,5,22 197:4,8 198:2,5,15,18,20,20,25 199:3,14 200:7,23 201:10 220:1,7,19,20 221:7,10 229:24 230:5 239:1,9,17 240:1,4 242:10,17,19,21 243:2,4,5 244:4,8,9 245:5 245:17,20 246:3,9 247:7,9
documentation 43:13 199:24
documented 105:5,6 190:10
documents 5:5 10:24 44:11 58:5 59:7 63:16 63:23,24 64:5,15,18,23 79:22 93:21 94:22 95:17 99:13 101:14 105:14 108:20 115:20 115:22 119:12,17,20 120:2,7,9,13,17,18,20 120:21 121:1,10 122:17 126:13,22 127:1,11 127:20 128:1,13,22,25 129:10,13,19,21,24 130:12 133:6 143:12,14,15 148:14 150:3,5 150:7,9,10,12,16 152:1 153:5,6,8,10,12,16 153:19,20,22,23,23 154:7 159:9 164:19,23 164:25 165:3,7,10,14,16,18 171:9,20 193:10 193:12 194:22 199:11 219:15 225:13 227:18 228:24 229:7 238:4,10,15 239:3,8 239:10,19 243:15,16,19,22 245:7,8,13,15
doesnt 27:9 33:3 36:8 49:16,23 53:23 57:12 66:2 78:9 87:19 112:4 119:9 130:9 132:5,14 149:2 169:22 190:12,13 230:9 238:15
doing 17:1,15 18:1,7 20:7 59:14 137:9 224:23
dollar 95:18,19,21,24 98:2,24 105:9,19
dollars 14:6,9,20 15:4 99:7,11,16,16 100:5,11 105:10
domestic 111:5,19
dont 12:23 14:4,4,5,6,10,12,18,25 15:5 16:25 17:14,22 21:11 22:7,11 24:13,20 25:13 29:2 29:12,15 30:11 31:18 32:19 33:16,16,16,18 34:10 35:20,23 36:3,7,12,14 38:8 40:2 41:1 41:2,5 42:9 47:10,23 48:19,23 49:15 50:18 53:9 54:17 59:6 62:6,10,13,21,22 63:5 65:4 66:8,20 69:11 72:15 74:18,20,21 75:6,8 77:2,3 78:1,3,15,20,20 79:2,24,24 81:14,15 81:16,16,17,18,24,24 82:15,15 83:23 84:3,4 84:4 85:6,19,22,25,25 88:5 91:10,22,22 93:4,8 95:18 98:3 99:4 102:11 104:16,17,18 104:21 105:12 106:15 107:11 108:14,15,21 108:22,22 109:5,6,8 110:6,7 112:23 115:13 119:7 120:1 121:8,15,15 122:10 124:10,14 125:20 127:16 128:16,19,19 129:1,18 132:10,12,12,17,25 133:2 135:12,14,16 136:12 139:6,21 140:4,4,24,25 141:6,10

143:6,7,8 144:21 145:1,24 146:2,5,10 150:10 151:21 152:7,7,18,22,24 153:8,24 155:9,19 158:16,22 160:7,12,13,15 162:21 162:25 165:7 166:3,6 167:10 168:23,24 169:11,12,15,25 171:10 172:8,19 173:23,25 174:7,20 175:14,17,20 176:9 178:8 179:5 181:16 182:20 185:10,19 186:9,16 188:13 188:24 189:17,18,23,25 193:5,12 194:6,13 194:15,17,18 195:24 196:21 197:12 198:9 199:2,4,7,16 200:22 201:3,17,20 202:1,3,5 205:6,7,8 207:22 208:8,16 209:2 210:4,4,5 211:1,13 214:25 217:16,18,19,20,20,21 218:18,20 221:18 222:22 223:1 224:4 228:17 229:25 230:8 231:7,7,8 232:18 235:10,19 236:24 237:13 238:2 241:4,5,11 242:14 243:8 245:11,22,23 246:6,8

door 182:14,21
doses 230:14
dots 107:8
doubt 78:3
dozen 25:10
dozens 36:5
dr 2:12 3:3 5:5,10,10 8:9 9:3 10:13,22 11:1 17:11 19:7,19 24:2 31:7 39:19 41:11 43:22 57:18 64:24 79:23 135:10 139:20 150:24 151:18 157:13,14 161:22 164:24 165:1,4 195:5 196:9,11,20,23 197:5,11,17,24 198:6 198:9,11 199:20 200:14 201:16 208:3 209:10 227:10,10 229:19 230:15,22 231:11 231:16 245:11 248:5 250:10
drafted 33:13
draw 140:22
drawing 210:21
drifted 175:13,14,15
dropped 82:17 234:18
drums 132:1
dry 162:2,16 163:25
drytype 161:11 162:4,6 163:20 164:10
dsw010033 159:21
dsw010073 161:7
due 126:25
duly 248:6
durfee 150:8
duties 242:7

E

e 3:1,1,6,6 8:14,14,18 144:5
earlier 22:18 55:5 101:11 102:9 115:15 157:14 161:19 175:23 217:12 224:13 226:3 230:2
earliest 86:12 220:12 239:5 244:22
early 45:21 47:24 58:14,20,21 60:10,10,11,12 62:3 63:3,9,12 68:19 85:8 86:11 139:15 167:10 212:8,9 226:8 231:19,25 232:1
easier 106:8
eastern 2:1 8:1 85:12,13,16 250:1
easy 76:18 213:19
economically 44:3,4
edgar 4:8,9 117:21,24 118:22
edition 161:14
edward 1:3 3:11 7:3 8:15 9:12 249:2
effect 72:21 224:14 236:4
effort 32:20 63:2
efforts 119:11 221:3 226:17 227:23
eight 28:20 29:8
either 13:23 15:2 47:12 72:4,5,7,10 74:6 84:10 87:8 92:1 147:8 162:2,15 192:7,12 226:5 238:8
elect 13:23
electric 77:20,24 79:18 150:1 154:4 159:8 220:7,17 229:22
electrical 70:9 71:2 73:23 74:14 79:19,21 82:18,20 83:11 150:11 151:15,24 152:5 153:15 154:4,17 155:8 156:12,17 158:13 161:12,13,16,20,24 162:21 164:20 165:6,21 165:23 166:8 168:6 170:17,20 171:2,5,22 172:15 173:10,10 174:13,24 175:7 176:3,22 224:17
electricity 170:11
elevated 232:18,19,21,24 234:3
eliminate 221:5
email 88:19,23 89:1,4 113:19,21 114:8 192:22 193:3
emails 88:20 192:20
embarrassed 144:20 145:1 146:9
embarrassment 158:15
emmet 195:5 196:11 197:17 199:20 204:17 204:22,25 205:5 230:6,22
emmets 196:9
emmett 3:21 4:16 144:5

emphasize 73:12
employed 30:2 210:13 248:11,12
employee 187:11,16,24 188:6,12 189:3 210:20,23 248:12
employees 187:17,25 195:4 202:19,23 210:16 213:9
employment 121:2
encouraged 178:5,8
engaged 17:11
engagement 16:13
entire 9:7 15:13 20:13 179:14,19 181:13
entirely 38:4 230:18
entirety 164:18
entities 19:9,25 20:8,14,18,22 21:1,7,14 22:1 22:20 23:11,22 24:4 26:7 27:18 28:7,20 30:8 31:10 32:25 33:8,12 92:13,18
entitled 4:1,12,23 16:21,25 17:14,19,22,24 101:5 154:12
entity 12:13 13:15,19 15:8,23 16:6 24:22 25:12 27:3 30:13,20,22,25 86:14 155:22 156:10
environment 4:24 38:17 40:22 41:3,7,17 42:2 42:18 47:8,19 58:16 138:15,20 154:13 219:15 220:11,13 225:21 226:25 227:9 228:5 229:12 230:1,8 233:15,21
environmental 4:21 5:2 144:6 224:20 226:23 227:4,5,8 228:1,16
epa 4:17 79:22 143:8 212:5,7
epidemiol 202:21
epidemiologist 203:22 204:3,6 205:5,8,11,12 209:24 210:1 214:22 215:2
epidemiologists 205:24 207:5,10,17 209:16 213:5
epidemiology 202:18,21,25 203:1,4,25 207:16,20 208:9 210:11,17 211:4 212:24 213:8 217:7,22,25
eppley 204:5
equipment 58:11 59:9,11,12,12 79:19 173:10
erickson 30:4,12,15,24 31:4,7 33:11 157:13 157:14
ericksons 79:23
essentially 55:18 76:12 83:5,14 106:22 148:1 167:5,14,19 203:2
estimate 14:16,18 22:18 23:8 60:13 69:12 108:3
et 1:5,11,23 3:9,11,14 7:6,14,23 8:15 9:13 10:2,3 249:6,14,23
european 78:24
evaporate 75:18
events 133:4,12 134:19
eventually 127:20
evergreen 242:17
evidence 10:24 47:15 48:4 116:15 170:24 188:20 189:12 190:16,20,23 191:4 213:22 234:23 236:2 237:11 238:7,8
evolving 226:4 227:3 230:10
exact 21:11
exactly 61:22 62:6 85:23 115:14 168:24 198:3 200:7,14 231:8
examination 11:17 248:7,9,11
examine 241:12
examined 8:10 10:14 241:6,10,16,20 248:7
examp 182:3
example 101:20 181:18 221:2 242:18 247:8
examples 81:16,18 182:25 239:7,8,9 242:24
exceeds 135:9,23 137:14 139:18 140:18 141:3 141:14 143:4 168:15,15 183:8,9 208:2 234:11 238:18
excelled 178:20
excerpts 161:24 165:6,23
excess 14:5,8 204:10 206:8,21 207:20 208:20 209:9,12,13,13 212:14,14 215:6,7,14,25
excesses 213:22
excessive 204:10
exchange 102:10 192:20
exchangers 102:5 104:8,25
exclusive 62:9
exclusively 176:22
excuse 30:3 32:9 48:8 58:17 79:6 151:6 160:1 164:4 178:16 202:15 211:10
excused 247:19
exemplar 150:6,9
exemplars 239:4,16,19,21 241:2 243:23
exhaust 134:18
exhaustive 80:3 153:14
exhausts 226:16
exhibit 3:7,10,13,16,17,19,20,22 4:1,3,5,7,9 4:11,13,15,18,20,23 5:1,4,7,9,11,14,17,19 5:22 6:1,3,5 34:14 66:17,22 67:1,4,14 69:16 69:25 74:8 80:2 82:8 93:23 94:3 95:5,8

101:2,3,15 105:3,4,5,6 106:10,22 117:16,23 118:2,21 121:17,22,24 122:2 123:11 124:15 125:17,22 126:7,10 127:1,2,2,8,9,9 128:4,4 128:8,9,14,14 130:18 131:4 132:19 133:14 133:15 134:17 144:2,4,11 148:11 154:10,15 157:5 158:1,8 159:12 165:11,12 191:12,15 192:17,25 193:7,13 195:12 196:23 197:17 220:2,18 230:6 240:1 241:25 243:1 244:1 244:11
exhibits 5:16,18,21,23 6:2,12 34:16 117:5 121:17 134:17 143:24 154:8 196:17,18,19 201:19 202:2,4 219:23 225:8,15 239:13,23
exist 119:6 153:23 181:7,10 193:10,12 200:5 238:11
existed 42:5,6 43:20,24 121:1,20 122:4 124:17 197:9,13 198:1 200:4 226:15 239:5
existence 124:22 167:14
existing 136:8 230:17
exists 215:15 225:18 226:19
expansion 133:21
expect 27:5 42:7 245:4
expected 48:6,9
experience 218:5
experimental 84:25 85:4
experiments 48:5
expert 31:16 33:20 35:24 36:9,12,15 93:7,8
experts 36:6 92:25
explain 58:8 59:1 74:23 80:16 108:21 147:1
explaining 224:22
explanation 109:9
export 111:1
exposed 202:20,23 213:10 222:16 233:8
exposure 203:13
exposures 211:9
express 158:15
expressed 151:1
expressing 155:22
expressway 8:24
extender 50:13
extenders 50:9,13,15 51:3,4,5,14,24 52:1,7 52:10,14 60:15 68:14 185:8,12,13
extent 13:5 24:3 34:9 42:5 43:23 50:4 52:13 53:14 63:3 72:22 112:1,2 129:24 136:2 149:24 151:22 152:17 159:6 166:24 167:21 169:6 170:2 185:13,24 186:8 193:10 210:19 210:21 211:7 223:23 233:23 234:2 236:16
externally 203:7
eyes 78:9

F

f 3:1,6
facilities 91:19 200:17 218:10
facility 35:13 133:5,13 218:1
fact 44:12 51:21,23 52:9 81:2 97:21 158:5 191:21 197:17 198:1 200:5 214:3,16 215:20 220:21
facts 150:25 170:23
factual 42:10
fair 23:8 32:18 46:15 92:2 98:15 149:15 219:20
fairly 62:9 63:3 218:19 232:2
faith 4:12 118:3
falls 57:22
false 186:5,7,7
familiar 127:24
families 207:1
family 38:6 141:13 207:13
far 70:3 96:24 130:6 133:22 141:18 149:17 149:18 162:14,14 175:8,10 176:6,24 177:3 178:20 190:9 205:10 230:11 235:1
fast 81:25
fat 230:18,23
favor 250:13,17
fax 89:14 91:8,10
february 4:20 5:10 154:11 220:19,21 230:5 230:21 231:2,10
federal 4:10 117:24
fee 21:10
feed 58:17
feeds 56:15
feel 93:8
fees 15:20
felt 32:3,6,10 138:9
fewer 25:13
fields 171:7
fifteen 112:13
figure 207:11
file 11:11 115:19
filed 201:4
files 120:1 124:23 128:20 198:23 199:1

final 4:20 75:15 147:13
financially 248:13
find 29:11 49:20 52:4 63:2 64:5,10 72:9,16 78:21 84:3 86:12 105:4 119:20 125:10 142:24 158:18 161:18 164:5 193:4 198:13
finding 72:17 209:12
fine 59:22 112:8 158:23 201:23 206:19
finish 107:20 187:21
finished 240:14
fire 73:13 76:21 84:14 154:24 164:8,13 167:4 180:14 181:17 182:12,16,24
fires 180:1 181:20,25 183:1,1
firm 8:16,18,21 115:2
first 11:9 13:3,11 30:19,23 40:21 41:16 44:14 45:23 46:15 47:7,21,25 49:13 50:6,7 55:18 55:22 56:1,1 57:14 60:6 61:5,16,25 62:4,15 70:18 71:16,16 73:11 74:15 76:5 77:21 78:7 78:15 80:12,21 113:10 114:18 116:3,22,24 118:16 120:23 121:16 133:18 136:13 141:1 144:1 152:3 154:14 156:5 195:14 201:5 219:21,25 224:20 228:12,13 229:7 239:14 239:17 244:20 246:12 248:6
five 22:3,12 23:2 31:18 202:9
flame 84:17 169:3,15 170:5 178:19 179:21 181:3,19
flameproofing 131:24
flammability 169:3
flammable 73:14 159:24,24 160:1,2 163:5 166:13,16 170:9 171:4 173:9,12
floating 47:1
floor 129:7
fluid 55:23 56:3,5,23 59:3 60:16 61:6,17 71:2 72:14,17 73:23 74:15 76:4 77:1,10,20 82:9 82:13,18,20 83:2,22,24 84:25 85:5 86:5,9 96:12 98:17 99:17 100:23 102:6,13,15,18 102:20 104:8 105:1 108:12,21 109:13,18 166:12,24 167:20,22 168:2,5,7,11 172:14,21 180:11,14,21,25 181:2,4,7,19 221:4,14 222:2,24 223:10 227:21 234:9
fluidfilled 168:19
fluids 5:13 44:16,20 45:17,24 47:18 57:11,25 58:24 60:5 62:1,2 68:11,12,14 70:23,24 71:15 72:23,24 73:7,9,13,14 76:9,23 77:24 78:19 79:21 83:11 96:6,7,19,20 97:23 98:11 98:13 99:22,25 108:16 109:4,5,16 160:1,3 163:7 166:21 167:8 169:8,9 170:8 171:2,4,7 173:12 174:16 177:6 179:17,20 180:3 181:12,14,15,23 227:13
focused 211:6,7
folder 69:3 93:20 94:3 106:5 117:2 150:7 219:21
folders 63:19,23
folklore 190:2,8
folks 27:12 28:17 212:23
follow 95:1
followed 203:3 207:8
following 70:18
followup 212:13
food 56:4,25,25 57:24 58:1,7,13,16 59:2,19 60:16 61:7,18 68:13 102:12,22,23,24 103:5 103:9,15 182:11
foods 56:15 57:16
footnote 110:25 163:15
force 174:22 216:18
forever 226:21 232:5,7
form 12:3 13:3 14:22 16:12 17:3,7,16 18:3,9 19:6 24:1 25:5 26:23 28:13,21,25 29:9,14 29:22 30:6 32:17 33:14 34:3 35:1 36:1,10 37:14 38:7,13 39:7,16 40:9,23 41:18 42:13 43:5 46:18 47:9 48:18 49:5,25 50:10 51:15 52:21,25 53:10,21,22 54:1,11,25 55:12 56:9 57:5 61:1,9,20 64:20 68:2,17 71:11,21 72:19 76:17 83:6 91:21 98:12,19 99:2 100:13 102:14 103:19,23 104:4,14 112:22 113:17 116:8 120:10 124:9 125:18 126:20 128:18 129:19,23 130:10 132:7,16 135:8 136:9,21 137:5 138:16 139:18 140:18 141:14,21 143:3 150:22 166:19 167:16 168:14 169:23 170:15,22 171:17 176:17,25 180:5,12,23 182:6 183:8,15 184:12 185:9 185:18 188:2 189:7 190:25 197:22 200:11 201:12 208:1,13 216:2 219:8 228:7 233:22 234:7,11,22 235:5,20 236:11 237:2,7,18 238:17 243:7 245:10
formal 203:4,19 209:4,18,21,22 228:24
formalized 206:4
formally 211:24,25
formed 240:25
former 13:7 202:19,22 213:9 217:1,15 222:1
formulations 83:12

HARTOLDMON0000258

forrestal 4:12 118:4,5
forward 193:7
forwarded 88:5
found 55:3 64:7,13,15 119:13,15,18 133:13 141:9,11,12,20 142:2,4,22 144:10 177:4 179:25 183:20 205:24 209:13 215:25 237:9 237:10 243:6 244:22
foundation 141:16 208:6 235:7,22 236:13 237:21 238:19 245:11
foundations 208:3
foundries 181:18,20
four 22:3,12,12,25 25:14 70:10,21 105:12
fourfold 105:7
fourth 106:18 247:2
fr 5:13 73:3 86:4,6 108:15
frame 21:10,19 36:5 46:2 56:20 70:24 85:22 86:2 101:12,18 108:25 109:6 192:23 193:1 213:21 231:9 232:2 244:25
frames 105:19
frankly 62:21,23 72:1 93:4 207:18
free 93:8
fried 102:12,15 103:6,9,14
front 130:22 147:13,22
frying 103:14
full 161:8
function 242:6
functional 172:14
fund 14:1
furan 54:2,5 141:25
furans 53:6,7,8,9 54:21,22 141:9,11
furniture 89:11
further 138:3 199:23 204:16 248:10,12

G

g 5:8 220:3
game 53:18,24 55:9
gap 106:23
gas 84:14,16,19
gathered 205:15
ge 228:15
general 4:7 67:6,9 70:10 77:23 80:17 117:20 118:23 203:11 213:11,13 216:13 220:6,16 229:22
generally 38:9 45:9 70:8 87:23 92:8
generated 108:9
generating 100:11
george 11:20 204:19,20,22 205:1,12
getting 20:6 26:6,10 67:21 72:1 115:10 138:3 184:11
give 14:16 22:11 34:1 69:12 81:18 104:21 120:8 122:7 134:4 216:22 239:10
given 24:11 25:3,8 89:6 119:13,15 127:21 197:9,14 198:1
gives 95:2 149:13 162:3
giving 34:1 227:18
glean 118:15
gleaned 51:9
go 21:23 29:11 49:5,19 50:1 61:10 63:22 66:20 73:17 76:17 84:3 91:23 92:21 98:1 100:3 106:4 111:7 117:3 119:23 121:14,24 125:10 130:1 135:1 145:20 146:11 148:11 154:19 155:14 158:8 161:5 171:24 174:6 175:24 177:2 180:3 183:10,22 187:9 191:7 191:18 193:20 195:3 206:25 207:11 208:7 217:11 225:4,24 233:15,16 234:14 235:9,23 236:16 237:25 247:12,14
godt 65:18,20,24
goes 98:3 193:1 230:16
going 16:15 17:7,8,21 31:1 45:3 59:20 73:17 83:20 85:8 95:1 106:13,15 110:22 111:7 118:23 127:14 143:20,21 145:23 149:23 151:17 154:22 155:13 158:15,22 180:8 209:3 211:22 224:23 227:17,19 247:12
good 88:9,10 111:11 127:7 172:14 198:3 202:10
goods 240:14
gotten 27:2 222:11
government 51:10 56:14 150:19 160:8,10 161:1,2 163:13 203:8 227:2
governmental 155:22 156:10 236:7
graphs 101:15
great 10:1 57:20
greater 58:9 59:1 98:22,24,25 99:20 100:5,18 100:22
grew 105:17
gross 93:17 99:20 100:18 109:24 115:17 149:13
group 53:16 204:11
groups 40:20 97:15 229:2
grown 97:9

grumman 24:10
guess 22:2,7 45:12 46:19 50:14 61:21 85:18 109:1,3,3 114:18 121:14 133:17 147:25 168:23 169:14 193:19 196:6 215:6 231:2
guessing 31:1
guide 6:4 242:12,15,16 244:13,16,17,21 245:2 246:16,18
guides 239:4,11 245:5,16,20,25 246:12
gum 186:20 187:12 188:1,11,18,23 189:2,10 190:7,18,24 191:5
guy 188:24

H

h 3:6,23 4:19 65:18 144:8
hadnt 217:3
halfway 161:8
hampton 1:8 2:3 3:14 7:10 8:2 9:22 10:2 249:10 250:2
hand 120:23
handbook 161:14,16 176:4
handbooks 154:5 177:23
handdelivered 113:5
handing 227:18
handling 227:12
handwriting 198:14
handwritten 117:18
hanley 129:6
happen 48:22 171:14,18 172:3 233:13
happened 49:20 59:17 90:17 95:19 103:4 104:1 157:5,10 172:1,4 183:5 190:10,12 229:6
happy 9:25 69:22
hard 168:23
harness 8:23
harvard 233:3
havent 18:22 27:1 31:15,19 92:23 101:15 129:25 198:7,14 208:12
hazard 84:15
health 88:7 218:5
hear 17:19,22,25 174:6 187:5
heard 187:3 205:14 206:2
hearing 109:11
heat 55:23 56:3,4,17,23 57:15,24 58:7,24 59:2 60:15,20,21 61:6,17,22 68:13 70:10,23 72:13,17,23,23 73:8 83:24 86:5,9 97:6 100:23 102:5,5,10,12,15,16,17,19 103:1,17 104:8,25 107:14 108:12,21,24 109:4,12,16 109:18 179:17,19,23 180:2,3,11,14,20 181:22 182:12,15 221:4,6 222:1 223:15,15 224:6,17 234:5,8,17
heated 75:18 102:19
held 9:15
help 63:25 75:13 79:13 95:23 107:1 119:20 146:15 191:23 221:10 224:24
helped 191:21
helpful 125:7 239:21
helps 130:20 148:12 149:9
heres 107:11 243:3
hereto 248:13
hereunto 251:6
hes 16:16 19:21 31:16 57:20 66:3
hey 173:21
high 233:9,10 234:16
higher 136:2,4,8 215:20
highly 38:3
hightemperatures 233:4
hill 161:14
hired 92:24 93:5,7,9
hist 133:1
histories 206:12,24 207:22 208:17
history 47:16 57:9 60:4 66:11 68:9 116:19 133:11,16 134:18 204:12,14 206:9,22 207:12 212:16 215:18 219:12 220:8
hmm 54:19 55:9 97:25 174:21 199:18 201:9 201:15 202:7 207:23 235:18
hold 187:19
holders 6:4 242:16 244:12
home 86:18 89:19,22
hope 4:12 118:3
hot 223:16
hour 59:21 112:13 158:22 247:12
hours 8:11 22:3,6,12,21,25 23:1,5 27:9 87:24
house 89:25
huge 84:15 162:11 220:22
huh 32:2 173:4 198:24
huhuh 102:3
human 230:18,23 234:24 237:11 238:5,9
humans 233:7
husch 8:11,18,21 9:16 86:17,20 87:19 88:14 88:20,22,23 89:1,5,9,13,16,21,23 90:24

91:20,24 92:3,24 112:21 113:4,8,13,16,20 113:24 114:2,13,16,19,21 115:11 248:4 250:18
huschblackwell 89:3
hydraulic 62:1,2 68:12 70:9,23 76:4,9 77:1 77:10 83:2 104:8 105:1 107:16 180:25 181:1,2,3,7,12,14,15
hydraulics 224:17
hydrocarbons 38:10 54:23
hypotheses 137:18
hypothesis 139:13

I

iarc 143:6,8,10 236:1
id 69:22 101:11 134:4 211:13 244:19
idea 14:4 22:11 28:18,22 37:1 79:16 121:8 122:10 153:20
identification 34:17 66:18 67:2 69:17 93:24 95:6 101:4 106:11 117:6 143:25 150:2 151:25 154:9 191:13 195:13 219:24 225:9 239:24
identify 50:2 81:12 122:9 125:9 150:2 159:9
ii 11:20 28:6 29:17
ill 61:14 62:14 110:25 141:4 181:5 193:4
illinois 8:12 35:14 148:7 205:19,21
illustrates 71:5
im 9:25 10:6,8 12:5,18 14:5,15 15:9,18 16:15 17:6,7 18:11,14,24 19:14 22:25 23:3 25:4 26:25,25 27:7,16 31:1 33:19 34:11 43:1 44:9 46:23 49:17 51:7 53:20,20 58:23,25 61:22 62:7,11,12 63:4 67:14 70:17,17 73:11 73:17 74:1,3 77:13 78:8 84:24 85:8,9,23 86:3 91:16 92:1,7 93:8 94:2 96:9,13 97:1 98:3,15 105:11,16 107:19 109:3,7,11,15 110:6,22 111:9 113:11 114:14 116:9 119:5 119:11 120:5,17 121:21 122:23 123:6,25 124:12,12,24 125:11 126:21 127:14 129:17 130:11 132:10 136:23 143:8 144:1,20 145:1 145:23 146:7,9 149:23 150:20 151:17 152:3 154:23 158:15 160:2,12 164:4,5 166:19 169:1,17,17,19 173:18 174:3,5 175:2,9,15 176:2 182:24 186:5,17 188:6,19 189:8 191:18 193:15 194:1,15,23 197:23 198:17 199:3 200:7 201:22,24,25 204:13 206:17 210:20 213:25 214:7 219:4 222:6,15 225:25 228:2 229:13,20 231:6 232:8,23 233:6,17 238:21 244:6,11 245:24 247:2
imagination 200:25
immediate 46:2 233:16
immediately 205:3 220:15
implement 171:22
important 218:19
impossible 204:14
impregnated 159:22,23
impregnation 131:21
impression 104:22,24
incident 56:16
include 110:3,7 111:15,24 217:8
included 14:25 42:2,14 53:1 57:6 73:19 79:15 101:7 109:7 111:1 135:2 166:24 217:2
includes 42:20
income 98:8,9,10 99:25
inconclusive 203:3
increase 105:12 205:24
increased 105:7
independent 12:18 120:7 127:10 128:12
index 5:5 198:8 200:4,13 244:19
indicated 233:3,7
indicates 220:15
indication 95:20 140:10
indicative 41:12
individually 1:17 3:8 7:19 15:2 117:7 143:22 143:23 249:19
industrial 4:21 58:11 107:15
industries 59:10
industry 57:24 58:2,7,13 59:2 60:16 68:13 166:25 168:6 170:17,20 171:22 172:15
inerteen 73:22 74:14 83:10
infor 136:10
information 5:2,12 32:4,5 56:7,18 58:4 67:6 67:9 81:23 94:6 112:4 119:12 127:22,22,24 136:16 137:10,11 138:4 143:16 148:17 149:13 152:18 153:18 156:2 161:3 163:1 187:10 192:3,7,25 197:18 198:2 205:15 209:3,14,17 215:21 220:12,16 226:22 227:1 239:11,22 240:23 245:15
informed 183:21
informing 224:19
ingredients 147:12
inhouse 203:5

HARTOLDMON0000261

initial 35:11 74:9,10,12 204:2 212:21 231:22
initially 115:1
ink 184:22
inks 62:25 68:11
instance 113:10 114:18 120:25 136:16 224:21 227:5
instances 59:17
institute 204:6
instruct 16:15
instructed 20:12
insulation 104:9 105:1
insurance 150:1 151:15,24 152:5 154:18 155:10 156:18 158:13 159:8 160:4 163:6 164:21 165:21 166:8
intend 51:6
intended 48:7 209:1
interchangeably 45:11
interest 116:11 118:24 119:3,3,5 130:4,8,14 133:8
interested 17:18 18:5 29:6 51:11 242:8 248:13
intern 209:25 210:19
internal 214:4,4 238:23 240:6 246:20
international 110:4 111:15
interpret 204:3 206:9
interrupt 107:20 193:5
invented 173:8
inventory 240:14
investigated 141:24
investigation 120:7 127:10 197:15 206:22 208:24
investor 116:16
invoiced 90:24 91:2,5,8,13
involve 24:17
involved 116:22 195:20,25 200:24 201:1,11 210:11,17 213:12 229:3
involvement 118:16
isnt 18:19 19:16 48:12 103:4 123:21 142:9 175:6 186:18 190:13,14 236:7,22
issue 26:2 27:24 42:21 52:2 57:16 72:2 109:23 127:3 138:6 151:18 161:23 182:24 236:9 246:3
issued 11:8 19:21
issues 159:18 163:14
issuing 68:7
item 149:23 179:3 192:12
itf 150:8
ive 20:12 24:9,9,11 31:16 52:11,22 53:4 54:17 55:1 93:6 106:3 108:19 117:12 120:14 121:2 133:18 153:12 166:2 171:10,10,11,20 186:23 196:6 200:21,24 201:18 207:16,18 208:15 225:14 243:23

J

j 3:23 4:12,19 118:4,4 144:8 230:7
january 65:15,17 193:23
japan 56:16 103:25 110:17,21
japanese 56:17 110:15
jenson 220:25 230:24
jesse 8:23
jim 214:22 215:1 217:12,22
job 52:5
joggers 64:2
join 193:18,19
joint 110:18,20
jr 65:18
judge 57:21
judicial 1:1,7,13 7:1,9,17 249:9,17
judy 210:2,3,7,8
july 4:14 144:3
jump 133:20
june 3:21 4:9,16 67:18 94:4 117:24 144:6
jury 16:21,25 17:14,18,22,24,25 18:4

K

kaley 2:12 3:3 5:5 8:10 9:3,12 10:13 11:1,20 11:21 12:16 17:11 18:25 19:7,17,19 24:2 28:6 29:17 39:19 41:11 43:22 57:18 64:24 67:14 69:14 74:8 82:8 89:3 105:21 106:13 109:22 117:16,20,23 132:19 133:24 134:17 135:10 139:20 144:2,4,7,10 148:11 149:5 150:24 151:18 154:11,12 156:21 159:12 165:11,12 191:14 192:10,17 193:7 197:16 208:3 220:2,18 221:1,11 229:15 230:6 239:25 241:25 243:1 245:11 246:15 248:5 250:10
kaleys 10:22
keep 41:22 87:23 229:3 243:16
kelly 5:10 195:5 198:9,11 200:14 204:17,23 204:25 205:5 230:6,15,22 231:11,16
kellys 196:11,20,23 197:5,11,17,24 198:6

199:20 201:16
kept 43:3 180:8 197:25
killed 182:11,14
kind 48:21 59:11,15 61:11 67:9 89:14 101:16 104:15 107:16 138:12 141:11 153:18 175:13,14,15 202:25 207:8 221:2
kinds 59:15 138:8 152:17 178:13 239:10 242:25
kingdom 110:12
knew 30:19,23 32:12 36:22 37:2,8 41:3 46:16 47:6 60:24 61:4,7,12,13,17,22 120:16 121:1 121:20 122:4 124:17 127:6 139:2,9,14 200:2 211:20 227:23 231:2,5
know 16:22,25 17:14,22 18:1,23 19:1 22:7,9 24:13 28:23 29:2,2 30:11 31:18 33:18 35:20 35:22 36:3,7,8,12,14 38:8 40:25 41:1,2 47:3 47:23 48:19 49:15,16,18,23 50:18 51:21,23 51:25 53:3,9,12,15 54:17 56:12,24 59:6,13 59:16 60:6 62:6,10,13 65:1,3,4 66:8 67:13 69:11 70:3 74:18,21 75:6,8 77:2,13 78:1,3 78:20,21 79:2 81:16,17,19 84:4 85:16,19,22 85:23,25 88:5 92:19 96:24 98:3,4 99:4 103:25 104:1,17,18 105:12 106:9 108:14,15 108:22,22 109:5,8 110:6,7,22 115:14,19 116:24,25 119:7,10 121:7,15,17 123:20,25 124:10 125:20 128:21,25 130:6,9 132:4,5 132:10,12,12,15,17,25 133:2,6,9,22,22 135:12,15,16 136:7,10 137:10 138:10 139:6 139:16,20,21,23 140:5,11,15,24,25 141:10 141:18 143:7,8 145:24 151:7 152:7,7,18,23 152:25 153:8,24 155:9,19 157:1 160:7,12 160:13,15 162:14,15,21,24,25 166:7 167:10 168:24 169:11,12,22 171:8,10,19 172:12,19 174:7 175:8,10,14,17,20 176:6 177:3 178:8 179:5 182:20 183:18 184:6,23 185:11,19 186:16 188:14,15,16,24 189:17 190:9 193:4 193:11 194:6,13,15,17,18,24 195:24 196:4 197:12 198:9,19,20 201:3,18,24 202:3 205:6,7,8,10 207:15 210:4,5,5 211:1,21 214:10 216:25 217:16,18,19,20,20,21 218:18,20 222:22,23,24 223:1,2 224:4 227:2,18 231:7 235:2 240:23 242:14 245:11 245:12,22 246:3
knowing 18:5 29:6
knowledge 49:11 130:11 134:18 137:2 152:12 169:20,20 199:20 222:19 227:3
known 30:15 48:16 59:19 61:3 70:2 120:14 139:22 143:17 238:6
knows 133:11,22 141:6
koenig 3:23 4:19 144:8
krummich 35:14
krummrich 35:13,17 148:5 203:2,13,25 205:16,18 209:9 211:11 213:14,23,24 214:13,15,15,20 215:4 217:11 218:3,6,16,22 219:2
kuhlman 79:18

L

label 219:21 226:23
labeled 108:7 131:3 150:7 220:1
labels 226:21 228:21 232:8,10,16
laboratories 192:8
laboratory 171:23
lack 141:15
lacquers 131:9 178:13
language 157:15 171:15
large 45:14 168:4 182:11 186:9 194:20 230:13
larger 136:1 138:5,5
largest 220:17
late 31:3 48:15 50:16 58:14,21 60:12 63:12 212:9 216:24 231:6 233:3
law 8:11,16,18,21 17:19 115:2 150:1,16,21 151:15,24 152:5 153:2,20 154:17 155:17,19 156:17 158:3,6,12 159:8 162:12 164:20 165:21 166:8 174:9 175:25 176:21
lawful 10:14
laws 155:6,7 173:14,15,17,19
lawsuit 149:25 150:24 151:14,19,23 152:4,8 153:1 158:11 159:7
lawyer 246:3
lawyers 5:5 32:7,12,21 65:7 86:22 87:7,11 88:2 92:24 119:20 120:8,19,22 121:13 122:3 123:17 124:6 125:3,5,10 126:8,11,18 127:21 128:10 129:21 143:18 157:6 197:10 197:21 200:9 240:20,22,25
lay 13:5
lead 216:22
leading 133:12 134:19
leak 57:15 61:7,17,23 221:23 223:10,15 224:3

leakage 5:13 221:5,12
leakages 61:24
leaked 56:17 221:22
leaking 60:25 61:18 221:19 224:6
leaks 61:3
leaky 223:16
learn 40:21 141:1
learned 38:16 48:14 56:8 57:14 136:12
learns 61:16
leatherwood 115:5
led 133:4
left 75:20,22
lefthand 70:1
legal 8:23 13:4 155:22 235:6
lent 63:11
letter 3:21 5:8,10 118:22 220:3 229:15 230:11
letters 5:15,17,20,22 6:1 224:12,15 225:1 226:1,2,7,13 228:13,15,25 231:15
level 223:18,18
levels 48:22 142:3 145:11 233:4,9
license 2:23,24
licensing 79:3
limit 222:19
limited 44:21,21,24 45:18 51:24 52:15 55:25 192:22 203:12 237:11 238:8
line 49:21 76:11 78:9 85:6 135:3 146:16,20 146:21,24 226:6 232:13
lines 67:7,8 147:3 193:25
liq 159:24
liquid 4:1 101:6
liquids 159:24,25 163:5
list 51:17 68:25 73:18 79:14 80:3,7 81:14 86:4 144:13 192:2,9,10,12 197:24 200:16 241:5
listed 69:25 73:22 75:24 76:4 77:15,20 78:4,7 78:11 79:10,21,22 80:12 81:7 83:21 131:5 143:1,8 164:18 192:17 194:9,15 235:13
lists 94:6 131:8,15,18,21 226:1
literature 29:11 41:7,23 42:1,8,16 43:4,11,16 43:20,23,25 51:10 136:17 139:24 140:6,12 140:15,21 188:7 218:12,15
litho 67:21
litigation 25:1 26:2 27:23 31:21,25 32:24 33:4,9 90:13 126:3 165:15 195:21,22 196:1 199:15 200:19,22,24 201:2,6,11 243:3,17,20 245:9,18
litigations 226:14
little 58:25 69:5 101:23 130:23 139:15 168:8 189:21 224:13
liver 230:13
livingston 1:8 2:3 3:13 7:10 8:2 249:10 250:2
llp 8:11,18,21 9:16 248:4 250:18
local 161:21 162:22,22,24 163:2 215:16
locate 43:13 64:18 162:23,24 239:6
located 35:10 86:25 87:19 161:10 205:18
locked 182:14
locomotive 154:24 155:1
locomotives 155:14 156:7
lodged 11:5
logical 137:11
long 13:18 15:10 27:7 30:10,15 71:19 85:2,4 85:16 87:6 89:4 91:13,15 173:2,3,5 195:20 201:1 241:5
longer 70:25 97:11
look 50:5 69:22 98:8,9 99:3,9 100:3,4 101:16 105:3 106:17 123:7 129:9,13,21 133:15 154:14 157:1 159:14 177:22 187:1 194:22 199:8,10 204:2 211:14 212:21,22 216:10 217:7 243:1 244:1
looked 25:18 52:3 54:9,14,17,24 55:1 64:4 106:1 110:3 112:2 123:2,9 149:12 157:6 161:15,19,22 198:7 200:13 201:19 202:1,4 203:2 204:7,11 205:23 213:20 215:25 216:8 216:9,12 236:8
looking 42:20 47:16 64:10 69:24 86:3 94:2 97:1 108:23 109:23 119:23 144:2 164:4 183:19 209:8,11 218:4 244:18,18
looks 104:16 105:2 149:6 242:11
lot 38:3 67:6 76:19 79:19 80:18 88:13 120:14 138:10 207:16,17
lots 171:24
louis 1:2,7,14 7:2,9,18 8:12,19,22 35:12 248:4 249:9,18 250:19
low 223:23
lowvolume 71:25
lubricant 84:8,13
lubricants 84:18
lump 12:25 13:22 14:1
lumped 107:16

lunch 112:6,17
lung 204:12,13 205:25 206:8,21 207:20 208:20 209:14 212:14 215:6,7,14,20 216:1

M

m 2:22 3:1 8:11,11,12,16 9:4,11 59:24 60:2 82:3,6 95:24 96:1,3 112:16,19 159:1,4 202:12,15,15 205:7 225:7,11 230:7 247:16 248:2,19 250:9 251:9
machine 89:14 91:5,8,10
maggie 1:8 2:3 3:14 7:10 8:2 249:10 250:2
mailed 113:5,7
mailing 226:1
maintain 86:19
maintained 56:17 57:15 60:22 87:6
major 35:12
making 35:24 36:12,23 37:3,5,9 44:1 66:12 149:1 150:20 152:12 153:7 166:7 221:3 227:18 228:18 240:24
man 19:12 116:12 118:9
management 6:4 66:7 239:4,11 242:15,16 244:13,16,17,21 245:2,5,16,20,25 246:12,16 246:18
manager 246:18
manmade 45:10
manner 112:25
manufacture 34:23 35:4 64:19 148:13 186:6
manufactured 36:17,17 79:8 80:5,19 111:25 181:8 183:7,11 192:24 232:12 239:7 247:5
manufacturer 12:9 51:19 173:10
manufacturers 36:5 79:20 173:11 179:23
manufacturing 34:19 35:7,9,13,15 41:22 42:24 43:2 75:16 138:2 144:12
march 224:13 229:7
mark 1:18 3:8 7:20 66:20,21 67:3 69:14 74:17 77:22,22 78:1 80:14 81:1 101:1 106:5 106:8,8,12 143:20 151:5,7 154:6 195:10 239:12 249:20
marked 34:17 66:17 67:1 69:16 93:23 94:3 95:5 101:3,15 106:7,10 117:6,10 121:17 125:17 143:25 144:2 154:9 158:16 191:12 191:14 195:12 197:16 219:24 225:9,14 239:24
market 4:2 50:12,15,19 62:24 63:7 77:25 101:6 166:17 168:12 170:3 171:4 182:1 186:9,11
marketed 51:13,16 58:1 62:8,12 70:12 72:22 101:18
marketing 47:17,21 48:1 49:13 50:8 55:15,19 55:22 56:2,23 57:10 60:4,7 62:1,4 68:10 238:24 240:7 246:21
marketplace 79:8
markets 95:16,16 138:5
marking 117:7
material 75:19 218:20 223:11 226:25
materials 11:4,7,13 38:1,2 44:13 45:6 64:7 75:5 76:20,22 124:1,3 150:3 152:1 159:10 161:22 164:19 194:11 221:21 227:7
math 112:14
matrix 46:25 48:7
matter 3:9,12,15 9:12,21,22 17:19 27:9 29:13 47:3,5 66:2 75:3 95:15 158:5
matters 19:9,11 26:2 27:24 65:25 66:1 87:22
mcgraw 161:14
meal 92:7
meals 92:4,9
mean 12:5 13:22 25:5,7 26:10 36:14 37:24 40:3 46:20 53:8,9,11,15 54:12 58:10 62:7 62:10 65:10 70:5 76:7 79:17 81:15 84:3,12 85:18,19 90:6,15 93:4 103:5 104:15 107:20 108:4,7 111:4 116:9 132:14,17,24 133:1 150:9 176:18 177:17,18 182:3 185:25 187:7 190:12 196:17,18 198:12,22 203:20 205:7 210:12 211:8 212:1 222:3 224:2 227:13 232:1,6 236:14 237:15 238:15 240:11 243:3 244:7
meaning 204:14
meaningful 204:9 206:7
means 23:1 186:1 222:22 226:16 234:9 236:22,24 237:4,6,9
meant 58:21
measure 222:23
measured 48:23 139:6
measurements 48:21
meat 133:17
medical 68:5 195:6 203:23 204:17,24,25 205:9 242:5
medicare 88:8
mediocre 36:6
members 207:13

memo 4:14,16 144:3 242:15 246:17
memorize 49:18
memorized 79:25 81:15
memory 64:2 121:12
mentioned 49:22 50:6,16 134:7 186:17 189:20 208:21 213:11 214:12 215:12,13,22 215:22 225:12
mentioning 217:12
merge 101:16
met 172:15
metabolites 39:9
mid 31:2 106:2 167:11 203:16 205:15
mid1960s 73:12
mid60s 73:10
midst 90:2
miller 8:18 10:6,6,19 12:3 13:3 14:22 16:12 17:3,6,16 18:3,9 19:6,14,19 24:1 25:4 26:23 28:13,21,25 29:9,14,22 30:6 32:17 33:14 34:3 35:1 36:1,10 37:14 38:7,13,22 39:7,16 40:9,23 41:8,18,24 42:4,13 43:5,8,18 44:7 46:18 47:9 48:18 49:5,25 50:10 51:15 52:21 52:25 53:10,21 54:1,11,25 55:12 56:9 57:5 57:8,12 58:3,19 59:4,20 61:1,9,20 64:20 68:2,17,21 71:11,21 72:19 74:6,10 76:17 82:1 83:6 88:1 90:3 91:21 92:1 96:9,13,16 98:12,19 99:2 100:13 102:2,14 103:19,23 104:4,14 112:8,11,22 113:17 116:8 120:10 124:9 125:18 126:20 128:18 129:23 130:10 132:7,13,16 135:8,23 136:9,11,21,24 137:5 137:14 138:16 139:18 140:1,8,18 141:3,14 141:21 143:3 150:22 151:17 158:21 166:19 167:16 168:14 169:23 170:15,22 171:17 172:6,9,18 173:21,24 174:1,4,6 175:11 176:17,25 180:5,12,23 182:6 183:8,15 184:12 185:9,18 188:2 189:7 190:25 192:19 193:4 196:17 197:22 198:17 199:2,7,16 200:11 201:12 208:1,13 216:2,4 219:8,19 225:23 228:7 233:22 234:7,11,22 235:5,20 236:11 237:2,7,18 238:17 243:7 245:10,22 246:2,8 247:11
millers 87:1
milling 59:12
million 14:6,9,10,10,13,20,21 15:4,5 96:6,20 97:2,10 101:21,24 105:17,17 133:20,25 134:10,12
millions 106:24
mind 89:10 90:21 96:14 110:24 224:6
mine 83:22
mineral 155:15 159:23
minimum 92:16
minor 63:1,6 177:13,17,18 184:23
minutes 202:9
minutia 246:9,10
missed 74:2
missing 112:3
missouri 1:1,6,12 2:1 7:1,8,17 8:1,12,13,19 8:22 11:11 246:2,4 248:4 249:8,17 250:1,19
misspoke 23:3 30:3 58:19 161:19 174:11
misstates 68:21 167:16 169:23 170:22 176:25 216:4 225:23
misunderstanding 102:21 103:13
misunderstood 103:3
mitchell 30:4,12,15,23 31:4 33:11
mix 39:1,4 232:18
mixture 37:25 144:22
mixtures 83:3
moisture 222:4,10,12 224:3
molds 186:1
molecule 136:1
molecules 138:25
moment 151:9 225:5
mon 150:20
money 16:8 20:25 21:6 23:10 98:10 113:11 138:10
moneys 13:25
mons 67:20 108:7,10
monsanto 1:5,11,23 2:7,13 3:9,11,14 4:5 5:5 5:15,17,20,22 6:1 7:6,14,23 8:6 9:12,13 10:3,25 12:2,9,12 13:2,8,8,12,14 15:19,21 18:15 19:23 20:4 26:8 27:18 29:7,17 30:2,3 30:5,20,21,21,24 31:6,10 32:9,12,21,25 33:12,20 34:1,11,25 35:6,15,19,21,24 36:8 36:13,16,22 37:2,5,8,9 38:19 40:21 41:3,21 42:7,12,15,23 43:2,3,11,15,24 44:1,10,14,18 45:15,23 46:15 47:6,18,21,25 48:1,16 49:13 49:16,23 50:7,11,12,21 51:4,12 52:6,9 55:15,22 56:2,3,7,24 57:14,25 58:13 59:18 60:6,17,21,24 61:4,5,16,25 62:4,8,15,17,18 62:19,24 63:7 64:18 65:4,19 66:5 68:15 69:1 70:22 71:17,22 72:2,16,22 73:4,9,15

76:11,13,15,25 77:10,25 78:24,25 79:3,9 80:2,5,19,23 81:7 84:20 88:6 92:22,25 94:12,13,19 96:20 98:9,16 99:16 100:5,10 101:2,18 109:12,17 110:5,15,19 111:21,24 112:3 113:11,12 114:17 116:3,5,11,13 117:17 118:4,7,13 119:2,9 120:5 121:2,3 125:10,16,21 127:12 129:21 130:3,3,7,13,16 130:21,25 131:1 132:5,11,14,21 133:7,8,11 133:16,19,22,24 134:12,18,20,25 137:20,23 139:2,9,16 141:1,6,9,10,10 147:16 148:20 149:2,15,19,24 150:3,16,18,20,23 151:13,17 151:22 152:1,3,7,9,14,22,23,24,25 153:7,18 153:25 156:16 159:6,10,17 164:19 165:9,9 165:9,16,18,19,20 166:7 168:12 169:9,16,18 169:18,22 170:2,2,14,17,19 171:2 175:25 176:20 177:22 178:2 181:19 183:7 184:4,11 186:14 187:11,16,17,24,25 188:6,12 189:2 189:13 190:12,13,16,20 191:9,16 192:2,13 192:15,17,23 193:9 198:23 199:1 200:17 202:19,23 203:5 206:25 209:8,20,22,24 210:1,10,14,16,18,22 211:5,6,10 212:11,23 212:24 213:5,9 214:22 215:1,25 216:9 218:1,10,22 219:5,12 220:9,12 221:3 224:12 225:19 226:2,11,20,23 227:1,15 228:2,10,25 229:9 231:24 232:5,9 239:4,6 240:13,24 242:14 243:16 244:20 245:1,7,8 249:6,14,23 250:6

monsantoeurope 78:18

monsantorelated 13:15,19 15:7,23 16:6 19:25 20:7,14,18,22 21:1,7,14 22:1,20 23:10,22 24:22 25:12 26:7 27:3,18 28:7,19 30:7,13,20,24 31:10 32:25 33:8,12 86:14 87:22 92:13,18

monsantos 34:19,23 35:4,9 41:15 47:16 56:21 57:3,9 60:4 62:19 64:17,22 66:11 67:25 68:9 70:2 76:8 79:15 86:5,22 87:7,11 88:2 93:17 95:3,14 105:7,16 109:24 110:4 110:11 111:15 115:17,21 116:6,19 118:9 119:20 120:7,8,19,22 121:13 122:3 123:17 124:6,23 125:1,3,4 126:8,11,17 127:1,21 128:10,13 129:21 133:4,12 134:22 142:22 143:18 144:12 153:24 158:11 169:20 170:3 170:21 171:3 177:21 178:12 192:11 195:4,6 197:10 202:17 226:8,17 232:16 238:23 240:5 245:4 246:20

montar 74:22 82:25 144:23 146:11

montars 74:25

month 16:2,4 20:6,15,18,21 21:3,4,11,13,13 21:17,21,25 22:13,14,15,19,19,21 23:1,12 23:15,17,19,21 27:2,5,9 28:8 92:21

monthly 13:25 15:24 26:10 27:17 28:19 29:7 92:12,17 115:10

months 21:24 199:9 220:21 246:14

moonshine 75:17

moore 115:4,7,9

mooyman 1:9 2:4 3:14 7:11 8:3 249:11 250:3

morbidity 218:4

morning 195:16,18 197:1 200:1 201:6

mortality 206:14,20 207:6,11,24 208:10 212:17 217:23 218:1

move 132:13

moved 226:9

moving 139:13

msds 235:12

msdss 234:24

musch 210:24,25 211:2,3

N

n 3:1,1,1,6 8:14,16,24 250:11,15

name 9:17,19 10:6,8 11:19 65:21 70:6,13,25 71:6 73:5,7,17,18 74:19 75:4,25 76:8,13 77:1,11,15,24 78:2,4,17,24 79:9 80:7,18,22 81:3,4 84:2,10,22 85:3 86:6 108:16 109:14 115:4 116:12 172:24,25 182:4,8 183:3 188:13 210:24 220:4

names 24:13 70:1 79:5,10,14,20 80:2,4 181:24 214:25

narrative 133:16

national 161:13,15 162:20 165:6,23 174:13 174:24 176:3 215:16 227:11 230:7

natural 45:10

nature 17:10 24:4

ncr 62:7,10,18,20,21 183:18 184:6,9 220:22 220:25 228:15 231:16

near 161:10

nearly 13:20

nebraska 204:6

necessarily 97:15 98:6 142:12 168:2

necessary 179:2,3 180:10,13,14,20

necessity 150:25

need 22:9 69:21 102:2 104:21 125:2,6 137:18 219:14 220:10 221:5,17,21 225:20 227:20 229:10 247:12
needed 64:2 179:3
neither 248:10
net 98:8,9,10 99:24,24
never 30:21 50:11,21 52:6,22 96:14 110:24 141:18 154:1,3 183:20 186:22 187:12 188:20 190:10 195:17 196:1,4,6,8,25 197:25 200:19 205:10 206:4,4 210:8 235:2
new 15:19,21 155:2,14 156:8
newly 173:7
newport 110:7,9,13
newspapers 53:16
nicholas 1:16 3:8 7:19 249:19
nishida 1:16 3:7 7:19 9:13 249:19
non 107:19
nonblack 107:22
nonchlorinated 142:19
nonflame 73:14
nonflammable 163:8
nonfluid 168:8
nonmonsanto 51:25
nonpcb 72:22 76:6 80:14 100:15,23 168:7
nonpcbcontaining 73:7,8 81:4
nonpcbs 73:13
nonpolar 38:21
normal 251:3
normalized 98:5
north 115:2 182:10,18,19
northrop 24:10
note 9:20 10:20 108:10
notes 234:25 248:9
notice 1:5,23 3:7,11,13 7:6,24 11:8 34:5,10 34:12 37:15 38:14,23 39:8,18 40:10,24 41:9 41:19 42:14,19 43:9 53:1 56:10 57:6 59:5 61:2 63:21 64:22 104:5 125:1 132:8 135:9 135:24 137:15 139:19 140:19 141:4,15 143:5 149:23 168:16 172:10 182:7 183:9 192:21 202:17 204:9 208:3 234:12 235:8,21 236:12 237:20 238:18 249:6,24
noticed 235:12
notices 10:20,22 19:20 42:21 57:13
notification 228:24
notify 226:9,17
notifying 229:1
november 2:18 5:12 8:10 11:9 221:7 247:18 248:15 250:10 251:7
number 10:3 14:24,24 15:2 40:6,8,19 44:8 50:21 65:9 67:16,17 68:4 72:22 76:20,21 97:9 100:16 105:10 121:6,25 123:24 125:7 182:11,20 183:20 211:19,20 217:17 222:4 222:15 223:2,4 224:19 239:18 242:7
numbered 63:20 106:16 161:8 243:5,23
numbers 81:22 97:14 98:7 105:14 110:2,3 111:15,18 121:8,23,23 127:13 206:6,7 243:14,18
numerical 108:6,8
numerology 144:17
numerous 79:16,24 226:10 242:17

O

o 3:1,1,6 231:21
oath 10:16
object 12:3 13:3 14:22 16:12 17:3,7,8,16 18:3 18:9 19:6 24:1 25:4 26:23 28:13,25 29:9,14 29:22 30:6 32:17 33:14 34:3 35:1 36:1,10 37:14 38:7,13 39:7,16 40:9,23 41:18 42:13 43:5 44:7 46:18 47:9 48:18 49:5,25 50:10 51:15 52:21,25 53:10,21,22 54:1,11,25 55:12 56:9 57:5 61:1,9,20 64:20 68:2,17 71:11,21 72:19 76:17 83:6 91:21 98:12,19 99:2 100:13 102:14 103:19,23 104:4,14 112:22 113:17 116:8 120:10 124:9 125:18 126:20 128:18 129:23 130:10 132:7,16 135:8,23 136:9,21 137:5 138:16 139:18 140:18 141:4,14,21 143:3 150:22 151:17 166:19 167:16 168:14 169:23 170:15,22 171:17 176:17,25 180:5,12,16,23 181:5 182:6 183:8,15 184:12 185:9,18 188:2 189:7 190:25 192:19 197:22 200:11 201:12 208:1,13 216:2 219:8 225:23 228:7 233:22 234:7,11,22 235:5,20 236:11 237:2,7,18 238:17 243:7 245:10
objection 11:5,12 28:21 41:8 42:4 57:16,19 58:3 140:8 172:6
objections 41:24 43:8,18 59:4 136:11,22 137:6,14 140:1 172:18 237:19,19
obviously 40:3 70:24 75:4 98:6 124:23 127:5 170:9 177:14 185:12 192:4 211:8 216:23

223:16
occasions 24:25
occur 243:21
occurred 61:24 87:8 97:3 104:3 221:24
occurring 224:4 226:6
october 3:23 4:18 6:6 95:8 144:8
office 86:13,19,21,22 87:1,6,10 89:6,11 91:3 113:16,18 114:5 115:13 129:2 192:20
offices 8:11 9:15 86:17,20,23 89:16,21,24 90:25
oh 50:25 58:21 67:19 70:17 71:19 79:11 90:18 102:12 103:7 121:22 123:25 141:8 146:7 155:10 188:12 201:23 204:20 209:2 216:7 223:12
oil 56:18 84:1,4 102:17,19 103:18,22 104:6 155:15 159:23
oilcontaining 155:1
oilfilled 154:24
okay 11:15 12:11 13:1 14:3,16 15:17 19:4 20:17,20 22:24 24:7 27:12 37:21 43:1 55:14 61:15 64:3,9 65:17,25 66:3 68:24 69:24 70:14,17 71:3,19 73:8 74:4 75:15,24 76:8 77:23 79:7,13 83:13 84:24 85:4 86:19 88:9 90:18 94:6,18,25 96:5,13,15 98:15 99:8,11 99:12,15 103:8,10 106:7,18 107:22 109:10 111:9,11 113:3,8 114:24 115:24 116:21 117:4,15,19 118:8,14,21 119:9,19 121:10 122:1 123:6 126:16,24 128:3 129:20 130:1 132:23 133:3,10,24 134:12 137:20 142:2 143:14,18,20 144:1,10,16,20 145:3,9,14,16 146:23 147:7 148:4,11,14 149:5 150:15 151:4,10,12 152:11,24 153:4 154:19,20 155:3,5,12,17,25 156:9,15 157:4,10,25 158:8,15 160:5,21 161:7 162:6,20 163:18 163:23 164:16 165:8,17 167:25 169:17,21 170:1,13 178:22 183:3,24 184:3 186:6 187:15,22 189:1,9 190:3,7,16,23 193:6,16 195:10 197:10,15 203:15 204:17,22 206:17 208:18 209:7,11,15,22 210:10 212:20 213:16,18 214:11,18,21 215:1 216:5,12 217:5,13 218:9,25 219:20,22,25 220:18 221:17 222:9,22 223:7,12 228:2 229:21 237:13 238:22 239:25 240:10 241:8,18,22 241:24 242:3 243:1,12 244:6 246:15
old 12:9 13:8 49:19
once 103:24,24,25 107:15 170:19
ones 24:12 65:2 79:16 97:13,19 119:18 121:11,16 166:1 183:20 193:16 218:13 219:21
op 178:16
open 46:8,10,12,17,23 47:4,7 60:17 68:15,20 70:22 80:24 95:16,16 224:22 234:3
operated 60:23
operating 156:6 240:13 247:4
operation 110:12,15,17,19 167:23
operations 35:10 57:1 111:16
opinion 33:4 34:11 35:3 208:6 246:20
opinions 208:4
opposed 17:18 121:12
option 162:3,11,18 176:12,14,19
options 163:19 178:17
order 25:9 92:17 117:10 122:8 180:11 246:13
organic 38:11
organizations 91:19
original 6:12 107:24 125:13 129:19 187:9 223:9 244:9 250:10
originally 127:21 243:5
originals 220:24
outside 37:15 38:14,22 39:8,17 40:9,24 41:8 41:19 61:2,10 64:21 78:25 111:25 132:8 172:9 210:10 236:12
overall 100:16
overseas 110:14
oxidation 221:20

P

p 5:8 8:11,14,14,16 112:19 159:1,4 185:11 202:12,15,15 220:3 225:7,11 247:16 250:11 250:15
packaging 59:12
page 10:23 67:15,20 95:12,12,12 101:8 105:4 106:18 144:13 148:16 149:11 154:19 156:4 156:4 157:22 159:20 161:7 163:19 164:4,6 164:7 193:17,20 198:7 221:12 222:7 240:9 244:2 246:23 247:2
pages 106:15 108:6,7 156:22,24 157:7 158:16 158:19 242:4 244:1,3
paid 13:24 15:7,22,24 23:10,13,16,18,20 26:20 27:2 112:24 113:8,12 166:2 251:2,3
paint 48:13 131:11 179:4

paints 45:3 47:22 48:1,3,23 49:1 59:14 60:14 68:15 178:12 185:4
papageorge 3:21 4:14,16 5:15,18,20,23 6:2 144:3,5 227:10
paper 26:9,13,15,17,19,20 28:3 52:2 62:5,12 62:16 68:12 89:17 90:3,7,8,9,10,11 125:11 125:12,17 157:13 183:5,6,14 184:7,10 187:4,10 188:7 189:20 190:4,6 214:4 215:22,23 220:25 244:9
papers 42:5,6
paragraph 57:13,17 133:18 156:5 159:21 161:8 222:7
paralegal 87:17,18
pardon 128:24 222:21
parlance 46:9
part 10:15 22:24 74:2 83:3 89:23,24 107:11 165:15,15 171:13 177:20 187:6 192:5 200:20 218:16 230:24 231:12,13
participate 67:10 193:24
participated 193:14 194:2,3,5,7,8,10,12
participation 194:14,23
particular 63:6 76:19 91:18 95:20 192:7 193:23 226:16 242:19,20
particularly 10:23
particulates 221:23
parties 26:1 27:23 248:11,12
pass 155:5
passed 11:13 66:3
pathway 233:20
patience 159:19
paul 8:16 250:11,15
paycheck 210:21
payee 15:19
paying 16:8 20:14,18
payments 10:24 28:7,19 29:7
payout 12:25,25 13:22
payroll 26:22,25
pc 140:16 177:20 211:10 213:1
pcb 3:24 18:17 31:5,9 33:4,9 37:13 39:10 51:5 56:15 66:23 71:15 72:2 73:5 74:19 75:1 80:24 90:12 93:17 94:7 95:3 99:25 100:7 109:12,24 115:17 134:25 138:4 142:22 146:23 148:15 149:12,19 159:22 160:10 170:14,17,20 171:3 195:20 196:1 199:15 201:11 203:13,25 205:15 210:18 211:6,11 212:15,21,22 213:2,3,10,12 215:23 215:25 216:10 217:1,9,15 218:1,10,13 219:5 224:20 226:4,20 234:20 236:9
pcbbased 71:14
pcbcontaining 5:3 69:1 77:24 79:21 97:12 99:21 227:21
pcbfilled 164:8,13
pcbrelated 93:10
pcbs 4:21 5:3 12:10,14 18:19,23 19:2,10 24:17,19 26:2 27:24 37:6,9,10,25 38:2,3,16 39:4,11,24 44:15,19 45:3,16,23 46:12,16,16 46:25 47:7,7,12,13,17,19,21 48:1,2,12 49:1 49:12,13 50:8,13 51:2,13,24 52:1,7,9,23 53:6 54:8,10,15 55:2,15,19,22 56:3,4,17,23 56:24 57:10,14 58:1,15 59:1,8 60:5,7 61:7 61:18 62:1,4,15,19,20,24 63:7,11 68:10 71:7,9,10,19 72:6,7,8,10,17,24,25 73:2,4,20 74:17 75:17,22 76:10,11,12,15 78:24,25 79:4,8,15 80:3,4,19,20,21 81:3,9,13 84:17 86:5 94:14,18 95:14 97:19,20,21,22 98:1,9 98:13,17 99:17 100:10,12,16 101:18 102:22 102:24 103:5,6,9,14,17,21 105:7 110:14 111:19,22,24 135:4 136:1,3,13 138:2 139:2 139:3,9 140:12 144:22 145:1,4,7,10,11,18 145:22 146:1,8,21 147:2,5,17 148:7 149:14 149:16,25 150:13,17,21,25 151:14,23 152:4 152:13 153:1,17,21 154:16 155:23 156:10 156:13,17 158:2,6,12 159:7 162:7,12,19 163:24 164:21 165:20 166:9,11,17,23 167:9 167:12,15,23 168:20,22 169:6,9 170:5,8,21 172:22 173:8 174:14,15,16,25 175:3,7 176:1,6,21 177:5,8,12,19 178:12,14,19,22 179:3,7,10,11,16 180:2,10,15,20 181:1,8,13 181:14,16,17,22,25 182:1,15 183:1,6,13,19 184:11,15,21 185:1,4,7,11,15,17,21 186:6 186:20 187:9,11,25 188:10,16,17 189:1,10 189:16 190:18,23 191:4,9 192:24 193:9,22 202:20,23 208:14 214:16,17 216:16,19 217:3 218:4 219:13,14 220:10,13,23 223:20 223:21,24 225:20,20 226:24 227:3 228:3,4 229:10,11 230:22 231:21 233:4,9,10,13,20 233:20 234:2,10,25 235:1,19 236:6,9 237:9 239:7
pct 3:24 71:14,22 94:7 115:25 135:1 138:11 146:12 148:13 149:12,20

HARTOLDMON0000270

pcts 71:16,20 72:6,7,10,13 76:10,12 95:15 115:24 116:3 134:24 135:4,7 136:5,18,19 137:21,24 138:8,14 141:2,9,11,13 143:11,16 144:12,23,23 145:1,4,7,10,17,22 146:1,21 146:23 147:3,6 148:5,8 149:10,14,16
peer 218:11,15 219:5
peerreviewed 212:3
pendency 31:7
pending 32:25 53:23 174:8
penn 154:25 155:3,12 156:5
pension 12:24 15:1
pensioner 12:20,22
people 29:5 54:9,14,16 68:4 88:13 138:23 139:3,6,12,17,25 140:2,13 177:15 178:5 179:24 182:11,13,21 206:11 209:8 211:5,9 211:12 214:24 227:2
percent 145:15,17,18 146:8,8 166:23 167:18 167:24 168:12,13,19,21 169:13 177:23
percentage 101:24 216:18
percentplus 167:12
perfectly 167:3 172:14 198:3
performed 48:5
performing 16:9
period 21:23 23:6 33:6,8 35:18 43:1 45:4,5 73:19 78:3 139:12 162:25 166:20 171:1 183:16,17 203:4 228:21,22,23
periods 78:18 184:1
permutations 115:8
persisted 40:22 41:3,7
persistence 42:17
persistent 38:11,17 42:2 138:19
persisting 41:16
person 132:11 179:24 189:1 204:1 207:1
personal 34:10 35:3 43:21 168:18 199:20 207:8 208:5 228:20
personally 193:14
persons 204:11 220:4
pertained 122:18
pertinent 126:22 144:11 246:19
pesticide 50:9,13,13,15 51:3,4,5,19,24 52:7,9 52:14 60:15 68:14 185:12,13
pesticides 51:13 52:1 185:8
pfizer 2:7 8:6 250:6
pharmacia 2:7 8:6 10:21,23 11:22 12:7,8,17 12:18,21 15:9,11,20 16:19 250:6
pharmacias 12:1
phenyl 148:2,3
phthalate 173:1,1
physical 233:5
physically 46:14 47:12
piece 200:23 201:2 244:9
pieces 247:8
pilot 35:11
pipeline 84:7,12 85:8,11
pipelines 84:14,16
place 106:14 112:25 149:25 151:14,23 152:5 153:1 154:17 158:12 159:8 163:18 165:20 181:25 221:15
places 111:22 247:9
plaintiff 1:3 7:4 249:3
plaintiffs 1:9,20 2:5,17 3:7,10,13,16,17,19,20 3:22 4:1,3,5,7,9,11,13,15,18,20,23 5:1,4,7,9 5:11,14,17,19,22 6:1,3,5,12 7:12,21 8:4,10 8:15 9:2,20 10:15 11:3 34:16 66:17,21 67:1 67:4 69:16,24 74:8 80:1 93:23 94:3 95:5 101:3 106:10 117:5,16 118:21 123:11 124:15 125:17,22 126:7,10 127:1,2,2,8,9,9 128:4,4,8,9,13,14 130:18 131:4 132:19 133:14 134:17 143:24 144:2 154:8,10,14 157:5 158:1,8 191:12 195:12 219:23 225:8 230:6 239:23 244:11 245:18 249:12,21 250:4,13
plan 14:24,25
plant 35:11,12,14 110:13 138:1 146:16,20 147:2,12,17,25 148:1 182:12 203:2,12 205:16,18 209:9 211:11 213:14,15 214:13 214:15,15,20 215:4,15,25 216:8,9,15 217:3 218:3,16,20,22,25 233:17 246:25
plants 219:6
plastic 45:12 47:1
plasticizer 44:24 45:2 46:4 55:16,20 58:10 70:9,23 80:12 83:17 107:16 177:19,21,21 177:22 227:6
plasticizers 59:8 60:15 68:14 75:3 80:18 81:2 81:5 83:16 104:25 177:9,13,24 178:2,6,12 179:7,10,12 224:18
plastics 45:6,7,9,12 46:24
playing 53:18,24 55:9
plaza 8:12,19,21 248:4 250:18
please 9:17 10:10 11:14,19 34:14 69:12,15

74:12,24 80:16 81:12 93:25 94:9 133:3 143:23 154:15 159:18 172:24 181:24 182:8 195:3,11 239:12
plethora 227:14
point 42:19 78:22 82:17 118:11 127:7 132:10 159:18 200:3
pointed 241:25
polarity 38:25
policy 155:20 242:12
pollutants 38:12
polychlorinated 3:18 4:4,24 25:16 52:15,16 52:17,19 54:15,18 55:1 71:14 76:10 89:17 115:25 127:23 134:24 141:2 144:14,24 145:13 146:9 148:23 149:1 154:12 157:19
polymer 47:13
polymers 46:24
polyphenol 142:14
poor 232:9
poorly 56:17 57:15
population 205:25 213:21,23 216:13 217:3
populations 203:12
portion 20:17 104:12
portions 201:17 239:9 244:12,16
position 41:15 44:13 56:22 64:17,22 66:5,7 207:23 242:5
possible 50:3,18 60:9 77:3 103:13 159:22 203:24 224:11
possibly 47:24 156:16
potential 51:17 58:15,18 59:16,19 64:1 158:11 223:17 227:20 228:16 231:20
poundage 99:10
pounds 99:7 101:9,17 106:24,25 148:18
power 168:7 227:25
practice 207:2,4
precaution 233:6
precise 238:8
precisely 181:17
predecessor 84:11
prefer 40:11
prejudices 16:22
preliminary 209:14
prelude 203:1
preparation 43:12 123:4,6,10,15 192:5
prepared 65:8,10,11 192:2
preparing 127:24 128:5
presence 220:13
present 8:23 23:7 116:18 191:9 193:9
press 56:14
pretty 45:11 52:5 125:14 204:15
prevent 219:14 220:10 225:20 227:25 229:11
prevented 183:2
preventing 228:4
previous 106:22 108:6 121:1 148:17 163:4 200:2,15 237:19
previously 11:2 123:18 124:7 126:14 212:13
price 44:6
prices 98:4
primarily 71:25 137:25 145:12 165:5 203:14
principal 194:5
principles 116:6
prior 56:22 68:21 86:4 116:5,7,16 119:4 127:24 130:5,14 148:20 177:1 204:22,25 205:3 225:23
privilege 11:6 16:14 17:9,9 18:10,16 24:5
privileged 16:13 17:12
probable 143:2 235:14 238:5,12,14
probably 15:20,21 25:14 30:16,18,18 31:2,17 32:18 45:4,4 47:24 48:20 49:19 52:12 60:11 63:9,14 90:20,20 106:8 107:25 109:17 115:12 134:4 138:24,24 139:15 142:17 167:10 169:16 174:22 178:15 182:23 193:24 194:3,8,10,20,25 195:1 198:13 201:3 223:9 224:2 235:10,19 236:2,3,15,17 236:22,24 237:14 243:18 244:5 246:14
problem 14:23 143:9 231:13
procedure 246:4
proceed 10:19 11:14 13:6 40:25
proceedings 248:8
process 26:17 36:14 68:13 75:1,16,22 83:1 122:11 136:7 138:4,4 144:25 146:12,16,19 146:21 147:9,11,18,21 174:14 223:10 240:11,16 242:1
processing 56:25 57:24 58:1,7,13 59:2,15 60:16 182:12
produce 10:23 69:3 153:4 239:20
produced 8:10 10:14 74:15,15 78:8 120:13 120:18 121:11 123:1,18 124:7,11 132:19 146:20,21 147:2 157:17 161:22 164:23 199:15 200:23 239:1 243:15,17 245:12
producing 148:23 151:18

product 45:10,21 49:19,20,21,22 50:1,5 67:7 67:8 72:1 73:23,24 76:11 81:7 82:16 85:6 85:14,17 98:16,20 129:17 131:4 135:3 142:9,18,19 147:5,14 166:20 170:14 184:19 218:21 223:5,19 226:5 227:4 229:2 232:12 243:13
production 11:12 37:23 44:11 67:16 111:5,20 123:24 148:15 238:24 240:7,14 243:13 245:14 246:21
products 4:6 5:3 69:1 70:2,7,12 72:16 73:19 79:14 80:4 81:13 93:18 97:12,16 109:24 115:17 117:17 130:21,25 142:22 144:15 148:2,3 149:12 221:20 222:17 224:21 226:5 226:20 232:6,10,11,13,17 234:20 235:1 240:13,16 247:5
professional 8:13 248:3
profit 99:20,24 100:19,22
program 224:14
prolong 189:23
promoted 186:14,16
promoting 186:18
pronounce 65:21,23 220:3
pronounced 65:24
proofread 248:7
proper 232:20 233:7
properly 60:22
properties 63:10 84:17 177:14,25 178:19,20
property 179:23
proposition 108:3 118:19 164:20 165:11,19 168:24
propounded 11:3
protected 16:14 17:12 18:10,15
protection 24:5 144:6 164:8,13 167:5 169:4 169:15
provide 87:13,17 89:9 121:18 208:4 233:10
provided 63:16 64:14 65:15 66:24 93:20 115:22 124:20 125:4 126:7,11 128:9 143:12 153:11,12 156:22 158:10 199:11 200:6 219:12,15 220:9 225:19 226:19 232:14
provides 94:17
providing 232:6 233:12,19
proximity 86:25
public 24:12 68:1,6 118:6,9,12 188:7
publication 27:13 28:18 212:3 214:4,24
publications 41:13
published 25:19 26:6,18 28:3 32:5,22 33:13 52:2 188:7 203:6 211:23 212:3 214:2 218:7 218:11,15 219:4
pull 105:22
pulled 157:6 247:8
pump 84:1,4
pumping 84:15
pumps 84:18
purchase 51:8 131:2
purchased 133:8
pure 75:17 222:1
purified 221:15,17
purpose 80:17 131:7
purposes 98:17 126:2 127:16 243:3
pursuant 11:11 226:8 246:4
push 84:16,19
put 27:21 45:25 48:8 50:23 51:4 63:23 65:16 67:14,25 68:4 69:8 85:24 104:11 125:23 126:2 134:12 138:10 147:8,17,21 184:22 185:4,8 191:15 221:24 225:2 226:23 227:3 243:2,13,14 247:9
puts 133:16
putting 67:10 179:7 244:20
pydraul 75:25 76:4,8,13,16 77:1,7,11 81:22 97:21
pyranol 77:16,23 83:4,10
pyroclor 78:5,11,17 83:13

Q

qualify 93:5
quantities 230:17
quarter 25:13 104:16
quarterphenyls 142:17
queeny 4:8,10 35:12 116:14,15,22 117:21,24 118:22
queenys 118:16
question 12:4 13:4 15:3 16:17 17:4,7,13 18:10 19:7 24:2,8 26:24 31:22 34:7,22 36:2 36:11 37:14 38:14 39:17 40:4 41:19 53:22 53:23 55:13 56:10 57:21,21 61:11 62:14 64:9,25 68:9 71:4 74:17 77:6,8,12,22,22 78:1 80:14 81:1 91:22 100:14 103:3,11 104:5 111:6,12 119:18,21 122:13 126:23 127:7 130:20 132:8 135:9 139:11,22 141:22 143:4 144:12 148:13 151:11 152:15,21,21

156:20 158:19 166:5 174:7 179:2 180:19 183:9 193:6 208:2,8 210:15 216:25 226:16 230:19 231:23 234:14 235:21 236:12 237:19 238:1,2,18 240:5 243:8
questionable 130:24
questions 10:20 19:15 20:1,3 34:4 55:6 64:1 90:17 138:9,13 149:9 192:23 196:8 198:18 203:23 211:21
quick 59:21
quickly 82:17 232:2 233:18 234:18
quit 85:25
quotations 156:25
quoted 157:15

R

r 8:14
radios 168:9
railroad 155:4,5,13 156:5
raised 21:10,17
range 223:2
rarely 92:5 93:2 207:7
rate 215:20 231:11
ratio 145:21 146:1
rats 233:5
raw 44:13 213:4 218:19
reach 56:8 137:11,19
reached 136:18,20,25 222:18
reaction 147:4
read 9:22,24 28:17 57:13 107:13 118:21 123:14,16 134:1 149:23 155:22 171:10,11 171:11,20 196:11 201:15 207:16,18 208:12 208:15
readily 39:1,4 136:3 178:2,8 223:13,14
reading 29:5 30:1 59:7 174:18
readings 183:18
ready 138:3
real 53:23 105:13
realization 138:7
really 14:5 22:7 25:13 30:11 36:6 63:5 66:8 74:21 75:6 77:2 85:19 95:11 97:23 98:5 139:7 154:22 189:18 194:17 202:24 203:9 204:3,8 208:23 218:20 227:22
reason 11:6 29:5 48:6 123:21,22 156:21 160:17 172:4,13 181:18 182:13 201:8,9,14 211:18 231:18
reasonable 136:18 137:3,7,17,17
reasons 67:7 183:20
recall 14:23 25:13 33:17,19 35:11 59:6 62:21 63:5 81:22 93:15 116:17 121:11 124:14 127:16 145:2 146:10 166:1 174:20 192:1 194:4 196:21 201:20 202:1,5 211:13 241:11 244:10
recalled 126:14
receipts 10:24
receive 12:24,24 21:1,7 27:19 88:14,20
received 10:25 20:21 29:6 243:19
receives 28:6
receiving 21:24 28:18
recollected 127:17
recollection 33:22 73:12 145:15 146:2 208:16 212:10 244:14
recollections 63:25
recommended 189:13
recondition 221:25 223:4
reconditioning 221:13 222:5,8
record 9:10,18 57:20 59:23 60:1 82:2,5 87:23 87:25 112:15,18 158:25 159:3 202:12,14 225:4,6,10,18 243:16 247:15
records 5:6 78:21 94:11,12 148:21 149:2 190:14 197:6 206:23
refer 94:21 96:13
reference 124:1,3 150:12 157:16 161:13
referenced 64:8 176:4,5
references 64:12,13 66:15 122:21,22,24 123:2,3,5,7,14,16,18 124:8 159:16
referencing 67:14 118:18 154:16 158:10 164:3 173:17,20 174:10,12
referred 125:21 154:5 190:1 194:11 199:13
referring 96:10 141:23 154:23 188:25
reflect 115:21,23
reflected 101:11 127:12
reflecting 143:15
reflection 105:25
reformulated 3:25
reframe 127:7
regard 159:21 161:23 162:20 191:9 193:9 208:14,15 218:13 226:11 240:13 242:8
regarding 3:24 5:1,12 127:3 153:1 192:21 220:16
regards 215:11

register 230:7
registered 8:13 248:3
regulation 235:11
regulations 151:2 226:6
regulatory 26:1 27:23 203:8 235:14,16,18 236:5,8
relate 19:10,10 64:23
related 64:5,15,18 100:7 206:23 210:18 214:16,17 248:11
relates 35:4
relating 5:3 43:7 150:25
relation 195:7 220:8
relations 68:1,6 118:6,9,12 246:24,25
relationship 12:1,17 13:2 91:20 130:20 132:20
relative 248:12
relatively 38:4
release 228:18 229:25 230:8
released 47:14 219:14 220:10 225:21 227:8 228:4 229:11
releases 227:20 228:1
relevant 95:11 97:23 156:24 192:23 226:15 230:17 242:7
reliability 162:9
relied 95:13 120:8 150:3 152:1,18 153:18 157:7 159:10
relies 164:19
rely 96:24
relying 156:16 165:10,16,19
remember 14:4,6,11,12,14 15:1,2,5 21:11 62:22 81:24 85:6 93:4,13 102:11 144:21 146:3,5 165:7 166:3 188:13 189:25 207:18 208:8 214:25 231:8 234:14 238:2 241:4,5
remove 174:15 226:5
removed 76:11 233:14
rephrase 23:4 77:8
replace 76:15
replaced 170:20 172:22 173:4,8
replacement 3:24 97:16
replying 34:11
report 4:20 112:21,23 174:22 193:22,23 220:16
reported 41:6 52:22 141:19 193:24 207:21 231:20 248:7
reporter 6:12 8:13,13,13 9:5 10:10,16 143:22 248:1,3,3,3 249:1
reports 5:2 41:16 56:14 61:3,23 150:8 194:20
repository 245:21
represent 153:16
representative 2:13 11:22 16:19 18:24 19:13 24:21 25:6,12 125:1 165:18 202:18
represented 8:16,18,20
representing 8:23 18:15 132:11
request 10:23 11:3,10 85:7 151:21 198:18 239:22 245:14 246:3,9
requested 5:6 127:18 226:14 245:14,17,23
requesting 245:24
requests 125:8 126:19
require 152:22 153:17 156:6 166:9 235:11
required 150:1,16,21 151:14,24 152:5 153:2 153:21 154:17 156:17 158:3,6,12 159:8 161:11 162:2 164:9,14,21 165:21 167:23 168:11 169:4,15 170:6 171:21 174:25 175:7 175:21 176:1,7,10,10,11,19,21
requirement 176:14 177:4
requirements 150:12 172:15 174:15
requiring 156:10,12
research 52:12 66:8
researchers 51:25
residue 75:21
resistance 73:14 178:18
resistant 181:3
respect 16:15 19:9 42:16,21 43:8 59:4 64:3 81:6 86:3 95:1 105:24 127:8 128:8 152:15 152:25 156:20 157:25 168:1,10 202:19,22 213:9 214:13 219:13,16 220:9 225:20 229:10 238:24 240:6 245:13 246:15,21
respond 19:19 42:15 125:7 150:24 151:18 239:17
responded 11:2
responding 10:15 124:25 239:22
response 126:16 127:22
responsibilities 247:3
responsible 68:6
responsive 122:12 126:18,21 240:5
responsiveness 180:17 181:6
rest 97:19
result 182:1 230:13
results 233:7
retained 6:12 114:20 120:2

retainer 15:24
retardancy 170:5
retardant 73:13 76:21 84:17 179:21 180:14 181:17,19
retardants 178:19
retire 13:23
retired 12:23 13:1,16,21 20:19 66:6 118:11
retiree 65:19
retirement 14:1 15:12
retrospect 41:12 48:14 58:4 61:21
retrospective 46:22
return 134:24
reused 221:16
reveal 19:8 20:10 24:4,13 130:12
review 32:21 128:12 129:18 131:6 157:7 165:5 175:19 191:19 200:22 218:11,15 241:3
reviewed 127:15 163:14 219:5 239:17 241:1 243:22 246:12
reviewing 140:21 175:18
revised 242:24
revisions 242:17,25
rhapsody 227:22
rice 56:18
right 18:6,23 20:5 21:20 22:17,22 26:3 27:6 27:10,25 28:8 36:18 38:19 45:8 48:10,13,17 49:3 54:16 60:25 61:8,19 65:3 67:20 70:20 73:25 77:4 78:15 85:10 86:7,23 92:22 95:11 95:23 96:23 98:1,8,11 99:5 102:6 103:18,22 104:11,23 107:1,7 108:2 110:10,12 111:13 112:10 113:9,14,16,20 114:22,24 117:9 118:14,17 119:7 123:12 125:19,23 126:14 126:19 128:10,14 129:2,22 130:5,16 131:8 131:24 134:13,20,22 136:8,24 140:5 143:18 145:2 146:10 147:1 148:2,9 149:3 151:10 152:9,15 153:2,10 154:6 155:18 157:8,11 162:19 163:12 164:2,22 166:9 168:10,13 170:11,14,21 171:16 172:2,17 173:5,8 175:7,9,21,24 178:14,24 179:14,17,20 180:8 180:11 181:10,14 182:22 184:15,17,19,25 188:4 190:2,8,18,24 191:17,23 192:18 197:2,21 199:3,6,17 200:20 201:6 202:6,7 202:11 206:3,12,22,23 207:25 209:12 210:15 214:11 216:16 219:6,20 221:1,9 223:13 224:7 229:5,22 230:14 231:5,17 233:15,21 234:1,5 238:12 241:16,24 242:2 245:6 246:16 247:7
ring 135:5,6
rings 40:14,18
robert 2:12 3:3,21 4:16 8:9 9:3,11 10:13 11:20 18:25 28:6 29:16 89:3 144:5 248:5 250:10
roof 75:9
roush 204:19,20,22 205:1,12
roushs 209:10
rpr 2:22 248:19 251:9
rubber 45:10,13
rubbers 45:8,12,13
rubbertype 45:5
rules 11:11 156:6 246:4
russell 1:9 2:4 3:14 7:11 8:3 249:11 250:3
rutter 8:21 10:8,8 90:16,20

S

s 3:6,23 4:19 8:14,23 50:17 110:23 111:1,4,19 111:20 144:8 160:10
safe 227:12
sale 34:23 99:4
sales 5:12 34:20 51:24 64:19 93:17 94:7,7 95:3,14,21 96:11 97:3,14,18 98:1,3,22,24,25 99:6 100:5,19,23 101:9,11,17,20 104:12,24 105:6 106:1,24 107:5,9 108:3,12,15,24,24 109:16,24 110:4,7,9,23 111:1,5,19,24 115:17,21 127:3,13,17,22 143:16 144:12 148:13,15,18 149:13 190:14 238:24 240:7 246:21
salesman 227:15
samples 192:6
sanders 9:16
santicizer 80:8,17 81:3,6,8,12,17 83:17
santicizers 81:21
santobane 3:16
santolube 82:8,14,16
santovac 84:5
santowax 141:20,24 142:7,9,13,18
sauget 35:14 147:25 205:21
saw 195:15 196:1,25 200:1
saying 14:9 48:9 52:2 65:14 81:7 84:20 96:19 109:15 119:6,9,11,19 130:7,11,16 147:11 150:18,19 155:13 160:11,25 165:8 167:7,13

HARTOLDMON0000276

169:18 174:24 175:1,2 178:22 187:24 188:19 189:5,5 190:17 197:23 207:4,10 208:9 234:8 238:14,21
says 10:17 25:22 67:18 68:3 70:4,4,18 74:22 75:2 76:5,6 77:21,21 78:7 80:13 82:8 85:21 96:22 97:2,16 104:8,10 108:11 111:1,4 117:1 118:3,23 132:2 134:8 149:24 150:16 151:21 154:16,23 158:6 161:16 166:14 187:11,13 188:7,9 198:7,9 220:18 222:8 230:11,15 231:11,15 235:19 236:2
scheme 237:23
schneider 118:22 132:3,6,9
scientific 41:6,16 136:17
scope 16:12 34:5 37:15 38:14,23 39:8,18 40:10,24 41:9,19 53:1 56:10 57:6,22 61:10 64:21 104:5 132:8 135:9,24 137:15 139:19 140:19 141:3,15 143:4 168:15 182:7 183:9 192:21 208:2 234:12 235:7,21 236:12 237:20 238:18
se 82:25
sealing 131:15
search 153:15
searching 158:17
second 67:15,18,19 101:13 144:13 157:21,24 157:24 246:23
secret 18:8,12,13 19:2,3
secretary 87:13
section 106:17 157:14,23 177:23 189:21 218:5 228:14 230:12 242:1
sections 242:24
see 49:1 50:5 54:9,14 67:19 94:4 109:9 111:14 115:3 127:25 141:25 142:18 153:15 155:21 161:16 191:19 192:22 193:3 196:6 201:8,10 206:14 208:24 222:9 245:4 246:12
seen 34:13 47:15 48:4 52:11,22 53:5 101:11 106:3 108:19 116:15 123:5 128:5 129:25 148:15 149:6 154:1,3 189:12 190:20 195:17 196:4,14,19,22 197:25 200:6,14,21 201:5 213:4
seldom 91:15
select 67:4 120:23 156:22 157:6
selected 120:19,20 143:14 220:7 240:15,18 240:20,21 241:24 243:23 244:12,16
sell 51:6,19 52:9 76:25 77:10 184:19
selling 41:22 42:24 43:2 44:15,19 45:16,23 46:16 47:7 55:18 72:16,23 78:25 86:1 98:16 116:3 137:21,24 169:9 170:3
send 227:1
sending 221:15
sense 72:3 138:10 198:3 223:4,20
senses 40:12
sensitivity 48:20
sent 204:5 220:15 224:15 226:2
separate 13:9
september 20:20 25:19 26:6 31:24
sequentially 243:21
series 144:17,18,21,22,23 145:4,7,9,12,16,20 145:25 226:2
seriousness 227:24
served 10:21 34:5 42:22
services 16:9 27:4,7 89:13
serving 33:20
set 27:2,10 193:7 224:12,25 226:7,12,15 243:22 251:6
settle 231:13
setup 228:23
shareholders 246:24
shareowners 246:24
sheet 194:15 244:8
shifrin 161:22 164:24 165:1,4,18
shipment 226:23
shipped 219:1
short 59:25 82:4 159:2 202:13
shorthand 8:13 9:4 248:2
shortly 60:11 201:3 212:8 232:11
show 120:8 150:15 157:18 215:5
showed 52:11 140:15 212:11
showing 100:9 101:20 220:21 230:22
shown 39:11 200:19 234:25
shows 97:25 101:9
sic 35:14 67:20 144:5
side 70:1 75:19
sign 95:24
signature 9:6 251:6
significant 104:12
similar 32:5 37:13,22 39:14,14,24 40:7,12 156:2 192:6 212:12
single 89:20
sir 16:18 17:13 21:23 22:16 28:24 50:24 53:7 53:25 55:10,11 60:3 67:5 95:10 101:7

112:20 118:19 124:24 152:3 159:5 160:6 163:3 164:11 175:6 187:18 191:15 195:15 195:21 197:4 199:19 201:2 202:16 219:25 221:1 225:12
sit 49:17 66:10 81:16,23,24 93:15 140:25 144:20 145:2 146:10 166:6 174:20 189:19 198:12 199:16 214:8 246:8
situation 160:11 182:9 220:23 224:20 226:4 227:7,17,24 228:17,19 229:2 230:3,10
situations 150:13 153:17 175:3 227:8
six 22:12
small 52:12 177:20,20 206:6 209:13 212:14 215:7 217:17 223:18,18 230:17
smartypants 216:22
smith 115:4,7,9
smoked 207:1
smoking 204:12,13 206:8,11,22,24 207:12,22 207:24 208:10,17 212:16 215:18
soils 224:3
sold 45:16 47:11 51:8 52:7,14 62:20 69:1 73:15,16 75:7,8 76:14,19 77:7 79:5 80:2 81:5 84:3,20 94:14,19 96:7,20 108:20,25 109:4 111:22 132:1 149:15 178:2 179:14,19 181:14 192:24
solids 75:2
solutia 2:7 8:6 12:23 13:1,7,7,15,16,21 73:6 121:3 214:4,7 216:11 250:6
solutiadone 214:10
solutias 13:2
somebody 30:1 51:10
sorry 9:23 23:3 25:4 27:16 70:17 74:1,3,13 78:8 85:3 92:20 96:9,14 98:15 107:19 109:3 109:8 110:6 111:9 121:21 122:23 136:12,23 146:7 150:20 160:2 166:19 173:18 180:24 191:18 199:3 201:22,25 204:13 206:17 213:25 219:9 222:6 225:25 232:8,23 233:6 237:8 243:8 247:2
sort 242:11
sounds 22:6,18 134:2
source 164:5 187:9 199:3 221:11
sources 58:18
south 129:6
sparsely 38:4
speak 98:7
speaking 165:4 169:19
speaks 104:15
specific 16:16 17:10 20:3 40:12 44:25 50:2 54:5 59:16 63:25 75:10 84:6 112:11 124:21 153:16 159:16 165:7 177:4,14,25 178:1 194:22 201:14 203:10 211:22 218:21 245:17
specifically 14:7 22:9 47:23 49:15,16 58:16 59:6 69:11 85:25 122:10,15 123:4 127:18 150:15 154:16 158:9 165:3,17 166:3 172:25 183:4 189:25 197:12 214:16,16 215:13 216:10 218:14,18 221:3 224:4 240:16 245:13
specificity 94:16,19
specifics 16:13 19:8 40:11 95:2
specify 143:7
speculate 17:17 18:4 53:11 110:23 145:23 172:11
speculating 85:9
speculation 29:1 33:15 43:6,9,19 64:21 172:7 201:13 234:14 235:6
spell 211:2
spend 87:22,24 134:5
spending 21:25
spent 22:19 133:25 183:19
split 149:14 213:13
sponsored 191:8 192:12,16 193:8
spring 224:5
springs 89:10 90:21
spun 13:9
st 1:2,7,14 7:2,9,18 8:12,16,19,22 35:12 248:4 249:9,18 250:11,15,19
stack 197:11
stage 75:15
stamp 243:4
stamps 243:12
stand 96:1 237:19
standard 207:2,4
standards 227:11,13 238:23 240:6,12,24 241:1 246:20 247:5
stands 115:25
start 94:10 115:10 128:1 147:4,5 174:7 193:17 209:7 244:20
started 45:16 46:16 56:19 63:13,14 78:20,22 80:22 94:11 116:13 209:2,11,12
starting 226:22

state 9:17 42:10 222:1
stated 225:17
statement 113:22 155:21 160:6,15,22 163:11 163:13 164:6,12 167:21 188:25 249:1
states 2:1 4:21 8:1 56:19 78:19 79:1 111:23 111:25 250:1
stations 84:16 156:7
statistics 206:8 215:16,16,17
stay 48:8 72:3
stayed 43:15 184:9
steel 132:1
steps 133:19
stewart 8:16,16 9:19,19,24 10:2,19 11:15,18 12:6 13:11 15:3 16:17 17:5,13,20 18:6,11 19:12,15,16,24 24:8 25:7,8 27:1 28:14,23 29:4,12,16,24 30:7 32:21 33:18 34:7,18 35:6 36:8,16 37:17 38:11,18 39:1,10,21 40:14 41:2,15,21 42:1,6,23 43:7,14 44:1,14 47:6,15 48:24 49:9 50:7,12 51:21 52:23 53:6,12,24 54:3,13 55:3,14 56:21 57:7,9,19 57:23 58:8,23 59:11,22 60:3 61:5,14,25 65:2 66:19 67:3 68:8,22 69:14,18 71:12,24 73:1 74:7,11 76:24 81:25 82:7 83:8 91:23 92:2,3 93:25 94:2 95:7 96:11,15,18 98:15 98:22 99:5 100:18 101:5 102:4,16 103:21 104:2,7,19 106:12 112:6,9,13,20,24 113:19 116:12 117:8 120:12 124:12 125:19 126:24 128:21 130:1,15 132:14,18 135:14 136:6,15 137:3,8,20 138:19 139:23 140:3,11,24 141:8,20,24 143:11,23 144:1 151:6,20 154:10 158:23 159:5 166:21 167:2,25 168:21 170:1,19,25 171:19 172:1,16,21 173:23,25 174:3,5,9 175:20 176:20 177:2 180:6,16,19,25 181:5,7 182:8 183:10,17,24 184:14 185:16,21 188:4 189:9 191:2,14 192:20 193:3,6 195:10,14 196:18,19 198:5 198:15,19,25 199:5,14,18,19 200:18 201:15 202:3,10,16 208:7,18 216:5 219:11,20,25 225:4,12,25 228:9 233:24 234:8,20 235:3,9 235:23 236:20 237:4,13,25 238:22 239:12 239:14,25 243:9 245:19,24 246:5,10,11 247:14 250:11,15
stewarts 6:13
stipend 13:25
stipulated 9:1
stock 133:20 134:8
stop 13:14 35:15 44:1 53:21 137:21 160:5 173:21,23 174:1 180:6 209:3 210:5 213:25
stopped 23:9 78:21 85:19 137:23 138:2 180:2 183:6 204:15
story 118:3 127:4
straight 187:15
street 8:16 250:11,15
stretch 200:24
strike 82:11 96:14 110:23 132:13
structurally 39:14
structure 36:23 37:3,9
structures 37:12
student 210:12,13
studied 136:14
studies 5:2 191:8 192:1,4,16 193:8,11,13 202:18,21 203:10,11,12 207:6,16,18,20,24 208:10,15 212:24 213:8,12,14,17,24 214:14 218:9 219:5 233:2 237:10,12
study 54:8 194:18 202:25 203:1,5,6,16,25 204:9,9,16 206:3,14,20 207:11 208:19,23,25 209:1,18,21,22,23 210:11,17,18 211:4,12,14 211:15,23 212:11,18 213:5,19,23 214:2,10 214:12,21 215:2,5,7,13 216:21,23 217:8,11 217:22,23,25 218:1,2,4,14
stuff 68:5 120:14 223:12 229:25 230:8
subgroup 213:12,13
subject 11:14 37:16 38:15,24 39:19 41:10 43:21 53:2 56:11 64:24 122:18 135:10,25 138:8,12 140:20 141:5,17 151:3 168:17 172:11 193:2 195:3 208:5 220:8 234:13 237:24 238:20 245:17
subjects 34:18 204:8
subsequent 109:6 212:22
subsidiary 110:16,20
substantive 11:12
substitute 76:22 164:7,12 226:5
substitutes 170:4
sucks 88:10
sufficient 238:6
suggest 112:6 130:13,24 131:1 163:3
suggested 50:20 51:9 60:9 178:7,9 187:12,13 188:1,10,17,19,22 189:2,10 190:18 238:8
suggesting 103:7 178:11
suggestion 190:11

suggestions 41:14
suggestive 237:11
suggests 116:10 163:1
suitable 184:2,16
suite 8:12,17,19,21,24 248:4 250:11,15,19
sum 12:25 13:22 14:2 15:2 27:2
summary 122:12
summer 209:24 210:12,13,19,23
supplied 121:12 122:2
supply 79:4 122:24
support 8:23 109:23 132:20 150:4 152:2 153:7,9,20 156:16 158:2,11 159:10 160:5,7 160:21 163:12
supporting 160:13
suppose 16:24 28:9 77:3 92:23 166:13 199:22
sure 12:5 14:15 15:18 46:23 49:17 51:7 57:7 61:22 62:8,12 63:4 69:20 73:11,11 74:9 82:1 98:4 102:21 103:8,11,12 105:12 107:3 116:9 117:13 125:11 126:21 134:6 143:8 186:17 189:8 192:8 193:15 194:1,23 211:14 214:1 222:15 227:6,16,23 228:25 229:20 231:6 232:20,24 233:8,17 247:14
surveillance 5:6 195:4 196:9 197:6,11,18,24 213:17
survey 4:2 101:6
survivor 1:17 3:8 7:19 249:19
suspect 135:20,21 136:4
suspicion 135:17,19,22 136:25 137:4
suspicions 137:17
swann 4:5 44:17 45:22 60:11 63:5,10 71:18 116:4,5,7,11,16,23 117:17 118:16,24 130:2 130:4,8,14,21,25 132:21 133:25 134:2,3,13 134:19
swanns 116:19 133:5,13
swear 10:11
sweden 220:14,24
sworn 8:10 10:14 248:6
synthetic 45:13
sys 103:1
system 46:13,14 47:13,13 56:18 61:8 88:17 88:21 182:15 221:25 222:12 223:16,17 224:6 234:17
systematic 28:19 29:7
systems 57:15 60:22,23,24 61:6,17,23 103:14 179:24,24 221:6 234:3,5,6,9

T

t 3:1,6
tables 108:5,6
tag 95:7
take 13:25 14:1,3 55:14 59:21 66:3 81:25 83:4 85:13 89:11 92:10,13 105:3 112:6 154:14 157:25 173:24 203:15 243:1 247:14
taken 2:17 9:4 59:25 82:4 108:4 112:17 159:2 162:9 181:25 202:13 244:1,2 248:9,12 250:10
takes 112:25
tales 187:8 189:15,22
talk 32:7 38:2 40:11 70:8,11 93:16 99:10,11 171:20 206:25 222:3 247:2
talked 60:14 68:11 70:22 115:14 127:5,20 185:5,10 207:17 212:20,22 224:2 228:14
talking 12:13 20:5 22:15 38:19 40:5 45:2 46:19 55:8 99:13 102:9,11 110:11 111:2,18 115:16 121:22 126:17 128:1 138:13 151:8 159:6,12 175:11 186:4,5
talks 44:11 67:7 102:4 149:12 221:11,12 240:11 242:6 246:23 247:1
tape 202:9
tar 75:4
tarlike 75:5
task 4:22 174:22
tax 113:22
taxed 250:13,17
teeth 186:5,7,7
tell 11:19 18:22 19:4 20:25 27:12,14,17 37:21 52:6 57:8 58:24 66:19 71:5 93:3 94:9,14,18 95:10 101:24 106:15 112:3 114:24 116:25 117:10 122:8 130:3 133:3 137:23 144:16,18 148:12,25 149:18 154:15 157:10,18 165:9 168:11 173:23 176:20 181:24 199:5,19 213:16,18 235:18 236:5
telling 11:15 18:7 31:23 35:21 44:18 96:5 118:14 124:6 132:5 133:10 169:8,10,21 187:16 188:5,6 197:20 231:16 245:19
tells 80:2 99:6 114:13 163:19
temperatures 232:19,20,22,24 233:10 234:3 234:16,19
ten 36:17
tense 27:21 28:2,4
tenure 195:5

term 47:4 50:15 70:6,11 238:11,12
termed 210:20
terminology 46:20 68:18
terms 236:14,23,25 237:5
terphenyl 142:9,13 144:14,25 147:6
terphenylbased 71:15
terphenyls 52:15,17,19 76:10 115:25 127:23 128:2 134:25 142:11,16 145:13 146:9 147:20,23,24 148:23 149:1
test 136:17
tested 48:17 49:1 135:12 137:1,18
testified 26:1 27:22 201:20
testify 19:22 34:19
testifying 93:7
testimony 23:4 48:25 68:21 167:17 169:24 170:23 177:1 197:24 200:2,15 216:4 225:24
testing 48:19,20 139:13 171:21,23
texas 8:17,24 85:12,13,16 250:11,15
thank 10:5 11:15 23:3 58:22 67:23 74:14 159:19 175:15
thats 15:6 17:12 22:7,17 23:1,8 24:5 27:11,24 28:2 31:17 32:1,18 33:5 35:13,23 36:14 42:13 46:1 48:11 49:4,7 53:22 55:17,21,25 57:3,16,20 59:22 61:21 63:1 66:14,16 67:21 68:3 69:5 72:20 73:11 74:1,1,2 77:12 79:11 79:11 80:6,22 82:16 85:9 90:1 91:4,7 94:11 95:4 96:15,22 99:19,23 100:2,17 102:1,5 103:11,16,25 105:22 106:3 108:12 109:15 110:10,17 111:1,7,17 112:5,8,11,11,14 118:2 119:8,22 120:12 122:15 123:13,20 124:2,4,10,11 125:14 126:15 127:18 128:7 128:11 130:6,16 132:2 133:9 134:1,7,14,22 135:22 136:24 139:14 141:18 142:20 144:2 145:10 146:5,16,18 147:15 148:10 149:4,7 150:7 151:21 153:3,18 157:7,9 158:4,7 160:12,24 162:14,21 163:17,25 164:17 166:10 168:18 169:25 171:18 175:8,10,23 180:17 183:23 185:5 186:8 188:14 190:5,5 190:22 194:17 196:3 197:3 198:8 199:22 200:7,9,23 201:7,23 202:5 203:9,18 204:15 205:6,18 206:5,19,24 207:2,4,6 208:25 214:11 216:14,17,25 219:3 222:5,24,25 223:6,14 226:14 230:15,25 231:15 235:25 238:21 241:23 244:5,14,19,23 245:3 246:6
theres 22:14 29:10 45:7,14 67:15,16 76:18 81:14 101:8 116:10 119:14 133:15 142:17 158:1,5 160:12 164:15 175:6 182:3 187:4 189:21 208:3 209:2 224:7 226:20 232:20,24 235:7,11,22 236:13 237:20 238:18 242:1,4
therm 100:16
therminol 5:13 73:3,5,6 86:4,6 100:5,19,23 108:15,24 109:13 221:4 222:1
therminols 73:1 97:2 100:4,10,11
theyre 17:19 19:3 24:12 34:4,9 45:11 47:1 48:6 64:1 65:1 75:4,18,18 79:21,22 83:8 106:16 120:4 129:24 135:20,21 136:1,2 138:24,25 149:14 150:7 155:13 156:24 165:10,15 185:12 206:13 222:16 224:4 239:8,9
theyve 93:5 135:12 177:7,10 207:19
thing 67:9 75:24 82:7 83:5,10,14 106:3 122:14,15 123:9 133:11
things 19:1,24 58:11 75:3,9 83:21 87:24 89:14 90:25 93:16 101:25 104:7 121:18 148:15 163:2 168:9 170:7 171:24 174:23 178:13,23 179:1,11,16 216:15,20 224:5 226:10 227:14 229:6,6 246:7
think 12:6 15:19 16:25 17:14,25 28:17 29:4 29:12 32:19 38:25 43:10 45:11 46:1 47:10 47:19,23 48:11,23 58:5,19,19 60:9 61:11 62:17,21 63:2,3,9,10 71:4 77:3,12 80:22 81:20 82:16,16 84:5,9 85:9 87:8 106:17 107:24 109:11 111:5 115:4,8,18 122:12 134:7 137:3 138:6,6,7,7 139:12,14 140:9 141:6 146:8 151:21 167:18 169:25 181:16 186:9 189:22 194:4 195:2 196:25 201:9,20 202:2 203:23 206:2 211:13 212:12 214:3 216:8 224:6 228:13 229:20 232:2 236:24 237:4,6,9,14 238:1,2 240:4 243:7,10 244:4 244:22,23 245:23 246:23 247:12
thinking 161:20
third 105:2 159:21 221:12 240:9 247:1
thomas 5:10 230:7
thought 42:9 45:9 51:10 62:9 63:24 95:19 136:7 158:16 211:20 214:9 226:15 239:21
thousand 96:2
thousands 96:3
three 25:14 129:8
tightly 46:25 48:7
till 94:22 193:19 197:1

time 11:9,11 15:13 20:13 21:10,19,23,25 22:2 22:19 23:6 26:9 28:3 30:1,19,23 32:5 33:6,8 33:13,21 35:18 36:5 43:2,20 45:4,5 46:2 56:6,20 61:16 68:18 70:13,24 73:20 78:3,18 85:22 86:1,8 87:21 90:9,11 92:16 101:12,17 104:1,3 105:19 108:25 109:5 114:15 115:8 133:20 134:5 139:5,8,12 141:22 149:25 151:14,23 152:4 153:1 154:17 158:12,17,23 159:7,13 162:24 165:20 166:20 167:24 173:3,5 178:11 179:14,19 181:13 183:16,17 183:25 192:22 193:1 195:14 201:5 202:10 203:4 204:20 210:6,14,22 213:21 215:24 216:21 218:5 228:21,22,23 231:9,19 232:2 232:12 234:16 239:6 240:24 244:25 248:9
timeline 133:3,9,11,23 134:19
times 31:13 105:13 150:14
title 242:5
titled 118:2
today 10:7,9 11:7,23 12:7 18:21,22 19:17 33:25 42:15 49:17 73:7 92:7 93:17 120:13 120:18 121:11 122:25 132:12 140:25 144:21 150:5 156:23 166:6 171:5 176:21 181:10 189:19 196:2,5,7 198:12 211:16 214:8 243:15,24
todays 19:23
told 22:5 27:19 35:16 123:17 124:7,13 125:22 168:1 197:10,21 200:9 208:18 213:7
tons 148:18
top 95:24 97:16 107:8,12,14 132:23 157:21 157:23 161:8
topic 24:19 42:20 63:19 64:3,10 66:19,21,23 68:23 69:5 97:24 121:23 123:10 143:11 191:7,7 202:16 219:11 238:22 240:5 242:9
topics 64:1 93:19 126:16 192:7 242:20
total 25:6,7 93:17 101:17 109:24 115:17 250:14,18
tout 205:7
tox 240:17
toxic 54:9
toxicity 240:11,17 242:1
toxicological 191:8 192:1,16 193:8 231:12
toxicologists 203:22
toxicology 194:18 230:12 231:17
trace 142:3 145:11,14
trade 4:10 70:1,6,13,25 71:6 73:5,7,17,18 74:19 75:25 76:8,13 77:15,24 78:4,17,24 79:5,9,10,13,20 80:2,4,7,17,22 81:3,4 84:2 84:10,22 85:3 108:16 109:14 117:24
traditionally 125:15,16
training 205:9
transcribed 9:5
transcript 6:13 248:8,8 251:1
transcription 248:8
transfer 55:23 56:3,5,18,23 57:15,24 58:24 59:3 60:15,20,22 61:6,17,23 68:13 70:10,24 72:14,17,23,24 73:9 83:24 86:5,9 97:6 100:23 102:5,13,15,17,20 103:1 107:14 108:12,21,24 109:4,13,16,18 179:17,20,23 180:3,3,11,14,21 181:22 182:12,15 221:4,6 222:2 223:15 224:6,17 234:5,9,17
transformed 218:25
transformer 107:8 154:25 162:4,7 175:19 177:6
transformerequipped 155:1
transformers 155:15 157:23 161:9,11 162:2 163:20,20 164:8,10,13 175:15,24 176:1,8
transition 171:1
transitions 224:24
translated 248:7
transmission 82:9,13 84:14
transmitting 220:24 246:17
tried 50:19 92:23 161:17,18 171:2 208:17
trouble 230:13
true 19:13 25:16,23 29:17 35:24 38:12 39:6 39:10 40:8 42:3 47:8 48:11,12 52:10 53:13 54:10 61:21 63:17 68:1 79:11 82:16 83:20 105:18 120:12 123:20,21,23 131:16 136:19 137:1 139:4,10 149:18 157:9 158:6 160:16 160:17,18,25 162:21 163:16 168:3 175:6,23 176:15 178:3,6 179:8 185:6 188:14,15 189:8 190:13,14 196:2 204:23 205:5,12,25 210:16 223:14 230:12 233:24 235:4,25 236:1,1,7 244:5 248:8
try 78:9 101:23 206:25 207:11
trying 33:19 51:19 53:20 55:7 71:5 81:20 124:24 138:10 144:18 164:5 166:2 210:20 222:25
tucker 1:19 3:9 7:20 249:20
tunnel 154:23
tunnels 156:7

turbine 84:7,13
turbines 84:15,19
turbinol 84:10 86:1
turn 69:18 101:8 108:10 115:24 116:18 136:3 149:22 193:17 203:15
twentyfirst 1:1,7,13 7:1,9,17 249:9,17
twice 103:24
two 14:18,19 40:14,20,20 73:25 84:21,23 101:15 105:19 127:25 133:18 147:3 150:11 153:12,20 209:20 211:20 219:18 220:21 228:13 239:3 241:18 242:4,22 244:1,3 246:13,14
twothirds 156:4
type 137:10 141:8 162:2,16 220:20
typed 212:8
types 163:25
typewriting 9:6
typical 131:15,18,21
typically 168:8 207:14 208:11
typo 74:2

U

u 8:23 50:17 110:23 111:1,4,19,20 160:10
uhhuh 20:13 34:12 54:21 65:13 122:23 125:22 155:8 164:11 172:1 184:6 201:5
ultimate 15:19
ultimately 113:11 172:22
unaware 130:4
unchlorinated 142:13,14
unclear 58:23
uncontrollable 46:17
uncontrolled 46:24 47:5
uncover 119:11,12
underlies 213:4
understand 11:21,25 16:18,21,23 18:21 20:2 21:16 22:5 23:4 33:25 34:6,8,22 35:4 42:11 44:9 48:24 58:15 59:18 66:3 71:3 75:13 79:7,12,13 80:1 91:22 94:13 96:18 101:19 106:13 107:2,4,11 108:18 109:9 120:6 124:24 128:3 130:16 134:16 146:15 147:10 152:20 157:4 167:1 176:9 221:10,18 224:12 243:8,14,25 245:1
understanding 12:8,12 13:5 18:13 19:17 44:22 45:19,20 49:8,10 55:17,21,25 57:2,3 62:18 82:11,12 105:25 112:5 118:10 123:1 123:19 124:4,5,10,11 129:16 134:14,21,22 142:5 149:21 153:22 166:22 167:24 168:18 170:4 174:13 183:23 186:8 197:5,7 200:13 209:10 216:24,25
understood 103:10 211:19 227:17,24
undertake 126:25 172:13
undertaken 171:24 226:8
undertook 58:14 59:18 209:20,23
underwent 242:17
underwriters 171:23
undesirable 222:24
undetermined 9:7
unearth 128:13
unfortunately 107:15
united 2:1 4:21 8:1 56:19 78:19 79:1 110:11 111:23,25 250:1
units 101:23 110:4
universe 229:4
unlocked 182:21
unnumbered 157:22
untrue 188:17 189:6
updated 242:22
updates 242:19 246:17
upfront 31:2
usa 67:21
usage 44:24 53:15
use 4:21 46:3,8,11,12 47:7,22 48:1 49:14 50:8 50:15 51:2,5,6,8,9,13,17 53:16 55:20,23 56:3 58:1 60:7,10 62:1,5,6,7,13,15,18,19,20 62:20,25 63:1,6,6,8,13 68:18 70:4 71:7 72:9 73:4,6 74:19,22 76:13,19 78:2 84:21 89:13 90:25 91:2,5,8,13,15,16 125:2,6 131:15,18 131:21 156:6,12 163:24 171:6 173:12 175:4 176:22 178:5 179:10 181:14 186:12,14 187:12,14 188:1,10,17,19 189:2,10 190:9,18 190:21 218:22 226:21 227:12 232:10,10,18 232:19,21,23 233:7 238:12
useful 32:3,6
user 229:10
users 219:13 225:19 228:3
uses 44:15,19,23 45:16,24 46:17,22,23 47:11 47:17 50:11 57:10 58:10 60:5,16,17 63:11 66:23 68:10,12,15,20 70:9,9,9,10,11,12,23 70:23 72:17 78:7,13 80:24 131:9 150:2 151:16,25 152:6 154:18 158:14 159:9

164:21 165:22 178:7,9 186:12 224:22
usually 83:3

V

vacation 92:14
vacations 92:10
vacuum 75:16 84:1,4
vague 39:17 40:3 54:11 141:22 236:14 243:8
value 105:13,18 134:10,13
values 97:19
variety 172:23
various 10:24 19:20 26:1 27:23 58:6,17 67:7 70:7,21 79:22 87:24 95:22 115:7 144:14 150:13,13 151:1 200:16 224:16
varnishes 49:14 60:14 68:14 131:13
vault 162:16
ventilation 232:20,25 233:11,12,19
venture 110:18,20
verify 163:15 198:10 208:17
version 125:13
versus 17:23 216:19
viable 44:4 167:5
vicinity 233:17
videographer 8:23 9:10,23 10:1,5,10 59:23 60:1 82:2,5 112:15,18 158:25 159:3 201:23 202:8,11,14 225:6,10 247:15
videotaped 2:12 8:9 9:11
viscosity 222:4 223:7,8
visual 104:22,23
volatile 234:19
volatilized 233:4,9,13,20 234:10
volume 2:14 8:10 98:3,20,25 127:13
volumes 115:21
vs 1:4,10,21 2:6 3:9,11,14,24 7:5,13,22 8:5 9:12,13 10:2 249:4,13,22 250:5

W

w 3:21 4:14,16 132:3,3,6,6 144:3,5
w2 113:23
w4 113:23
wait 94:22,24 155:3
want 9:24 17:25 28:23 29:2 38:1 59:21 75:19 94:21,22 102:21 103:2,11 105:22 117:2 121:24 134:4 140:22 143:7 149:22 151:5,11 158:17,24 173:11,24 189:23 192:22 193:5 208:5 246:8
wanted 103:8 106:9 147:17,20 180:13 181:3
wants 203:9 243:16
warmed 102:17
warn 226:17
warning 224:12 225:1 226:7,13,24 227:5,19 228:3,15 229:9,15 234:21 235:2,4
warnings 219:12 220:8 225:18 226:11 227:3 227:4 232:6
wasnt 14:15 50:24 63:4 86:6 103:7,9,12 110:16 134:8 161:18 166:25 167:14 169:16 172:17 173:7 202:25 204:2 208:23,23 239:20
waste 158:17 240:17
water 39:2,4
wax 60:7 104:9 105:1
waxes 60:7 68:12 131:16 185:17
way 28:5 39:21 42:10 46:19 57:25 61:14 84:12 103:2,12 111:9,10 129:20 146:3 186:18 217:19,21 233:9
ways 40:6,8 70:15
wed 99:3,9 121:14
week 22:6 23:5
went 50:19 52:3 70:22 71:22 73:5 74:19 78:22 80:24 85:20 98:4 125:3 134:25 157:16 161:17 170:17,19 173:19 181:25 184:6 208:16 224:14 226:24
west 44:12
westinghouse 74:18
weve 46:19 59:20 60:14 80:24 111:18 117:10 117:13 149:6 158:21 165:9 212:22 246:7 247:11
whats 13:2 42:14 44:10 49:9 75:13,20 87:3 89:1 94:3 107:12 109:2 112:25 114:24 116:12 129:5 132:24 133:1 135:19 144:18 160:5,13 161:25 163:9 169:18 174:17 177:18 185:25 188:15 192:17 197:16 212:10 214:5,5 220:19 223:1
whichever 114:14
white 1:16,18 3:8,8 7:19,20 9:13 107:4,22,25 125:11,12,14,17 249:19,20
whos 118:4,4 209:7
widely 63:14 203:8 218:19
william 5:15,18,20,23 6:2
wire 104:9
wiring 105:1

wish 24:4
withdrawal 95:15,16 171:3
withdrawing 138:5
withdrew 77:25 184:4 224:21
witness 3:3 9:6,8 10:11 24:7 31:16 58:21 98:21 102:3 143:10 151:4 174:2 175:13 180:24 201:22,24 219:9 236:13 237:8,21 247:19 248:6,9
wont 100:3 216:22
word 53:18,24 55:9 89:20 190:5
wording 28:10 153:16
words 232:9
work 13:18 27:10 30:12 50:17 86:16 87:20 92:17,21 121:2 129:17 192:8 193:21,24,25 199:21 216:18 220:14 233:14
worked 23:1 30:21 31:4,9 211:9 227:11
worker 216:12
workers 203:2,25 205:15 210:18 211:6,8 212:15,21,23,25 213:2,3,12 214:19 215:11 216:10 217:1,9,14,15 218:6 219:5
working 13:12,14 18:14 22:1,3,19,25 23:5 30:20 216:19,19
works 87:18
worry 231:12,17
worth 96:7,20 97:3 133:21 134:10,12
worthwhile 32:20
wouldnt 14:14 28:11,14 29:24 32:19 48:5,9 49:2 89:20 140:22,22 178:25 181:19 182:23 182:24 235:15
write 32:2
writing 32:12 90:2,10,11 198:13
written 33:21 89:21,23,24 198:9,10 206:5
wrong 22:24 35:16 62:8 74:1 78:9 85:10 229:16 244:24
wrote 25:15,18 26:5,9,13,15 31:20 32:8,15 33:1,6 89:17 118:8 157:14

X

x 3:1,1,6,6

Y

y 148:3 231:22 232:4
yeah 59:22 61:11,12 65:23 98:21 104:15 129:25 169:25 182:5 189:24 206:15 214:14 219:19 222:20 225:6
year 20:14,17,19,25 21:2,4,6,8,12,13,16,21 22:20 69:13 70:19,19 76:5,5,6,24 77:4,7,9 77:14,21,21 78:8,8,15,16 80:13,13,14,21,23 86:13 95:20 113:23 125:25 149:19 169:8 200:16 228:9 242:22
yearbyyear 93:18 109:25 144:13 169:7
years 13:20 28:20 29:8 30:16,18 36:17 65:9 73:25 84:21,23 94:10 112:3,4 120:15 182:20 183:19 187:6 195:24,25,25 200:20 201:10 209:20 217:4 242:18,22
yelling 174:1,3,5
york 155:2,14 156:8
youd 104:20
youll 127:25
youre 12:6 16:18 17:6,17 18:6,21 19:7,17 23:5 25:22 31:23 34:18,24,24 35:21 38:19 40:4 42:11 44:18 48:9 54:16 65:14 66:10 67:19,21 77:4 91:2,5,8,13 95:1 96:5,19 104:2 108:2 109:15 110:11 111:9 119:6,19 121:22,23 124:6 129:20 130:2 132:20 133:10 138:13 147:10 148:25 152:9,14 160:2,25 165:8 167:2,7,13 168:11 169:8,21 174:24,25 178:22 187:16 189:5 197:20 207:4,10 222:8 236:8 237:21 238:14 246:2
youve 17:1,14 18:7 19:12,25 24:3 28:18 34:5 46:3 54:23 87:10 93:16 120:8,13 121:11 137:8 148:15 154:1,3 155:21 164:18 165:11 165:12 167:25 187:3 190:20 195:17 196:4,8 200:19 201:5,15 208:18 214:11,12,18 219:15 222:18 241:25 245:14

Z

zack 210:2,2,3,7,9
zero 108:12,15
zeros 108:22

0

000 4:12 21:11,17 23:12,15,17,19,21 97:3 118:3
01 225:7
011627 108:7,10
011649 67:22
01649 67:20
02 82:3
03 10:22 225:11
0680 67:17
08 82:6

084004554 2:23
09slcc01964 1:21 7:22 9:14 249:22
09slcc01972 1:4 7:5 9:14 249:4

1

1 3:7 4:22 5:16 6:4,12 34:14,16 38:2 64:3 66:21 97:3 112:10,19 121:17,19 123:10 124:3,8 137:25 145:15,17 161:8 193:23 240:1
10 4:3 25:10 59:24 60:2 106:10,13 109:22 112:10 127:3,4,5 177:23 195:3 241:4,4
100 8:24 211:13
101 4:1
101100010002 132:24
1039 2:24
106 4:3
1099 113:23,25
10slcc03428 1:10 7:13 10:4 249:13
10th 161:14
11 3:4 4:5 5:12 82:3,6 96:20 112:16,19 117:5 117:16 130:18 131:4 193:17,20 221:7
117 4:5,7,9,11
12 4:7 117:20 118:20,22 132:19 133:14 134:17 193:19
1254 52:13
13 1:22 4:9 7:23 16:1,2 20:6,15,18,21 21:3,13 21:25 117:23 118:20 133:14 134:17 159:20 249:23
14 4:11 8:11 9:11 117:5 118:2 133:15,24 134:17
143 4:13,15,18
15 4:13 21:11,17 23:12,15,17,19,21 143:24 144:2,11
154 4:20,23
16 4:15 143:24 144:4 148:11,16 159:1
17 1:10 2:18 4:18 7:13 8:10 143:24 144:7 149:5 249:13 250:10
18 4:14,20 59:24 144:3 154:8,11,15 156:21 157:5,12 158:1 165:12 199:9 247:18
19 4:23 154:8,12 158:9 159:13 165:11 216:23 226:22
190 8:12,19,21 248:4 250:18
191 5:1
1930 191:9 193:9 238:25 240:8 246:22
1930s 47:18 55:16 60:12 63:12 94:14,20 135:1 149:1 167:8,11 189:11,12 190:14,17 191:5 232:17 233:3 245:2
1933 4:9 116:11,24 117:21,24 118:16 119:4 130:5,8,14 133:7,19
1935 4:6 44:17,18 70:14,19 71:6 72:5,9 73:18 77:21 78:8 116:4,5,7,16 117:18 130:24 133:8,19
1936 74:15
1938 101:9 239:6,15,18
1940 55:24 154:24 232:11
1940s 42:7,17 43:16 47:24,25 48:17 49:2 60:12 63:12 86:10,11
1947 35:8 37:5 41:4 42:23
195 5:4
1950s 41:13,17 43:16 50:16 51:11 62:3 140:13,16 168:12
1951 76:5,9,25 77:9
1955 101:10,20 104:12,24 105:5,16
1956 94:15,20
1957 35:16 37:5 41:4 42:23 80:13,22 81:8 94:10 95:3 109:11 161:14
1958 149:2
1959 144:14 148:18,20
1960s 48:15,15 58:14,20,21 85:9 139:16,24 140:6
1962 83:25 86:4 108:17
1965 140:9
1966 5:8 6:4 220:3,14 229:12,25 231:5 240:1 244:12
1967 5:10 108:11 230:5,21 231:3
1969 3:24 6:6 56:22 95:20 96:6,12 97:2,4,19 98:18 99:18,21 100:1,6,16,20,24 105:6,16
1970 5:12 56:6,8,20,22 60:19 136:13 221:7 224:13 226:9,22 229:7
197071 70:24
1970s 46:21 58:14,22 60:21 68:19 173:8 202:24 212:9,21,23 224:15
1971 71:1 76:12 85:20 184:4 226:22 228:5
1972 4:23 71:23 72:8,8 76:5,9,12 80:13,23 81:8 137:22 139:2,9 144:14 148:19 154:12 184:4
1973 3:23,24 4:14,18 13:13 95:8 96:19,21 97:9,14,17 98:16 99:17,20,25 100:6,19 144:3,9 193:18
1974 95:3 193:23

1975 3:21 4:16 94:4 144:6
1976 4:20 154:11
1977 70:14,19 71:6 72:5,10 73:18 74:3,16 77:21,25 80:14 81:1,5 167:8,15 168:12 170:7 238:25 240:8 246:22
19791980 203:4
1980 67:18
1980s 182:10 212:9,9
1986 76:6,14,25 77:9
1988 65:15,17
1990s 31:3 203:14 216:24
1995 213:21
1997 13:9 214:8,9

2

2 3:10 5:18 14:10,21 15:5 34:14,16 57:13,17 57:22 66:19,23 97:10,10 121:17 145:15,18 157:23 159:1,4 202:15
20 4:7 5:1 6:6 22:6,21 23:1,5 25:10 117:21 191:12,15 192:10,17,25 193:7,7,13 195:24 195:25,25 200:20 201:10 202:12 241:4,4
200 129:6
2003 13:17 15:15,22 16:2 17:2,11,15 18:2,8 19:23,25 20:5,14,17,20,21 21:24 22:20 23:6 27:1 86:13 114:21
2004 20:25 21:2,4 87:9,11 89:7,8 115:12,13
2005 21:6,12 87:9,11 89:8 115:14
20052006 21:10
2006 21:16,21 23:9,9
2007 23:9
2008 23:13,14
2009 23:16
2010 23:18 25:19 26:6 31:24
2011 2:18 8:10 11:9 23:20 247:18 248:15 250:10 251:7
209 38:1
21 5:4 105:17 195:12 197:17
213 193:21
214 194:1
218 194:3
219 5:7,9,11 194:4
22 5:7 219:23 220:2 229:15
220 194:6
221 194:7
222 194:8
225 5:14,17,19,22 6:1
23 5:9 220:18 230:6
230 194:10
231 194:12
232 194:13
236 194:14
239 6:3,5
24 5:11 219:23 221:1,11
241 194:16
242 194:16
247 194:17
248 194:20
25 4:20 5:14 22:6,21 23:5 154:11 217:4 225:8 225:15 248:15 251:7
2500 144:18,21,25 145:4,20
254 156:4
258 194:23
259 194:24
26 5:17
260 194:25
261 194:25
262 194:25
263 194:25
265 195:1
27 5:8,10,19 220:2,19 229:12,25 230:5,21 231:2
2750 8:17 250:11,15
28 5:22 60:2
29 6:1 65:15,17 225:8,15

3

3 3:13 5:21 10:23 14:10,13 34:14,16 68:23 69:5 97:10 121:17 202:12,15
30 6:3 13:20 22:14 30:16,18 159:4 239:23 240:1 241:25 243:1 244:1,11 247:11
303something 133:1
30s 12:14 106:1 233:25 241:6 244:23,24 245:5,25
31 6:5,12 202:15,15 239:23 246:15
32 8:11 247:15
325 8:16 250:11,15
33 4:7
34 3:7,10,13
35 71:7,12
38 5:13

4

4 3:16 4:7 5:23 8:11 10:22 11:9 38:2 66:17,22 122:2 123:11 157:23 225:7,11 247:11,15
40 146:2,8
401k 14:24,25 15:1
40s 106:1 108:20 233:25 241:10 244:24 245:5 246:1
411cv01662 2:6 8:5 250:5
4400 144:22 145:6,25
47 36:20

5

5 3:17,21,23 4:12,16,18 5:16,18,21,23 6:2,2 67:1,4,14 94:4 95:8 101:8,21,24 105:17 118:3 124:15 125:17 144:6,8,23 146:11 167:18 168:13,21 169:13
500 16:1,2 20:6,15,18,21 21:3,13,25
50s 62:22 106:2 167:11,15 233:25 241:12 245:6 246:1
51 77:8
52 112:16 161:7,7 163:19
54 144:24
5400 144:23 145:9,12,16
55 105:11 106:23
57 10:22 36:20 108:11
58 109:12
59 109:12
5910 8:24

6

6 3:19 4:9 69:14,16,25 74:8 80:2 82:8 117:24 124:3,8 125:22 150:7 151:22 152:15 161:13
60 109:12 146:2,4,8
600 8:12,19,21 97:3 248:4 250:19
60s 62:22 172:5 233:25 241:16 245:6 246:1
61 109:12
628 108:7
629 108:8
63 106:23
630 108:8
63105 8:12,19,22 248:4 250:19
66 3:16 231:9
67 3:17 220:19 231:10
68 82:9
69 3:19 56:19 82:9 98:5,11 105:10

7

7 1:4 3:20 7:5 93:23 94:1,3 117:2 126:7 127:1 127:8,18,19 128:4,8,14 249:5
70s 12:14 48:15 203:16 205:15 233:25 241:20 245:6 246:1
71 86:1
7172 85:22
72 85:21 86:1
73 97:22 98:10 193:19
75201 8:17 250:11,15
75206 8:24
77 71:7,12
78 164:4,6

8

8 3:22 95:5,8 96:6 105:3,4,6 126:10 127:2,9 127:19,19 128:4,9,14
86 154:21
86b 154:19
87 154:22

9

9 4:1 8:11 9:11 101:2,3 105:5,21 127:2,4,9,14 133:20,25 134:10,12 191:7,7
93 3:20
95 3:22 166:23 167:12,24 168:12,19
98 145:17
99 145:17