

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF PENNSYLVANIA

- - -

IN RE: :
PAOLI RAILROAD YARD :
PCB LITIGATION :

This Document Relates to :
All Actions : NO. 86-2229

- - -

March 2, 1992

- - -

VOLUME II

- - -

Continued oral deposition of
ROBERT G. KALEY, Ph.D., held in the offices of
Klehr, Harrison, Harvey, Branzburg & Ellers, 1401
Walnut Street, Philadelphia, Pennsylvania 19102
commencing at 10:30 a.m. on the above date, before
Linda L. Leach, a Registered Professional Reporter
and Notary Public for the Commonwealth of
Pennsylvania.

- - -

KRAUSS, KATZ & ACKERMAN, INC.
Legal Support Services
4th Floor - Robinson Building
42 South 15th Street
Philadelphia, Pennsylvania 19102-2242
(215) 988-9191

A P P E A R A N C E S :

KLEHR, HARRISON, HARVEY, BRANZBURG &
ELLERS

BY: ARNOLD E. COHEN, ESQUIRE
1401 Walnut Street
Philadelphia, Pennsylvania 19102
Counsel for the Plaintiff

BLANK, ROME, COMISKY & McCAULEY
BY: PATRICK McDONNELL, ESQUIRE
1200 Four Penn Center Plaza
Philadelphia, Pennsylvania 19103
Counsel for SEPTA and Penn Central

MARGOLIS, EDELSTEIN, SCHERLIS &
KRAEMER
BY: RICHARD MARGULIES, ESQUIRE
4th Floor - The Curtis Center
Independence Square West
Philadelphia, Pennsylvania 19106
Counsel for Amtrak

SWARTZ, CAMPBELL & DETWEILER
BY: CHARLES L. POWELL, ESQUIRE
1700 Land Title Building
Philadelphia, Pennsylvania 19110
Counsel for Westinghouse

LIEBERT, SHORT & HIRSHLAND
BY: JAMES W. STEVENS, ESQUIRE
1901 Market Street - 31st Floor
Philadelphia, Pennsylvania 19103
Counsel for General Electric

WHITE AND WILLIAMS
BY: MICHAEL H. MALIN, ESQUIRE
One Liberty Place
1650 Market Street - Suite 1800
Philadelphia, Pennsylvania 19103
Counsel for Monsanto Company

A P P E A R A N C E S (continued)

KELLY, McLAUGHLIN & FOSTER
BY: WILLIARD BURNS, ESQUIRE
1700 Atlantic Building
260 South Broad Street
Philadelphia PA 19110

- - -

- - -
I N D E X

WITNESS	PAGE NO.
ROBERT G. KALEY, Ph.D.	
By Mr. Cohen	14

- - -
E X H I B I T S

NO.	DESCRIPTION	PAGE NO.
M-1	Notice of Deposition	13
M-2	Fax Transmittal	13
M-3	Fax Transmittal	13
M-4	Fax Transmittal	13
M-5	Fax Transmittal	13
P-1	Letter dated 2-28-92	13
P-2	Diagram	56

- - -
REQUESTS BY MR. COHEN

PAGE	LINE
42	13
57	24
80	8

Kaley, Ph.D.

- - -

(It is hereby stipulated and agreed by and among counsel that sealing, filing and certification be waived; and that all objections, except as to the form of the questions, be reserved until the time of trial.)

- - -

ROBERT G. KALEY, Ph.D., after having been previously sworn, was examined and testified as follows:

- - -

EXAMINATION

- - -

MR. COHEN: My name is Arnold Cohen. I'm co-counsel for the plaintiffs in these actions. I want to put on the record that it is now 10:30, and I have been back from having a surgical procedure at the Hospital of the University of Pennsylvania for approximately five minutes, and I see in my office in my conference room Mr. Malin and a witness whose name, I believe, is Robert G. Kaley,

Kaley

1 II, Ph.D.

2 Is that correct, sir?

3 THE WITNESS: Yes.

4 MR. COHEN: I'm at a loss to
5 understand exactly what procedure this is
6 that we are following. I will represent
7 for the record that as late as 2:30 or
8 3:00 on Friday afternoon I spoke
9 personally with Mr. Malin, and he told me
10 at that time he had no intention of
11 producing this witness this morning for
12 deposition, and that to the contrary, he
13 intended to file a motion for a protective
14 order to prevent this deposition from
15 taking place.

16 I am aware that at approximately
17 5:00 p.m. he sent a fax message to
18 co-counsel, Martin D'Urso, of Kohn, Klein,
19 Nast & Graf and advised him that he would,
20 in fact, produce Dr. Kaley. Thereafter,
21 on the same day I spoke with Mr. Malin's
22 voice mail, an electronic recording
23 device, and left a message that it would
24 be too late now to reschedule the

Kaley

1 deposition that he had indicated only a
2 couple hours before he was not going to go
3 forward with. I understand he has been
4 given a fax transmission also on Friday
5 from Mr. D'Urso indicating that it would
6 be impossible to proceed at this late
7 hour. I hope to have a copy of that fax
8 transmission before the proceedings are
9 over.

10 I do not intend to conduct a
11 full examination of the witness here
12 today. I am not prepared. Considering
13 Mr. Malin's circumstances, and considering
14 the fact a that when he indicated the
15 witness would not be available, I did not
16 reschedule the surgical procedure that I
17 had this morning. My physical health
18 doesn't permit me to go forward with the
19 deposition, and I expect to be advised at
20 this time, Mr. Malin, what is your
21 position with respect to this witness?

22 MR. MALIN: First, let's mark
23 this as M-1. This is the plaintiff's
24 Notice of Deposition for this deposition

Kaley

1 which schedules the deposition of Dr.
2 Robert G. Kaley for March 2nd, 1992 at
3 10:00 a.m. at the offices of Klehr,
4 Harrison, Harvey, Branzburg & Ellers. It
5 should be clear that we appeared with Dr.
6 Kaley at 10:00 a.m. at this office.

7 I would also like to mark on the
8 record M-2, a fax transmittal form, along
9 with a letter to me, from Martin D'Urso,
10 reportedly co-counsel for the plaintiffs
11 in this case, in which he advises me in
12 the final paragraph, "Finally, please
13 expect later from John Innelli, Esquire by
14 3:00 this afternoon setting forth
15 plaintiffs' bases for continuing his
16 deposition," referring, of course, to Dr.
17 Kaley.

18 At 3:06 I received a fax
19 transmission which shall be marked as M-3
20 which John F. Innelli says, "Please be
21 advised that Dr. Kaley's forthcoming
22 deposition is necessitated by inter alia,
23 the EPA's October, 1991 determination that
24 planar PCB molecules have the same

Kaley

1 toxicity of furans and dioxins. See,
2 Volume 56, Fed. Reg. Section 196, pages
3 501-02-04, dated 10/9/91. Given that
4 Monsanto has previously acknowledged that
5 furans are highly toxic and the EPA's
6 recent determination that planar PCB
7 molecules are the equivalent of furons,
8 there are new lines of inquiry regarding
9 the toxicity of PCBs that did not exist in
10 November of 1990. Inasmuch as Dr. Kaley
11 was tendered by Monsanto as the employee
12 who had conducted the quantitative
13 analysis of polychlorinated biphenyls for
14 Monsanto, it is appropriate to proceed
15 with his deposition on March 2nd, 1992."

16 After receipt of that
17 letter and reviewing it, I sent faxes to
18 everyone, and I have here the fax
19 transmissions which will be marked M-4.

20 MR. COHEN: Who is "everyone"?

21 MR. MALIN: All counsel.

22 MR. COHEN: You didn't send me
23 one.

24 MR. MALIN: Mark as M-4 the fax

Kaley

1 transmission sent to Klehr, Harrison,
2 Arnold Cohen.

3 MR. COHEN: When?

4 MR. MALIN: Date and time. 4:49
5 p.m. is the one that got to you.

6 MR. COHEN: I don't have a copy
7 of it. I was here Saturday, and I didn't
8 see it, either.

9 MR. MALIN: And to Harold Kohn,
10 mark as M-5. Received 4:51.

11 Let the record also state
12 that I did tell Mr. Cohen that unless he
13 could give me some reason why there was
14 something new that he needed to get from
15 Dr. Kaley, I would file such a motion for
16 a protective order. That did, in fact,
17 happen. I was also advised by Mr. D'Urso
18 that we would get, as these letters show,
19 such information by 3:00.

20 At 3:06 I received the letter
21 which is from Mr. Innelli, which is so
22 marked, which indicated that there is a
23 line of inquiry which was not explored
24 before. I, therefore, agreed to produce

Kaley

1 Dr. Kaley as soon as I can make the
2 appropriate arrangements with Dr. Kaley.
3 Dr. Kaley is here.

4 MR. COHEN: Did you receive my
5 voice mail message, Mr. Malin?

6 MR. MALIN: I got your voice
7 mail message this morning.

8 MR. COHEN: I see.

9 MR. MALIN: Dr. Kaley is here.
10 I also informed Mr. D'Urso when he did
11 call me and say that he didn't think it
12 would be possible to go forward with the
13 deposition, that it was, nonetheless, too
14 late to cancel it, and we have decided to
15 go forward with it. You had noticed it.
16 You have no reason to call it off.

17 MR. COHEN: We didn't call it
18 off.

19 MR. MALIN: There was no motion
20 for a protective order filed. I said that
21 if you could come up with something
22 different than that for which you had
23 deposed him before so that it wouldn't be
24 a waste of his time and ours, we would

Kaley

1 produce him. You have come up with
2 something that looks apparently different
3 and upon which he was not deposed. I
4 agreed to produce him. He is here. So,
5 please go forward.

6 MR. COHEN: I am unaccustomed to
7 this practice whereby an attorney
8 represents at 3:00 p.m. on Friday
9 afternoon that he does not intend to
10 produce a witness and intends to file a
11 motion for protective order, to have that
12 same attorney then at 10 minutes to 5 in
13 the evening do a reversal of direction
14 without contacting counsel in order to
15 determine whether the previously-scheduled
16 deposition would be convenient in light of
17 his change in position. Consequently, I
18 object to this deposition. However, I
19 will proceed with certain areas of inquiry
20 since the witness is here.

21 In light of my health and in
22 light of the circumstances of the
23 deposition, I will reserve all rights to
24 recall this witness as is required.

Kaley

1 I also want to put on the record
2 a copy of a letter that was sent last
3 Friday which I had alluded to earlier.
4 The fax transmission at the top indicates
5 March 2nd and the time that it was sent to
6 me by telecopy, but it was sent on Friday
7 to Mr. Malin indicating our objection.

8 You can call that whatever you
9 would like, Plaintiff's 1 or whatever.

10 (Whereupon, P-1 was marked for
11 identification.)

12 MR. MALIN: I would like the
13 record to show that Mr. Innelli demanded
14 at 3:06 that we produce Dr. Kaley here on
15 March 2nd. We have done so.

16 Does Mr. Innelli represent the
17 plaintiffs, Mr. Cohen?

18 MR. COHEN: You know he is one
19 of the counsel for the plaintiffs, Mr.
20 Malin. You are aware of that.

21 MR. MALIN: Fine.

22 (Whereupon, the exhibits were
23 marked M-1 through M-5 for
24 identification.)

Kaley

- - -

EXAMINATION

- - -

BY MR. COHEN:

Q. Dr. Kaley, when were you first advised that the plaintiff's wish to resume your deposition had happened?

A. Seems to me about a week ago, week-and-a-half ago.

Q. Did you indicate to Mr. Malin at that time that you would be available to come to Philadelphia on March 2nd to continue your deposition?

MR. MALIN: Objection.

MR. COHEN: What's the basis of the objection?

MR. MALIN: Discussions between client and counsel.

MR. COHEN: Are you contending that whether the witness indicated his availability is something that's privileged? Are you contending that's a work product?

MR. MALIN: That's my position.

Kaley

1 MR. COHEN: So, you are not
2 going to allow this witness to tell me
3 whether he was advised to come here
4 earlier and whether those arrangements
5 were ever changed or suspended?

6 MR. MALIN: The nature of our
7 conversation has to do with the
8 attorney-client privilege.

9 MR. COHEN: So, you are
10 contending that all of that is
11 privileged?

12 MR. MALIN: That's all
13 privileged.

14 MR. COHEN: Well, I will put on
15 the record the questions. You can object
16 to each one of them.

17 BY MR. COHEN:

18 Q. Were you ever advised, Doctor, that the
19 deposition in question was not going to take place
20 on March 2nd as originally scheduled?

21 MR. MALIN: Objection. Well,
22 no. Strike that. You can answer that.

23 THE WITNESS: I was advised that
24 there was that possibility.

Kaley

1 BY MR. COHEN:

2 Q. I'm sorry.

3 A. I was advised that there was a
4 possibility that that would happen.

5 Q. When did you receive that advice, sir?

6 A. Late Friday afternoon.

7 Q. So, the first time you were advised that
8 the deposition may not take place was on Friday
9 afternoon?

10 A. That's correct.

11 Q. So, from the time that you were told
12 that the deposition was going to take place until
13 late Friday afternoon, you were prepared to come to
14 Philadelphia today and give a deposition?

15 A. That's correct.

16 Q. At what time on Friday afternoon were
17 you advised that the deposition would not take
18 place, may not take place?

19 A. It was -- as I recall, it was around 4:30
20 St. Louis time. I don't recall exactly.

21 Q. Then did you receive further information
22 that the deposition would, in fact, go forward
23 today?

24 A. Yes.

Kaley

1 Q. When was that?

2 A. Shortly thereafter. About 5:00 St.
3 Louis time, I believe.

4 Q. Were you in St. Louis at the time when
5 you had these conversations?

6 A. Yes. I was.

7 Q. Were they conversations with Mr. Malin?

8 A. Yes, they were.

9 Q. When was the last time you had a
10 conversation with Mr. Malin regarding the subject
11 deposition prior to leaving St. Louis for
12 Philadelphia?

13 A. It was a phone call Friday evening about
14 5:00 that we just spoke of.

15 Q. How late were you in your office on
16 Friday?

17 A. Until about 4:30 St. Louis time.

18 Q. So, in other words, you had already left
19 when you spoke to Mr. Malin at 5:00 p.m.?

20 A. That's correct.

21 Q. Where did he reach you?

22 A. At my home.

23 Q. So, he had your home number at that
24 time?

Kaley

1 A. Yes, he did.

2 Q. When did you leave St. Louis to come to
3 Philadelphia?

4 A. Yesterday afternoon.

5 Q. So, until yesterday afternoon, you were
6 at your home in St. Louis?

7 A. I was.

8 Q. And your office is in St. Louis?

9 A. Yes, it is.

10 Q. Or your place of work, if it is not an
11 office?

12 A. Yes, it is.

13 Q. So, at any time up until yesterday
14 afternoon, if you had had the deposition cancelled
15 or rescheduled, it would not have inconvenienced you
16 terribly; is that correct?

17 A. I could have not come. That's correct.

18 Q. Well, as I understand it, until
19 mid-afternoon Friday, you didn't know whether you
20 were coming or not?

21 A. Well, I assumed I was. I had been told
22 I was.

23 Q. But you also knew there was a question
24 that you may not be coming?

Kaley

1 A. That's correct.

2 Q. Now, I assume that you have work
3 available to you in your office or laboratory at
4 your place of employment that you could be
5 performing this morning instead of being here?

6 A. Yes. That's correct.

7 Q. You still are employed by Monsanto
8 Company?

9 A. I am.

10 Q. Is that Monsanto Chemical Company?

11 A. No.

12 Q. Who is Monsanto Chemical Company?

13 A. Monsanto Chemical Company is one of the
14 operating divisions of Monsanto Company.

15 Q. Are you employed, then, by what would be
16 a parent company?

17 A. I'm not sure of the exact term. I'm in
18 the corporate part of Monsanto.

19 Q. Do you know the relationship between
20 Monsanto Company and Monsanto Chemical Company?

21 A. Well, Monsanto is basically the overall
22 corporation. Monsanto Chemical Company is one of
23 the operating divisions.

24 Q. Have you ever been employed by Monsanto

Kaley

1 Chemical Company?

2 A. Not the Monsanto Chemical Company that
3 exists now, no.

4 Q. I'm not sure I understand that answer.

5 A. Let me clarify. When I was first
6 employed by Monsanto, I joined what was then called
7 Monsanto Industrial Chemical Company. There have
8 been several reorganizations, I guess is the easiest
9 term to use, since that time. So that the chemical
10 company as it exists now, I have not been employed
11 by, but I was originally employed by the industrial
12 chemical company.

13 Q. Was the industrial chemical company the
14 manufacturer of PCBs?

15 A. Some parts of time, yes, when I was
16 employed there. Yes.

17 Q. Who do you understand to be the
18 manufacturer of the PCBs, other than the industrial
19 chemical company that you just referred to under the
20 general aegis or umbrella of Monsanto Company?

21 A. Well, I would just say Monsanto Company
22 at this time, and at the time I was employed, the
23 industrial chemical company. I don't know the exact
24 organization prior to that and what divisions or not

Kaley

1 that they would have been under.

2 Q. But it all would have been under the
3 general corporate umbrella, to your understanding,
4 of Monsanto Company?

5 A. That's correct.

6 Q. Your current employer?

7 A. Yes. That's correct.

8 Q. And the current employer, that is,
9 Monsanto Company, has remained sort of the umbrella
10 or, I don't know, parent company of all of these
11 divisions as long as they have been manufacturing
12 PCBs, as far as you know; is that right?

13 A. That's correct.

14 Q. What is your present job description,
15 sir?

16 A. Job description?

17 Q. Yes. What do you do?

18 A. I basically have responsibility for a
19 source of technical information for various
20 divisions within the company.

21 MR. MALIN: I'm going to object
22 because he gave a full and complete job
23 description in his last deposition.

24 MR. COHEN: That was in 1990.

Kaley

1 I'm asking him about today.

2 MR. MALIN: Has your job
3 description changed since 1990, Mr. Kaley?

4 MR. COHEN: Do you mind if I ask
5 my questions?

6 MR. MALIN: Would you answer --

7 MR. COHEN: Do you want to
8 conduct a deposition first? I'll be glad
9 to sit here and defer and let you ask all
10 the questions you want and pick up
11 afterwards. But if you don't want to do
12 that, don't interrupt me.

13 MR. MALIN: Go ahead.

14 MR. COHEN: Thank you.

15 BY MR. COHEN:

16 Q. You just gave us your job descriptions,
17 sir. What's your present job title?

18 A. Director of environmental affairs.

19 Q. How does that differ from the title of
20 manager of environmental technical support?

21 A. Basically, it is the manager of
22 environmental technical support reports to that
23 division or to that title now.

24 Q. So, as of September of 1986, you became

Kaley

1 manager of environmental technical support for
2 Monsanto Company, and you are now the director of
3 environmental affairs?

4 A. That's correct.

5 Q. Someone else is the manager of
6 environmental technical support?

7 A. That's correct.

8 Q. When did you change positions?

9 A. First of February.

10 Q. 1992?

11 A. Yes, sir.

12 Q. In November of 1990, were you the
13 manager of environmental technical support at
14 Monsanto Company?

15 A. Yes, sir.

16 Q. Did you have any interim post between
17 November of '90 and February 1st, '92?

18 A. For about a year, from February of '91
19 to February of '92 I was director -- or environmental
20 technical support director.

21 Q. So, you went from manager of
22 environmental technical support to director of
23 environmental technical support to your present
24 title?

Kaley

1 A. That's correct.

2 Q. Have your reporting responsibilities
3 changed during that time period?

4 A. Yes.

5 Q. Who held the job that you hold now back
6 in November of '90?

7 A. Dr. William McCarville,
8 M-C-C-A-R-V-I-L-L-E.

9 Q. Is he still with Monsanto Company?

10 A. Until April 1st, yes.

11 Q. Then is he retiring?

12 A. Yes.

13 Q. How old is Dr. McCarville?

14 A. Early 60s. I don't know exactly.

15 Q. Who held the post that you held as the
16 interim post in November of 1990, director of
17 environmental technical support?

18 A. No one.

19 Q. It didn't exist?

20 A. That's correct.

21 Q. Who holds it now?

22 A. No one.

23 Q. Doesn't exist again?

24 A. That's correct.

Kaley

1 Q. Would it be fair to say that it was an
2 interim post created for you as you moved up to your
3 present post?

4 A. That's correct.

5 Q. Now, as I understand it, you joined
6 Monsanto Company sometime in 1973; is that right?

7 A. Yes. It is.

8 Q. You hadn't been employed with them prior
9 to that time?

10 A. That's correct.

11 Q. You have no significant background or
12 knowledge or experience with PCBs prior to December
13 1973?

14 A. That's correct.

15 Q. Your previous posts, your previous
16 education really didn't involve very much study or
17 analysis of PCBs?

18 A. Of PCBs, that's correct.

19 Q. Now, let me ask you, sir. Are you
20 familiar with the chemical compound known as epoxide
21 dicyclo-diepoxy carboxylate?

22 A. I am not.

23 Q. Have you ever heard of it before?

24 A. Not that I can recall.

Kaley

1 Q. Do you remember in your deposition in
2 November of 1990 I showed you a document called
3 pyranol compositions? We marked it as Kaley Exhibit
4 3.

5 A. Vaguely. I remember you showing me some
6 documents, yes, or something.

7 Q. Do you want to take a look at it again?
8 I just want to make sure I have a copy before I hand
9 you the copy that I have.

10 (Handing over document.)

11 A. (Witness reviewing document.)

12 Q. Do you recall now that I showed you that
13 document marked as Kaley-3 before?

14 A. I don't have a specific recollection,
15 but it is marked. I assume you did, yes.

16 Q. You do see the compound that I referred
17 to, epoxide dicyclo-diepoxy carboxylate, on that
18 document?

19 A. I do.

20 Q. Apparently, it also has the initials ERL
21 4221. I don't know what they mean. Do you know
22 what they mean?

23 A. No. I don't.

24 Q. The manufacturer is Union Carbide, at

Kaley

1 least it is indicated on this document?

2 A. That is one of the manufacturers, yes.

3 Q. Also Ciba-Geigy?

4 A. Yes.

5 Q. Since the last deposition or your last
6 appearance here for a deposition, have you had
7 occasion to find out anything about epoxide
8 dicyclo-diepoxy carboxylate? To make it easier for
9 the court reporter, why don't we agree to call it
10 EDDC.

11 A. I have not.

12 Q. Did you make any inquiry to find out
13 what it was?

14 A. No. I did not.

15 Q. You have given depositions in PCB cases
16 before, other than in November of '90 and today?

17 A. I have.

18 Q. Anybody ever ask you about EDDC?

19 A. Not that I can recall.

20 Q. Do you know why it was in dielectric
21 fluid?

22 A. I could -- I have an idea of why it was
23 there, yes.

24 Q. Why was it there?

Kaley

1 A. It was some sort of a scavanger, either
2 electron or a chloride scavanger.

3 Q. Prevent the formation of hydrochloric
4 acid during the use of the dielectric fluid in the
5 transformer or something like that?

6 A. I don't think it would be so much as to
7 prevent that, as it would be if that happened, it
8 would react with the free ions that were produced in
9 that formation and remove them from the solution.

10 Q. What's it say, point -- what's it, one
11 eighth of one percent of the solution?

12 A. For the fluids in which it was present,
13 yes.

14 Q. For the fluids in which it was present
15 at the level of one eighth of one percent, how many
16 parts per million is one eighth of one percent?

17 A. 1,250.

18 Q. Parts per million?

19 A. Parts per million.

20 Q. Prior to using the EDDC, apparently in
21 this pyranol fluid tin tetraphenyl was used as a
22 scavanger?

23 A. From this particular document, that
24 appears to be the case.

Kaley

1 Q. Well, do you have any information to the
2 contrary?

3 A. I do not.

4 Q. Now, who manufactured these pyranol
5 fluids for General Electric Company during the time
6 period shown, do you know?

7 MR. MALIN: Objection to the
8 form of the question until we find out
9 what we mean by "manufactured." Answer it
10 if you think you understand it.

11 THE WITNESS: Monsanto
12 manufactured the PCBs.

13 BY MR. COHEN:

14 Q. Do you know who actually mixed or
15 blended, or whatever phrase you want to use, the
16 fluid that ended up being called pyranol?

17 A. At some points in time, Monsanto blended
18 some of the fluids. I don't know which specific
19 ones. It is my understanding that General Electric
20 also did some of the blending themselves.

21 Q. Now, if Monsanto was manufacturing or
22 blending the fluid, whatever you want to call it,
23 according to a General Electric spec, and the spec
24 was as presented on Kaley-3, would Monsanto have

Kaley

1 added EDDC?

2 A. I don't know the answer to that.

3 Q. Well, who would know the answer to that?

4 A. Who would know the answer to that?

5 Q. Yes.

6 A. Whoever was responsible for either doing
7 the blending or whoever was responsible at General
8 Electric for doing the spec.

9 Q. Well, did Monsanto manufacture the
10 product or blend the product for General Electric in
11 accordance with the specifications provided by
12 General Electric?

13 A. I don't have direct knowledge of that.

14 Q. Well, what indirect knowledge do you
15 have?

16 A. Well, I assume that Monsanto and General
17 Electric had some agreement on what Monsanto was to
18 do prior to shipping product under the pyranol
19 label. I don't know whether that included all of
20 the blending, some of the blending, all of the
21 ingredients, some of the ingredients. I just don't
22 know the answer.

23 Q. Well, tell me who in the Monsanto
24 Company organization can answer those questions for

Kaley

1 me.

2 A. My best guess would be William
3 Papageorge. He is a retiree, but he is, as far as I
4 know, the most knowledgeable about those kinds of
5 questions.

6 Q. Mr. Papageorge was not involved in the
7 manufacturing division of Monsanto Chemical Company
8 at that time; was he?

9 A. Well, he works at the chemical company
10 under which the manufacturing was done. He wasn't
11 at the plant.

12 Q. Well, he was a plant manager at Saget
13 for a while; wasn't he?

14 A. I don't know if it was Saget or not. It
15 may have been. My recollection was that it was
16 Queenie. He was in Anastan for a while.

17 Q. He was a plant manager?

18 A. That's correct.

19 Q. At at plant?

20 A. At least one.

21 Q. Well, who would have known what was
22 being done at all the plants so as to answer the
23 question for me how Monsanto blended the product for
24 General Electric known as pyranol, what they

Kaley

1 added?

2 MR. MALIN: Mr. Cohen, the
3 witness has already told you that he
4 doesn't -- that he either doesn't know or
5 he has given you his best guess. You are
6 asking him questions which are not within
7 his area of expertise. He is an
8 analytical chemist, which you are aware
9 of.

10 BY MR. COHEN:

11 Q. Is that your answer, Doctor?

12 A. My answer is I have given you Mr.
13 William Papageorge's name. He is the most
14 knowledgeable about these issues and of those I
15 know, and that's my answer, yes.

16 Q. Other than Mr. Papageorge, can you tell
17 me a name of a Monsanto Company representative who
18 would have either the personal information or the
19 records that could reflect for me the names of the
20 individuals who know what products Monsanto was
21 putting out the door?

22 A. I wouldn't know whose name to venture.

23 Q. Your present job, are you required to
24 know the toxicity of the products that you are

Kaley

1 producing?

2 A. I'm required to be able to understand
3 toxicological literature. I don't have specific
4 knowledge, no.

5 Q. Have you ever done anything to determine
6 whether EDDC had toxic properties either to man,
7 animals or in the environment?

8 A. Have I personally? No.

9 Q. Since you were here in November of 1990,
10 did you do anything to find out if there was any
11 literature available in indicating the toxic
12 properties of EDDC?

13 A. I did not.

14 MR. MALIN: The question has
15 already been asked and answered, but
16 answer it again.

17 THE WITNESS: I did not.

18 BY MR. COHEN:

19 Q. Have you heard of compound called
20 epoxide 201?

21 A. I do not believe so.

22 Q. Pardon?

23 A. No, sir.

24 Q. How about 3, 4-epoxy-6-methyl-

Kaley

1 cyclohexylmethyl-3,4-epoxy-6-
2 methylcyclohexylcarboxylate?

3 A. I don't have specific knowledge of that,
4 no.

5 MR. MALIN: Is that all one
6 chemical or did you say it twice?

7 MR. COHEN: No. I think that it
8 is actually one.

9 MR. MALIN: Okay.

10 BY MR. COHEN:

11 Q. Is it more than one, Doctor?

12 A. I have no idea.

13 Q. You have no idea?

14 A. I assume it is one. I didn't hear
15 anything that would lead me to believe that it was
16 two.

17 Q. That's what I thought, but your counsel
18 indicated. Maybe he had special knowledge on this.
19 He has chemical training from what we know.

20 A. I don't know.

21 Q. Have you ever had occasion to look at
22 the collection of documents that Monsanto maintains
23 regarding the toxicologic properties of their
24 products?

Kaley

1 A. I don't think so. I don't know
2 specifically what collection you are talking about,
3 if any.

4 Q. Well, is there such a collection?

5 A. Not to my knowledge. I mean we have an
6 MSDS on PCBs. I'm familiar with that, which
7 summarizes; but other than that, I don't know.

8 Q. Well, in fact, you actually helped write
9 part of your MSDS on PCBs; didn't you?

10 A. A previous incarnation of it, yes. The
11 present one, no.

12 Q. Are you familiar with any research that
13 was done back in the '60s regarding the toxic
14 properties of epoxide 201 or EDDC or any of the
15 other compounds I have mentioned so far today other
16 than PCBs?

17 A. I am not.

18 Q. Who in Monsanto Company would know about
19 the toxic properties of the products that you were
20 manufacturing back in the '60s and '70s prior to
21 your employment?

22 A. I don't have a specific answer to that.
23 There's nobody in the toxicology department at that
24 time that's still employed, I believe. Fred

Kaley

1 Johanson is director of toxicology. I don't know
2 when he joined Monsanto.

3 Q. How about Mr. Papageorge? Is he the
4 expert on that again?

5 A. On toxicology?

6 Q. Yes.

7 A. He would have knowledge. He is
8 certainly not an expert on toxicology, I don't
9 believe.

10 Q. Where were you on November 15, 1991?

11 A. November 15, 1991?

12 Q. Yes.

13 A. I was in Washington, DC.

14 Q. What were you doing there?

15 A. I was attending an EPA hearing on the
16 reevaluation of the toxicity of dioxin.

17 Q. Where did it take place?

18 A. I believe it was at EPA headquarters.

19 Q. Waterside Mall?

20 A. I believe that's correct. Yes.

21 Q. 401 M Street?

22 A. Yes.

23 Q. How did you get to go there?

24 A. How did I get to go there? It was an

Kaley

1 open meeting.

2 Q. Were you invited, were you advised of
3 the meeting, were you told it was going to happen?

4 A. I knew it was going to happen, yes.

5 Q. Had Monsanto Company been an active
6 participant in the effort to review the toxicologic
7 properties of dioxins?

8 MR. MALIN: Object to the form
9 of the question. If you think you can
10 answer that question characterized as it
11 is, please try to do so.

12 THE WITNESS: I don't have any
13 knowledge that we were, no.

14 BY MR. COHEN:

15 Q. You are aware that the paper industry is
16 trying to get the toxicologic properties of dioxins
17 reviewed?

18 A. I'm certainly aware they have an
19 interest in it, yes.

20 Q. How about the chlorine industry?

21 A. Yes. They have an interest in it also.

22 Q. Is Monsanto a member of the chlorine
23 industry?

24 A. If you are talking about the Chlorine

Kaley

1 Institute specifically, no.

2 Q. Are you generally a manufacturer of
3 products containing chlorine?

4 A. I believe we still do manufacture some
5 products containing chlorine, yes.

6 Q. But you are unaware of any effort at
7 this time in which Monsanto Company is participating
8 to have the toxicologic properties of dioxin
9 reviewed?

10 A. I'm unaware of such activity.

11 Q. You said unaware?

12 A. I'm unaware of such activity by Monsanto
13 Company, yes.

14 Q. Do you know of a Dr. Houk, H-O-U-K?

15 A. It is pronounced Houk, but, yes, I know
16 who you are speaking of.

17 Q. Do you know who employs Dr. Houk?

18 A. Yes, I do.

19 Q. Who?

20 A. He is employed by the Centers for
21 Disease Control.

22 Q. What, if any, effort is Dr. Houk making
23 with respect to the attempt to reevaluate the
24 toxicologic properties of dioxins?

Kaley

1 A. I don't know that he is making any
2 particular effort. He is voicing his opinions on
3 certain subjects.

4 Q. Do you know what his opinions are?

5 A. I believe his basic opinion is that
6 dioxin may not be as toxic as originally thought 5,
7 6, 10 years ago.

8 Q. What does he base that on, do you know?

9 A. He bases it, as I understand it,
10 primarily on the epidemiological literature.

11 Q. Are you aware of any new studies that
12 Dr. Houk relies upon?

13 A. I'm not -- I can't speak to what Dr. Houk
14 is or is not relying upon.

15 Q. Well, have you had an opportunity to
16 read his papers, his presentations, hear any of his
17 speeches on the subject?

18 A. I have seen reference to it in various
19 journal -- not journals, but trade magazines, news
20 report magazines.

21 Q. In fact, Dr. Houk basically is looking
22 at data that's rather old; isn't he?

23 A. I can't speak to what he is or isn't
24 looking at.

Kaley

1 Q. In other words, you don't know?

2 A. I don't know specifically what he is
3 relying on, no.

4 Q. Why did you go to Washington on November
5 15, 1991?

6 A. I went as a representative of CMA to
7 present comments to the open meeting.

8 Q. CMA is --

9 A. Chemical Manufacturers Association.

10 Q. That's not your employer?

11 A. No, it is not.

12 Q. Monsanto Company is a member of the CMA?

13 A. Yes, it is.

14 Q. Does Monsanto contribute financially to
15 the CMA?

16 A. I'm sure they do.

17 Q. Do you have any idea how much they
18 contribute on an annual basis to the CMA?

19 A. I do not.

20 Q. Do you have any idea of the order of
21 magnitude of their contributions to the CMA?

22 A. I do not.

23 Q. They give of your time?

24 A. Some, yes.

Kaley

1 Q. Other people's time?

2 A. Yes.

3 Q. Who else can you identify for me who
4 Monsanto would be willing to contribute time to the
5 Chemical Manufacturers Association?

6 MR. MALIN: Objection to the
7 form of the question

8 BY MR. COHEN:

9 Q. Do you understand what I mean, Doctor?
10 Employees of Monsanto?

11 A. I understand what you mean.

12 Q. Who?

13 A. Heavens, I mean everyone.

14 Q. Everyone?

15 A. Not everyone, but certainly there are
16 probably tens, if not hundreds of people. I don't
17 know the exact number.

18 Q. Who are Monsanto Company employees?

19 A. Yes. That's what the organization is.
20 It is groups of employees of the chemical industry
21 who meet to deal with topics of interest to the
22 industry.

23 Q. So, when you went to Washington on
24 November 15, you did not go as a representative of

Kaley

1 Monsanto Company?

2 A. That's correct.

3 Q. You went as a representative of CMA?

4 A. That's correct.

5 Q. Did you have any presentation to make?

6 A. Yes, I did.

7 Q. Do you have a copy of it?

8 A. Not with me.

9 Q. Where is it?

10 A. In my office in St. Louis.

11 Q. You could easily get ahold of it?

12 A. Certainly.

13 MR. COHEN: I'm going to ask
14 counsel at this time to provide me with a
15 copy of Dr. Kaley's presentation prepared
16 for the November 15, 1991 meeting.

17 BY MR. COHEN:

18 Q. Dr. Kaley, can you tell me basically
19 what was the thrust of your presentation?

20 A. Thrust of my presentation was that the
21 CMA group was concerned about the EPA's expressed
22 interest in the use of TEFs, Toxicity Equivalency
23 Factors for PCBs, and that we felt that their use
24 was premature and inappropriate at this time.

Kaley

1 MR. COHEN: I want you to note
2 the request on a separate schedule in case
3 we have more such requests. Also, you
4 will note the page so I can readily find
5 it since I have had no response from
6 counsel regarding my request indicating
7 that he would produce it.

8 BY MR. COHEN:

9 Q. TEFs, Doctor?

10 A. Yes.

11 Q. Toxicity Equivalency Factors?

12 A. That's correct.

13 Q. What do they mean?

14 A. What do they mean?

15 Q. What's that mean, that phrase?

16 A. Basically, it is a shorthand procedure
17 of trying to -- depending on the chemicals involved,
18 trying to relate the toxicity of a mixture to a
19 paradigm compound, a surrogate compound so that risk
20 assessors might be able to make judgments on
21 mixtures.

22 Q. So, you are opposed to that practice?

23 A. I wouldn't say I'm opposed to it, no.
24 Certainly not.

Kaley

1 Q. Tell me what is your position with
2 respect to the use of TEFs.

3 A. My -- with respect to the use of TEFs in
4 general, I think it is recognized to be an interim
5 procedure and needs to be utilized in that case. I
6 think it needs to be used carefully, but I think
7 under proper controlled conditions for risk
8 assessment, it may have appropriate usage.

9 Q. Now, has EPA suggested that they intend
10 to use a TEF for PCBs? If anybody can understand
11 this transcript, it will be wonderful.

12 Do you understand my question.

13 MR. MALIN: I'll object to the
14 form of the question. I don't know how he
15 is going to know what EPA is suggesting
16 unless they have said something or have
17 put it out. But go ahead and answer it.

18 MR. COHEN: We can probably find
19 that out if he will tell us.

20 THE WITNESS: I'm sorry. Would
21 we repeat the question?

22 BY MR. COHEN:

23 Q. Has he EPA, sir, to your knowledge,
24 indicated that they intend to use a TEF for PCBs?

Kaley

1 A. They have indicated that they are
2 investigating whether that use of it might be
3 appropriate under certain conditions.

4 Q. Now, what would be their paradigm
5 compound?

6 A. At this time they are looking at 2,3,7,8
7 tetrachlorodibenzodioxin.

8 Q. So, they want to prepare for PCBs a TEF
9 that would compare the toxicity of PCBs to 2,3,7,8
10 TCCD; is that correct?

11 A. I don't know if I would use the term
12 "want to," but they are investigating that, yes.

13 Q. They are investigating the possibility
14 of developing a TEF to compare the toxicity of PCBs
15 to 2,3,7,8 TCCD?

16 A. In general terms, that's correct.

17 Q. Have they suggested what the TEF would
18 be for PCBs?

19 MR. MALIN: Objection to the
20 form of that question. Again, answer if
21 you can, Doctor.

22 THE WITNESS: I don't know that
23 EPA has.

24 BY MR. COHEN:

Kaley

1 Q. Has anyone?

2 A. There are certain researchers who have,
3 yes.

4 Q. First of all, let's start with who is it
5 at EPA that you know to be responsible for this TEF
6 exercise?

7 A. Well, I would say Dr. Linda Birnbaum,
8 B-I-R-N-B-A-U-M.

9 Q. Have you had occasion to speak to Dr.
10 Birnbaum?

11 A. Not personally. She was on the panel
12 listening to the comments I made at the EPA
13 meeting.

14 Q. Is she an M.D. or a Ph.D.?

15 A. She must be a Ph.D. I don't know
16 specifically. I would certainly make an educated
17 guess that she is a Ph.D.

18 Q. Do you know where she has been educated?

19 A. I do not.

20 Q. Do you know her employment experience?

21 A. In the vaguest of terms.

22 Q. Tell me.

23 A. She was -- when I first became aware of
24 her, she was employed by the National Institutes --

Kaley

1 I'm sorry. The National Institute for Environmental
2 Health Research. I'm sorry. Scratch that.
3 National Institute for Environmental Health Sciences
4 at Research Triangle Park. And she has recently
5 within the last year or two moved, I believe it is
6 to the Health Effects Research Laboratory of the EPA
7 also at Research Triangle Park.

8 Q. Where is Research Triangle Park?

9 A. It is among Chapel Hill, Raleigh, Durham
10 and some other city in North Carolina.

11 Q. Was her first employment the Institute
12 for Environmental Health Sciences at Research
13 Triangle Park, an agency of the EPA?

14 A. No. NIHS is -- it is eventually under
15 Health and Human Services. It is part of NIH,
16 National Institutes of Health, which I believe is
17 under Health and Human Services.

18 Q. Now, has Dr. Birnbaum, to your
19 understanding, taken a position regarding the
20 development of a TEF for PCBs?

21 A. My understanding is she is doing
22 research on that question currently.

23 Q. Did she make a presentation on November
24 15?

Kaley

1 A. Yes, she did.

2 Q. Do you recall the thrust of the
3 presentation?

4 A. Basically it was an outline of the
5 research program that EPA is undertaking to address
6 the question of dioxin toxicity.

7 Q. Did it have anything to do with PCBs?

8 A. I believe she mentioned the outline --
9 yes, it did. She mentioned the outline of her
10 specific research to address that question.

11 Q. What did she say?

12 A. She basically said that her laboratory
13 was doing research to investigate the
14 appropriateness and the possible magnitude of TEFs
15 for PCBs.

16 Q. Is that the extent of her comments?

17 A. With regard to PCBs, I believe it is,
18 yes.

19 Q. Anyone else that was there that day that
20 you would indicate as being on the panel from EPA?

21 A. You asked me who else was on the panel?

22 Q. Yes.

23 A. I believe Eric Bretthauer,
24 B-R-E-T-T-H-A-U-E-R, I believe. I think Peter

Kaley

1 Preuss was on the panel, P-R-E-U-S-S. And I believe
2 William Farland, F-A-R-L-A-N-D, was on the panel.
3 There may have been others. And I think Preuss may
4 or may not have been on the panel. He was certainly
5 there.

6 Q. Preuss, Peter Preuss you said?

7 A. Yes. He may have been the moderator. I
8 don't know if he actually sat on the panel or not.

9 Q. These were all EPA people?

10 A. Yes.

11 Q. Now, you said, to your understanding,
12 certain people have suggested that TEFs for PCBs
13 should be developed?

14 A. I don't know if I would use the term
15 "should." I think it is a question which people are
16 looking at.

17 Q. Who are the people who are looking at
18 it?

19 A. The most notable, and the one that's
20 done the most on it is a Dr. Steven Safe, S-A-F-E.

21 Q. Where is Dr. Safe?

22 A. I believe he is at Texas A&M.

23 Q. Who else?

24 A. Aside from Dr. Birnbaum, I think he is

Kaley

1 probably the most -- the only one I can really speak
2 of.

3 Q. You said earlier some people had
4 suggested a TEF for PCBs?

5 A. Yes.

6 Q. What TEF had they suggested for PCBs?

7 A. Well, obviously it depends on the
8 congener. It is one of the 209 possible PCBs. The
9 particular TEF is based on a congener-by-congener
10 estimate. So that the number varies depending on
11 which PCBs a person is talking about.

12 MR. COHEN: Let's take a
13 two-minute break at this point.

14 (Whereupon, a short recess was
15 taken.)

16 BY MR. COHEN:

17 Q. How many congeners are there for PCBs,
18 sir?

19 A. 209.

20 Q. Would all 209 have been involved in the
21 products that were used as dielectric fluid?

22 A. It is unlikely.

23 Q. Is that because some of them are so
24 heavily chlorinated that they would unlikely have

Kaley

1 been produced in the process?

2 MR. MALIN: Objection to the
3 form of the question. If you can
4 understand that, go ahead.

5 THE WITNESS: That's part of
6 it. Part of it is the preferred
7 substitution patterns for the chlorination
8 of biphenyls.

9 BY MR. COHEN:

10 Q. Now, when you say "the preferred
11 substitution patterns," by whom is the substitution
12 patterns preferred?

13 A. By the god of chemistry, I guess. I
14 mean it is a chemical thermodynamic and kinetic
15 determination determined by physical laws.

16 Q. It is something that happens really
17 outside of the control of the manufacturer to some
18 extent?

19 A. That's correct.

20 Q. So that the congeners will create
21 themselves in the manufacturing process?

22 A. I mean within -- what I interpret your
23 meaning to be, the answer is yes.

24 Q. And in the manufacturing process you

Kaley

1 produce a product to a desired degree of
2 chlorination that contains many congeners of varying
3 degrees of chlorination and varying patterns of
4 substitution?

5 A. That's correct.

6 Q. Which congeners would you believe it was
7 unlikely would be in the manufacturing of PCBs?

8 A. I'm not sure I'm prepared to answer that
9 as I sit here. I would think that substitution,
10 what's called the meta, M-E-T-A, position are among
11 the less likely to be produced.

12 Q. What is meta position?

13 A. That's as you go around the ring,
14 those -- there's four positions that are not next to
15 the carbon carbon bond, but the positions adjacent
16 to those.

17 Q. You want to make a drawing for me and
18 show it to me?

19 A. I can do that.

20 Q. Here's a piece of paper.

21 A. (Witness complies.)

22 Biphenyl is 2 6-membered rings with
23 chlorine at the corners of the hexagons. The 2
24 positions closest to the carbon carbon bond are

Kaley

1 called the ortho positions. The positions one
2 position away from those, the four positions are the
3 meta positions. And the positions at the opposite
4 ends from the bond are the para positions.

5 Q. Now, you said the meta positions are
6 least likely to be produced?

7 A. That's correct.

8 Q. What would they be known as?

9 A. I'm sorry.

10 Q. What is the congener known as?

11 A. Well, those positions are -- if you are
12 numbering, those positions are the numbers 3, 5, 3',
13 5'. So that any congener with those numerical
14 notations would, in general, and I'm talking in
15 generalities here, not specifically, but those are
16 less likely to be produced than materials with
17 chlorines at the ortho and para positions.

18 Q. Now, to be at the meta position, would
19 that mean it would have to be at all 4, that is, 3,
20 5 and 3', 5'?

21 A. No.

22 Q. So, any attachment at 3 or 5 or 3' or 5'
23 would be less likely to be produced?

24 A. Relatively speaking, yes.

Kaley

1 Q. How about 2378?

2 A. That's not -- that has nothing to do with
3 biphenyls.

4 Q. Pardon?

5 A. That designation has nothing to do with
6 biphenyls.

7 Q. No, it has to do with the chlorine
8 attachments; right?

9 A. But not to biphenyls.

10 Q. Not to biphenyls?

11 A. That's correct.

12 Q. To what?

13 A. Well, to -- mostly it is most often used
14 with respect to the chlorinated dioxins.

15 Q. What would be a coplanar chlorinated
16 biphenyl?

17 A. It would be -- as the term is used, it's
18 one with no substitution at any of the ortho
19 positions.

20 Q. That's it?

21 A. That's it.

22 Q. So, it could be 2378?

23 A. No. It could not.

24 Q. I'm sorry.

Kaley

1 A. The 2378, the PCB designations are 2
2 through 5 on one ring, and 2' -- I'm sorry. 2
3 through 6 on one ring, and 2' through 6' on the
4 other ring.

5 Q. I'll --

6 A. It is a different numbering system that
7 is used for the dioxins.

8 Q. I understand. It could be 2, 3 and 2',
9 3'?

10 A. It certainly could be that.

11 Q. That would be coplanar?

12 A. No. It would not.

13 Q. It would not be?

14 A. No.

15 Q. Give me examples of coplanar, then.

16 A. Well, it cannot have a number in the 2
17 or 6 position to be coplanar.

18 Q. It cannot have a number in 2 or 6?
19 Number them all for me.

20 A. I'm doing that. For it to be coplanar,
21 it cannot have chlorine substitution in any of the
22 2, 2', 6, or 6' positions.

23 MR. COHEN: Mark that as P-2 for
24 me, please.

Kaley

1 (Whereupon, the exhibit was
2 marked P-2 for identification.)

3 BY MR. COHEN:

4 Q. Would you agree that your production
5 PCBs contained coplanar PCBs?

6 A. I don't know specifically. I haven't
7 looked at that specifically.

8 Q. Was there someone there at the meeting
9 on November 15, 1991 other than yourself from
10 Monsanto Company?

11 A. No.

12 Q. You were the only person?

13 A. Yes.

14 Q. Were you asked whether your production
15 PCBs contained coplanar PCBs?

16 A. No.

17 Q. Have you ever been asked whether the
18 production PCBs contained coplanar PCBs?

19 A. Not that I can recall.

20 Q. Are you aware whether your production
21 PCBs contained coplanar PCBs?

22 A. I have looked at literature which
23 addresses that.

24 Q. Where does that literature exist?

Kaley

1 A. I don't understand your question, I
2 guess.

3 Q. Well, you said you have looked at it.
4 Where is it?

5 A. It is in journals, scientific journals.

6 Q. Where have you seen those journals?

7 A. I don't even know. I mean I assume at
8 Monsanto.

9 Q. Well, is that where you saw some of
10 them, if not all of them?

11 A. Certainly.

12 Q. Can you today give me a reference in a
13 journal dealing with the presence of coplanar PCBs
14 in production PCBs?

15 A. Not specifically, no.

16 Q. You have such information available to
17 you back in your office?

18 A. Well, I have probably at least one paper
19 which purports to have done a congener-by-congener
20 analysis of certain PCB products, and if the
21 coplanars were there, it would have reported that.

22 Q. Who wrote that?

23 A. I don't know.

24 MR. COHEN: I'm going to ask

Kaley

1 you, Doctor, to get together to the best
2 of your ability all of the journals and
3 articles and other publications you are
4 aware of that discuss the presence of
5 coplanar PCBs in commercial PCB
6 preparations and advise your counsel when
7 you have done so.

8 MR. MALIN: Doctor, are all of
9 these journals publicly available, the
10 journals that discuss --

11 THE WITNESS: Yes, they are.

12 MR. MALIN: Available to the
13 scientific community?

14 MR. COHEN: Are you going to
15 conduct this deposition or --

16 MR. MALIN: Answer the question,
17 Doctor. Are they available to the
18 scientific community?

19 THE WITNESS: Yes, they are.

20 BY MR. COHEN:

21 Q. How would one go about looking for them,
22 Doctor?

23 A. If I were -- presumably one would do a
24 literature search.

Kaley

1 Q. What would one look under?

2 A. If I were to do it, I guess I would look
3 under composition or I guess I would look under
4 composition and PCBs.

5 Q. Composition and PCBs?

6 A. Yes.

7 Q. Anything more specific than that,
8 Doctor? I might get thousands of articles.

9 A. I guess you could throw in the word
10 congener and see if that limited it.

11 Q. How about coplanar? Would that help?

12 A. That might help. But the ones that
13 report all the congeners probably are not
14 necessarily specifically targeted for coplanars.

15 Q. What is stereochemicals?

16 A. Well, stereochemical basically is a
17 term, a general term which relates to the way
18 molecules arrange themselves three-dimensionally.

19 Q. Are dioxins and polychlorinated dibenzo
20 furans stereochemicals?

21 A. Under certain definitions they are,
22 yes.

23 Q. How about PCBs?

24 A. I'm sorry. I thought that was your

Kaley

1 first question. I'm sorry. I may have
2 misunderstood the first question.

3 Q. I asked you about dioxins and furans.

4 A. Dioxins and furans are pretty much
5 stereochemicals. They are stereochemical isomers or
6 stereoisomers, yes.

7 Q. How about PCBs? Is your answer in
8 certain circumstances they are?

9 A. Yes.

10 Q. What circumstances?

11 A. Well, it just depends on how freely one
12 wants to interpret the term stereoisomer and how
13 freely one wants to say they tend to look alike in
14 three dimensions.

15 Q. Well, who do you know who contends that
16 PCBs are in certain circumstances stereochemicals?

17 A. Well, certainly Steve Safe does for one.

18 Q. Does Monsanto?

19 A. It is a degree -- it is a matter of
20 degree. I mean the argument could be there. It is
21 not a yes or no question. There are arguments which
22 say that PCBs can be stereoisomers of the dioxins
23 and furans, but the degree of stereoisomerity is
24 much less for PCBs than it is for those other

Kaley

1 materials.

2 Q. But you do agree that to some extent
3 Monsanto would contend that PCBs are stereoisomers?

4 A. I can't speak for Monsanto. I'm
5 speaking for myself and my understanding of the
6 literature in that position. Yes, I think there are
7 certain circumstances where that argument could be
8 made on a theoretical basis.

9 Q. Would that be certain congeners of PCBs?

10 A. Yes, it would.

11 Q. Which ones?

12 A. The coplanar congeners.

13 Q. Can you give me some examples, if not
14 all the examples, of coplanar isomers?

15 A. Well, there are 4 that are generally
16 considered coplanar.

17 Q. What are they?

18 A. The 3, 4, 3', 4'.

19 Q. 3, 4, 3', 4'?

20 A. 3, 4, 5.

21 Q. 3, 4, 5?

22 A. 3', 4'.

23 Q. No 5'?

24 A. Not yet.

Kaley

1 Q. Okay.

2 A. 3, 4, 5, 3', 4', 5'.

3 Q. So, you have 3, 4, 5, 3, 4 and 3, 4, 5,
4 3', 4', 5'?

5 A. Now, I think there's another one that
6 some people use, and I think that's -- it is one of
7 the trichloros. I couldn't be specific about the
8 last one. I think it is one of the trichloros, and
9 that's generally in these discussions ignored
10 anyway. The three I have listed are the ones that
11 are most generally spoken about in these
12 discussions.

13 Q. You said it is one of the trichloros,
14 the 3, 4, 5s? Wouldn't they be --

15 A. I think it is 4, 3' 4' -- I'm sorry. 3,
16 4, 4' maybe. That may be what it is. It only has 3
17 chlorines. All the others have 4. Actually, it may
18 be 3, 4, 5, 4'.

19 Q. Well, you got me confused.

20 A. Good. I'm sorry. It is confusing.
21 Let's -- the 3 that I have given you are the 3 that
22 are considered by the people looking at this
23 question the most important. The other one is
24 typically ignored anyway.

Kaley

1 Q. That's a trichlorobiphenyl --

2 A. That's my recollection.

3 Q. Are these all biphenyls we are talking
4 about?

5 A. These are 3 of the 209 congeners of
6 chlorinated biphenyls.

7 Q. How about things like quarterbiphenyls?
8 Are they ever stereochemicals?

9 A. I'm sure they are stereochemicals of
10 something, but not --

11 Q. Not a dioxin or a furan?

12 A. No, sir.

13 Q. Some other compound?

14 A. If any, yes.

15 Q. Do you know if any of the quarterphenyls
16 or any of the terphenyls have any of the so coplanar
17 configuration?

18 A. I mean without being rude, it is a
19 meaningless question for those kinds of chemicals.

20 Q. Just can't happen?

21 A. Not in the sense we are talking about
22 it, no.

23 Q. Because of the positioning -- tell me
24 why.

Kaley

1 A. Because there's more than 2 rings.

2 Q. What are the other characteristics of a
3 coplanar?

4 A. I don't understand the question.

5 Q. Well, isn't it generally believed that a
6 so coplanar PCB is sort of flat in its
7 configuration?

8 A. By definition, that's what coplanar
9 means.

10 Q. In other words, the 2 phenyls do not
11 rotate with respect to each other?

12 A. That's not true. They do rotate with
13 respect to each other, but they can in those
14 rotations assume a coplanar configuration.

15 Q. So, they can be in many different
16 positions, including coplanar?

17 A. That's exactly right.

18 Q. If they were not chlorinated in a way
19 that they could be coplanar, they would have never
20 in their rotations form a planar or coplanar
21 configuration; is that correct?

22 A. That's the theory.

23 Q. That's the theory?

24 A. Never is a big word.

Kaley

1 Q. Do you know anybody else who considers
2 PCBs to be stereoisomers other than Safe?

3 MR. MALIN: Object to the form
4 of the the question. Stereoisomers of
5 what? But you can answer it if you can
6 understand it.

7 BY MR. COHEN:

8 Q. Dioxins and furans?

9 A. I'm sure there are lots of others in the
10 literature. I'm sure Linda Birnbaum does.

11 Q. Now, do you believe that your
12 commercially-prepared PCBs that were used for
13 dielectric fluids contained coplanar PCBs?

14 MR. MALIN: Objection to the
15 form of the question. Answer it if you
16 can understand it.

17 THE WITNESS: I believe that
18 they probably contained some of them at
19 extremely low levels.

20 BY MR. COHEN:

21 Q. What levels do you believe we are
22 speaking of?

23 A. I would have to put on the record I'm
24 guessing, but I would guess it is probably in the 1

Kaley

1 to 10 part per million. But that's strictly a
2 guess.

3 Q. Did you ever hear anyone represent that
4 they contained levels as high as 2 percent?

5 A. Of the coplanar?

6 Q. Yes.

7 A. I have not heard that, no.

8 Q. How about 1 percent?

9 A. I don't have a recollection of ever
10 hearing that, no.

11 Q. Which congeners would it be that would
12 be -- is there any other name or description for the
13 congener other than what we have been discussing;
14 that is, 3, 4, 3', 4'; 3, 4, 5, 3', 4'; 3, 4, 5, 3',
15 4' 5'? Do you have any other names?

16 A. The only other name I would think of
17 would be the nonortho-substituted, which is kind of
18 just another way of saying what we have already been
19 saying. Aside from that, I can't think of any
20 other.

21 Q. Nonortho-substituted what, PCBs?

22 A. Yes.

23 Q. Do you know of anyone who has done any
24 analysis of your dielectric fluid to determine the

Kaley

1 level of so-called nonortho-substituted PCBs?

2 A. I don't know anyone that specifically
3 looked at those.

4 Q. Has Monsanto?

5 A. Not to my knowledge.

6 Q. What makes you think it's in the,
7 whatever you said, 5 parts per million range?

8 A. I'm just guessing. I told you that's
9 just a very -- the vaguest of guesses based on some
10 of that literature we talked about earlier. I don't
11 remember any number specifically, but I would -- my
12 recollection, as weak as it is, it is very low
13 levels.

14 Q. Well, are you just guessing or is that
15 a --

16 A. I really am basically just guessing. I
17 told you that.

18 Q. Do you know anybody who has actually
19 done tests and published data?

20 A. I cannot -- it has been done. As I sit
21 here today, I can't give you a researcher's name,
22 no.

23 Q. Do you know anybody who has information
24 on the toxic properties of the so

Kaley

1 nonortho-substituted PCBs?

2 A. Other than possibly Steven Safe, I mean
3 I know he has looked at that question. I assume he
4 does have some, yes.

5 Q. Have you had an opportunity to read that
6 section of the Federal Register that was apparently
7 incorrectly referred to earlier in Mr. Innelli's
8 letter?

9 MR. MALIN: Object to the form
10 of the question.

11 THE WITNESS: I guess I don't
12 know which reference we are talking
13 about. So, I don't know the answer to
14 that.

15 BY MR. COHEN:

16 Q. Well, have you seen Volume 56, Number
17 196 of the Federal Register for Wednesday, October
18 9, 1991?

19 A. Without seeing it and getting an idea of
20 what it says, I can't specifically answer that
21 question.

22 Q. Did you participate in what has been
23 called the Banbury Conference?

24 A. I did not.

Kaley

1 Q. Did Monsanto have a representative in
2 the Banbury Conference?

3 A. No.

4 Q. Did Monsanto through the CMA have a
5 representative in the Banbury Conference?

6 A. I do not --

7 MR. MALIN: Objection to the
8 form of the question. Answer the question
9 if you can.

10 THE WITNESS: I don't believe
11 so.

12 BY MR. COHEN:

13 Q. Have you seen anything published from
14 the Banbury Conference?

15 A. Yes.

16 Q. What have you seen?

17 A. There's a book of proceedings.

18 Q. Is there anything in there regarding
19 PCBs?

20 A. I don't recall specifically. I would be
21 surprised if there isn't.

22 Q. When was the book published?

23 A. Recently. Last -- the last 3 or 4
24 months.

Kaley

1 Q. Do you have a copy of it in your office?

2 A. Yes, I do.

3 Q. What's it called?

4 A. Part of it is the proceedings of the
5 Banbury Conference on -- it is something to do with
6 mechanism of dioxin toxicity. Those aren't the
7 exact words.

8 Q. Who is the publisher?

9 A. Cold Spring Harbor Press.

10 Q. Where are they located?

11 A. Cold Spring Harbor, Long Island, New
12 York.

13 Q. Is this publication available to anyone
14 who wanted to buy it?

15 A. Yes.

16 Q. What's it cost?

17 A. I believe it is about \$100.

18 Q. How large of a document is it?

19 A. It is a book about an inch thick.

20 Q. Is it bound?

21 A. Yes, it is.

22 Q. You don't recall whether it discusses
23 anything regarding PCBs?

24 A. I don't recall specifically, no.

Kaley

1 Q. Do you know anyone who was a participant
2 at the Banbury Conference?

3 A. Do I know anyone personally?

4 Q. Yes.

5 A. That I could walk up and say "Hi, how
6 are you?"

7 Q. Yes.

8 A. Not really.

9 Q. Do you know anyone by name who was a
10 participant in the Banbury Conference?

11 A. I know lots of people by name who were
12 there, yes.

13 Q. Have you read the publication?

14 A. I have read parts of it.

15 Q. Would you agree that the publication
16 supports the conclusion that there was general
17 agreement at the Banbury Conference in certain areas
18 of dioxin toxicity? For example, human and
19 experimental animals respond to dioxin
20 similarly?

21 MR. MALIN: Objection to the
22 form of the the question. You can answer
23 the question if you understand it.

24 THE WITNESS: I understand that

Kaley

1 people have said there was consensus on
2 those points in general terms, but there's
3 also a great deal of ongoing controversy
4 about whether there was consensus or not
5 and about what there may or may not have
6 been consensus on.

7 BY MR. COHEN:

8 Q. So, you are saying that you agree that
9 there was consensus on that point; however, there is
10 a dispute as to whether there was consensus?

11 A. I would say that there is consensus on
12 that point to the effect that my understanding is
13 that the people at the conference based more on what
14 they have said since, rather than on what the book
15 says, that people believe that the toxicity of
16 dioxin is mediated by a receptor, a cellular
17 receptor, and that in that sense the dioxin is
18 similar for both -- I'm sorry, the toxicity is
19 similar for humans and animals, and that the dioxin
20 toxicity is mediated through the same mechanism.

21 Q. What do you mean, "the toxicity is
22 mediated through" --

23 A. Exercised, expressed.

24 Q. You mean it occurs in the same way?

Kaley

1 A. For certain of the toxicities, if not
2 all, yes.

3 Q. Which toxicities in particular?

4 A. I don't even know which ones they were
5 talking about. I think they were talking about -- I
6 guess they were looking at immunotoxicity,
7 I-M-M-U-N-O, toxicity. I'm not so sure about
8 carcinogenicity. I believe probably neurotoxicity.
9 Those are the ones that I recall being addressed.

10 Q. How about enzyme induction?

11 A. Yes. I would agree that that was one of
12 the things they agreed on.

13 Q. Reproductive toxicity?

14 A. Maybe. I don't recall specifically.

15 Q. Developmental toxicity?

16 A. Again, maybe. I don't recall
17 specifically.

18 Q. If the Federal Register reported
19 carcinogenicity as being one in which the effects of
20 humans can be anticipated by effects observed in
21 experimental animals, would you disagree or agree or
22 say you don't recall?

23 A. If the Federal --

24 MR. MALIN: Object to the form

Kaley

1 of the the question. Answer the question
2 if you understand it.

3 THE WITNESS: If the Federal
4 Register said it, the Federal Register
5 said it. I don't know specifically what
6 they said about carcinogenicity. So, I
7 can't really agree or disagree.

8 BY MR. COHEN:

9 Q. So, you are saying you don't recall what
10 the publication states regarding that form of
11 toxicity?

12 A. That's correct. I mentioned earlier I
13 thought it was addressed. I don't recall
14 specifically what it states as I sit here now.

15 Q. Do you recall whether the publication
16 stated that certain stereochemicals having similar
17 molecular structure to dioxin may behave the same as
18 dioxin? For example, certain polychlorinated and
19 polybrominated dibenzo furans, polychlorinated and
20 polybrominated dibenzo-p-dioxins, and coplanar
21 chlorinated biphenyls?

22 A. I don't recall specifically. That
23 doesn't surprise me that it would have said that.

24 Q. Do you know if Monsanto Company takes a

Kaley

1 position with respect to any of the published
2 conclusions of the Banbury Conference?

3 MR. MALIN: Object to the form
4 of the question. Answer the question if
5 you think you understand it.

6 THE WITNESS: I do not believe
7 Monsanto takes a position on that, no.

8 BY MR. COHEN:

9 Q. Do you?

10 A. Do I? I have my opinions.

11 Q. Tell me them.

12 A. I believe that there's certainly good
13 evidence that of much of the toxicity of the dioxins
14 and furans probably is mediated through the
15 receptor. I also believe that there are certain
16 toxicities that the evidence for that is not so
17 clear. I believe that certain of the PCBs, most
18 notably, the coplanar PCBs, based on the literature,
19 probably do bind to that receptor with less avidity
20 or less strength than dioxins, and that people have
21 reported that binding. But I think for the end
22 points of interest, there's little, if any, evidence
23 that PCBs exhibit toxicity through that receptor.

24 Q. I'm sorry, what was that last part?

Kaley

1 A. I think there's little, if any, evidence
2 that PCBs exhibit toxicity through the receptor.

3 Q. What evidence or materials would you
4 look to to support your last conclusion?

5 A. I think you have to look at the writings
6 of people like Steve Safe who have looked at these
7 questions.

8 Q. Is Dr. Safe, to your knowledge, working
9 on a research grant of any kind?

10 A. To my knowledge, no.

11 Q. Dr. Safe, I think you indicated, is
12 located at Texas A&M?

13 A. Yes, sir.

14 Q. Do you know if the CMA contributes to
15 Texas A&M?

16 A. I don't know specifically, no.

17 Q. Who would know that information?

18 A. Dr. Safe.

19 Q. Anyone else?

20 A. Presumably someone at CMA --

21 MR. MALIN: CMA.

22 THE WITNESS: I wouldn't even
23 know where to tell you to start.

24 BY MR. COHEN:

Kaley

1 Q. Does Monsanto directly contribute to any
2 research work now at any independent institutions,
3 to your knowledge?

4 A. At independent institutions?

5 Q. Yes. Other than in their own
6 laboratories?

7 A. I'm sure they do.

8 Q. Who would know who they are currently
9 contributing to?

10 A. I don't know. I don't really know.

11 Q. Can you point to any other document or
12 publication of any kind that supports your last
13 conclusion regarding the effect of PCBs on that cell
14 receptor that you were discussing, other than Dr.
15 Safe?

16 MR. MALIN: Object to the form
17 of the question. I don't understand it,
18 but the witness may answer.

19 THE WITNESS: Not as I sit
20 here. I mean he is certainly by far the
21 most prolific writer on that question.

22 BY MR. COHEN:

23 Q. Do you know if Dr. Silvergeld is doing
24 any work in that area?

Kaley

1 A. I believe she is not. But she certainly
2 might be. I don't know. But I believe she is not
3 at this time.

4 Q. Has she in the past?

5 A. Well, I guess now we are getting back to
6 what is it I'm exactly answering the question about.

7 Q. Well, do you know?

8 A. Well, looking at the receptor-mediated
9 toxicity, I guess. I don't think she ever has for
10 PCBs. I think at some time or another she may have
11 for dioxin itself.

12 Q. Have you seen any literature that
13 indicates that the combination of the dioxins with
14 PCBs in environment may enhance the toxic reaction
15 of either of the compounds?

16 A. On the contrary. I think Steven Safe
17 has reported that combination may, in fact, reduce
18 the toxicity of dioxin or reduce the response to the
19 dioxin.

20 Q. What publication are you referring to,
21 sir?

22 A. I don't know specifically. It is among
23 his writings of the last several years.

24 Q. Are you aware of any documents that

Kaley

1 Monsanto has regarding the toxic properties of
2 so-called coplanar chlorinated biphenyls?

3 A. Monsanto documents?

4 Q. Yes.

5 A. No, sir.

6 Q. Do you know if Monsanto has ever done
7 any research regarding the toxicity of coplanar
8 chlorinated biphenyls?

9 A. I doubt it that issue has arisen since
10 we quit manufacturing the product.

11 Q. Do you know when the issue first came
12 up?

13 A. Early to mid 1980s.

14 Q. Other than Dr. Safe, can you identify
15 who has done research on the subject?

16 A. Well, Dr. Birnbaum is doing research
17 right now.

18 Q. Anyone else?

19 A. Not that I can recall.

20 Q. Do you have copies of any publications
21 by Dr. Birnbaum?

22 A. Probably.

23 Q. What are the subject matters of the
24 publications that you have?

Kaley

1 A. Probably primarily toxicity of dioxins
2 and furans. That's what our researchers have been
3 involved in for the last -- since I have known for
4 the last 5 years or so.

5 Q. Do you know the publications in which
6 those publications appear?

7 A. Not specifically, no.

8 Q. Can you readily access them and make
9 them available to Mr. Malin?

10 A. I could find some of them fairly
11 readily, yes.

12 MR. MALIN: Are they available
13 from publicly-available databases,
14 doctor?

15 THE WITNESS: Well, they are in
16 public literature, yes.

17 MR. COHEN: Consistent with my
18 comments earlier, I have nothing more for
19 the Doctor today.

20 MR. MALIN: I have no
21 questions. Anyone else have any
22 questions?

23 MR. BURNS: No.

24 MR. McDONNELL: No.

Kaley

MR. POWELL: No.

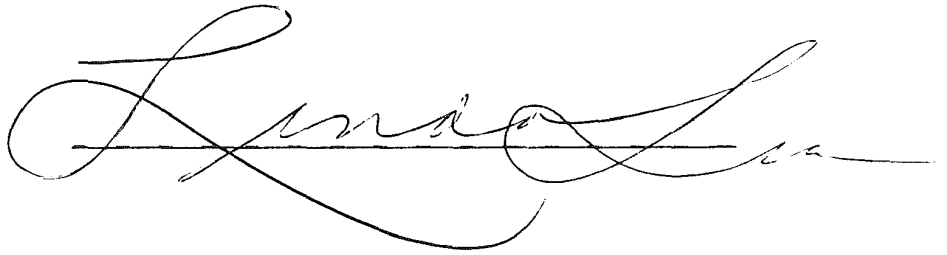
(Whereupon, the deposition
concluded at 11:30 a.m.)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

Kaley

C E R T I F I C A T E

I hereby certify that the proceedings and evidence noted are contained fully and accurately in the notes taken by me on the deposition of the above matter, and that this is a correct transcript of the same.

A handwritten signature in cursive script, appearing to read "Linda L. Kaley", written over a horizontal line.

(The foregoing certification of this transcript does not apply to any reproduction of the same by any means, unless under the direct control and/or supervision of the certifying reporter.)

Kaley

1

- - - - -

2

E R R A T A

3

- - - - -

4

5

6

PAGE

LINE

CHANGE

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

Kaley

ACKNOWLEDGEMENT OF DEPONENT

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

I, _____, do hereby certify
that I have read the foregoing pages, _____
and that the same is a correct transcription of the
answers given by me to the questions therein
propounded, except for the corrections or changes in
form or substance, if any, noted in the foregoing
Errata Sheet.

DATE

Subscribed and sworn to before me this _____ day
of _____, 19 ____.

My commission expires: _____

Notary Public