

UNITED STATES DISTRICT COURT  
DISTRICT OF NEVADA

NEVADA POWER COMPANY, a :  
Nevada corporation, :  
Plaintiff, :  
VS. : CV-S-89-555-LDG-LRL  
MONSANTO COMPANY, a :  
foreign corporation; :  
GENERAL ELECTRIC COMPANY, :  
a foreign corporation; :  
WESTINGHOUSE ELECTRIC :  
CORPORATION; a foreign :  
corporation; and DOES I :  
XXV, inclusive, :  
Defendants. :

READING  
COPY

DEPOSITION OF ROBERT EMMET KELLY, M.D.  
VOLUME III  
TAKEN ON FEBRUARY 17, 1994

---

---

**MARTIN & ASSOCIATES**  
**CERTIFIED COURT REPORTERS**

2200 MARKET STREET, SUITE 412  
GALVESTON, TEXAS 77550  
(409) 762-2222 \* FAX (409) 762-8040

# INDEX

THE WITNESS:                ROBERT EMMET KELLY, M.D.  
                                     VOLUME III

| EXAMINATION: | PAGE |
|--------------|------|
| 1            | 1    |
| 2            | 2    |
| 3            | 3    |
| 4            | 4    |
| 5            | 5    |
| 6            | 6    |
| 7            | 7    |
| 8            | 8    |
| 9            | 9    |
| 10           | 10   |
| 11           | 11   |
| 12           | 12   |
| 13           | 13   |
| 14           | 14   |
| 15           | 15   |
| 16           | 16   |
| 17           | 17   |
| 18           | 18   |
| 19           | 19   |
| 20           | 20   |
| 21           | 21   |
| 22           | 22   |
| 23           | 23   |
| 24           | 24   |
| 25           | 25   |
| 26           | 26   |
| 27           | 27   |
| 28           | 28   |
| 29           | 29   |
| 30           | 30   |
| 31           | 31   |
| 32           | 32   |
| 33           | 33   |
| 34           | 34   |
| 35           | 35   |
| 36           | 36   |
| 37           | 37   |
| 38           | 38   |
| 39           | 39   |
| 40           | 40   |
| 41           | 41   |
| 42           | 42   |
| 43           | 43   |
| 44           | 44   |
| 45           | 45   |
| 46           | 46   |
| 47           | 47   |
| 48           | 48   |
| 49           | 49   |
| 50           | 50   |
| 51           | 51   |
| 52           | 52   |
| 53           | 53   |
| 54           | 54   |
| 55           | 55   |
| 56           | 56   |
| 57           | 57   |
| 58           | 58   |
| 59           | 59   |
| 60           | 60   |
| 61           | 61   |
| 62           | 62   |
| 63           | 63   |
| 64           | 64   |
| 65           | 65   |
| 66           | 66   |
| 67           | 67   |
| 68           | 68   |
| 69           | 69   |
| 70           | 70   |
| 71           | 71   |
| 72           | 72   |
| 73           | 73   |
| 74           | 74   |
| 75           | 75   |
| 76           | 76   |
| 77           | 77   |
| 78           | 78   |
| 79           | 79   |
| 80           | 80   |
| 81           | 81   |
| 82           | 82   |
| 83           | 83   |
| 84           | 84   |
| 85           | 85   |
| 86           | 86   |
| 87           | 87   |
| 88           | 88   |
| 89           | 89   |
| 90           | 90   |
| 91           | 91   |
| 92           | 92   |
| 93           | 93   |
| 94           | 94   |
| 95           | 95   |
| 96           | 96   |
| 97           | 97   |
| 98           | 98   |
| 99           | 99   |
| 100          | 100  |

By Mr. Kim (Continued) . . . . . 349

KELLY EXHIBITS:

Exhibit No. 38 ..... 350

"Report of Dr. Frederick B. Flinn  
of Patch Tests Made on Material  
Received from Swann Research, Inc.,"  
Dated May 25, 1954

Exhibit No. 39 . . . . . 375

"Medical Research Project No.  
MR-46, The Toxicity and Potential  
Dangers of Inerteen," Submitted by  
W. F. von Oettingen, M.D., Ph.D.

Exhibit No. 40 ..... 378

"The Toxicology of Inerteen and Related Substances Including a Method of Analysis for Halogenated Hydrocarbons in the Air," by A. J. Fleming, M.D.

Exhibit No. 41 . . . . . 378

"The Effect of Inerteen and Several Related Substances Upon the White Rat," W. T. Read, Jr., M.D.

Exhibit No. 42 . . . . . 433

Letter Dated February 14, 1950,  
to Dr. Louis W. Spolyar from  
R. Emmet Kelly, M.D.

Exhibit No. 43 ..... 438

State of Indiana, State Board of Health, Letter Dated February 28, 1950, to Dr. R. Emmet Kelly from L. W. Spolyar, M.D.

Martin & Associates  
(409) 762-2222

Index (Continued)

KELLY EXHIBITS:

PAGE

|                                                                                                 |     |
|-------------------------------------------------------------------------------------------------|-----|
| Exhibit No. 44 .....                                                                            | 465 |
| Memorandum Dated December 12, 1966,<br>to Mr. D. Wood from R. Emmet Kelly,<br>M.D.              |     |
| Exhibit No. 45 .....                                                                            | 468 |
| Memorandum Dated December 1, 1966,<br>to G. R. Buchanan from D. Wood                            |     |
| Exhibit No. 46 .....                                                                            | 480 |
| Monsanto Memorandum Dated<br>January 12, 1967, to P. G. Benignus,<br>et al, from D. V. N. Hardy |     |

1           A P P E A R A N C E S:

2           FOR THE PLAINTIFF:

3                   Mr. John H. Kim  
4                   Fisher, Gallagher & Lewis, L.L.P.  
5                   First Interstate Bank Plaza  
6                   1000 Louisiana, 70th Floor  
7                   Houston, Texas 77002

8           FOR THE DEFENDANT MONSANTO COMPANY:

9                   Mr. Scott R. Bauer  
10                  Mr. Bruce A. Featherstone  
11                  Kirkland & Ellis  
12                  1999 Broadway  
13                  Denver, Colorado 80202

14          FOR THE DEFENDANT WESTINGHOUSE ELECTRIC  
15          CORPORATION:

16                  Mr. Konrad L. Cailteux  
17                  Weil, Gothsal & Manges  
18                  767 Fifth Avenue  
19                  New York, New York 10153

20          FOR THE DEFENDANT GENERAL ELECTRIC COMPANY:

21                  Mr. Evan J. Roth  
22                  Williams & Connolly  
23                  725 Twelfth Street, N.W.  
24                  Washington, D.C. 20005

25          THE VIDEOGRAPHER:

                  Mr. Lou Getz  
                  Legal Media Systems, Inc.  
                  550 Westcott, Suite 400  
                  Houston, Texas 77007

                  ALSO PRESENT:

                  Ms. Lynette Weldon

                  Martin & Associates  
                  (409) 762-2222

1                   The oral videotaped deposition of  
2           ROBERT EMMET KELLY, M.D., was continued on  
3           February 17, 1994, beginning at 9:11 a.m., in  
4           the offices of Husch & Eppenberger,  
5           100 N. Broadway, Suite 1300, St. Louis,  
6           Missouri, before Irma L. Reyes, a Certified  
7           Court Reporter and Notary Public in and for  
8           the State of Texas, pursuant to Notice and  
9           Agreement, the Federal Rules of Civil  
10          Procedure, and the following stipulation and  
11          waiver of counsel:

12                   IT WAS STIPULATED AND/OR AGREED  
13          that the deposition is to be signed by the  
14          witness before any Notary Public or officer  
15          authorized to administer oaths.

16                   IT WAS FURTHER STIPULATED AND/OR  
17          AGREED that the court reporter could swear  
18          the witness with the same force and effect as  
19          if she were a notary public in and for the  
20          State of Missouri.

21

22                   - - - - -

23

24                   THE VIDEOGRAPHER: Today is the  
25          17th of February, 1994. It's 11 minutes

Martin & Associates  
(409) 762-2222

1 after 9:00 o'clock. We're on the record.

2 MR. KIM: Before we start,  
3 Dr. Kelly, do you mind if we sing happy  
4 birthday to Lynette Weldon?

5 THE WITNESS: Not in the least.

6 MR. KIM: It is her birthday  
7 today.

8 THE WITNESS: Go right ahead.

9 MR. KIM: On "3."

10

11 (Attendees sing "Happy Birthday" to  
12 Ms. Weldon.)

13

14 MR. KIM: Can you pull our No. 2?

15 MS. WELDON: Uh-huh.

16

17 ROBERT EMMET KELLY, M.D.,  
18 was called as a witness and, having been  
19 previously duly sworn, testified as follows:

20

21 EXAMINATION (Continued)

22 BY MR. KIM:

23 Q. Dr. Kelly, when we left off yesterday, we  
24 were talking about medical literature that  
25 you had seen or reviewed in the 1930's.

1 A. Yes, sir.

2 Q. Did you have occasion at the time that you  
3 started work at Monsanto Chemical Company to  
4 review any work that had been done on behalf  
5 of Swann Research prior to the Monsanto  
6 purchase?

7 A. The work at Flinn -- Dr. Flinn of Columbia,  
8 he did some patch testing, as I understand  
9 it.

10 Q. Let me show you what we will mark as your  
11 Deposition Exhibit No. --

12 MS. WELDON: I believe 38.

13 MR. KIM: 38?

14 MS. WELDON: Yeah. 38.

15 MR. KIM: Do you mind if I cover up  
16 this exhibit number?

17 MR. BAUER: No.

18

19 (An instrument was marked Kelly  
20 Exhibit No. 38 for identification.)

21

22 Q. (By Mr. Kim) -- and ask if you recognize  
23 this, sir.

24 A. Yes, I do.

25 Q. This is the work that Dr. Flinn did with

1           respect to some patch tests on material  
2           received from Swann?

3    A.    Yes, sir.

4    Q.    The material that was received from Swann  
5           were Aroclor products. Is that your  
6           understanding?

7    A.    I don't know how they -- if they labeled them  
8           "Aroclor" or not. They were PCB products.

9    Q.    Okay. Doctor, if we can look at the very  
10          bottom of the first page, it seems to  
11          indicate Aroclor 1262?

12   A.    Yes, it does.

13   Q.    Aroclor 1268?

14   A.    Yes.

15   Q.    Would -- and at the top of the next page,  
16          Aroclor Special and Aroclor 1248?

17   A.    Yes, sir. He called them Aroclors. So --

18   Q.    Were those chlorinated diphenyls, or PCBs?

19   A.    Yes, they were.

20   Q.    If you will turn with me to the top of the  
21          second page where it says "Aroclor 1248," the  
22          second --

23   A.    Yes, sir.

24   Q.    -- category?

25   A.    Yes, sir.

1 Q. And as I understand the explanation you gave  
2 in your testimony to Mr. Bauer, the "48"  
3 means that on average, the product had 48  
4 percent chlorination?

5 A. That's correct.

6 Q. Underneath that Dr. Flinn noted that all  
7 tests gave a positive reaction. The  
8 intradermal test was also positive. The  
9 reaction was mild?

10 A. Yes, sir.

11 Q. Do you know what type of reaction he was  
12 describing in that instance?

13 MR. BAUER: Object to the form.

14 A. Well, let's see what it says. He was doing a  
15 patch test. And I don't know what -- how he  
16 interpreted as "patch." The patch test is  
17 you put something on the skin, cover it with  
18 an impervious dressing, and look at it in 24  
19 hours or 48 hours. You do not test systemic  
20 reactions. You are testing the local action  
21 in the skin.

22 So I don't know what I -- what he  
23 called a positive reaction, but the usual  
24 individual would call a redness a positive  
25 reaction. Sometimes swelling would be

1 present, but it would not be a mild  
2 reaction.

3 Q. (By Mr. Kim) Would a reaction with that  
4 Aroclor product at the 48 percent  
5 chlorination level have caused -- did it  
6 cause you a concern, as the medical director  
7 of Monsanto, when you reviewed this test?

8 A. No, sir. It was a mild reaction. We knew  
9 that if you got Aroclor on your skin, you'd  
10 get reddening. If you kept on doing it,  
11 you'd get chapping of the skin. We're  
12 talking about local reactions. All he did  
13 was test the local reaction on the skin.

14 Q. At the time that you reviewed this test, did  
15 your department, the medical department, or  
16 Monsanto Chemical Company seek to do other  
17 testing that would determine whether  
18 absorption through the skin of Aroclor  
19 products would lead to any systemic  
20 poisoning?

21 A. At what time?

22 Q. In the -- at the time that you reviewed  
23 Dr. Flinn's report.

24 A. No. He was not testing for absorption of the  
25 skin, through the skin. He was just testing

1 the local reaction of the skin.

2 Q. Did --

3 A. So it had no relationship to absorption.

4 Q. Did Monsanto Chemical Company or the medical  
5 department under your direction do any  
6 further testing to test the concerns --  
7 strike that.

8 -- the observations made by  
9 Dr. Flinn in this test?

10 A. Well, there's no relevancy of a skin patch  
11 test to any toxicological relationship.

12 Q. On the last page, under the category of  
13 "Comments," Dr. Flinn in his first sentence  
14 notes that: "One is impressed with the fact  
15 that each of the Aroclors giving a positive  
16 reaction were of a fluid nature."

17 A. Yes, sir.

18 Q. Is that correct?

19 And again, it's -- as I understood  
20 your testimony, that it caused you and  
21 Monsanto no toxicological concerns because  
22 redness from a patch test would not be  
23 indicative of such?

24 A. That's correct.

25 Q. Did you place any significance upon the work

1 of Dr. Flinn since they were patch tests,  
2 from a toxicological and health standpoint?

3 A. No, I did not.

4 Q. Does that mean that any patch test performed  
5 you would not place much toxicological or  
6 health significance to?

7 A. I won't go that far because I don't know  
8 conceivably what might happen if you -- at  
9 some particular patch test. In other words,  
10 if you -- remember, a patch test is only to  
11 see how the skin will react. Whether it will  
12 react as a local irritant, such as paint  
13 remover or turpentine, or whether it be a  
14 sensitization reaction, like a poison ivy  
15 oil. So that's what you're looking for.  
16 You're not looking for -- that's a nonevent  
17 as far as systemic toxicity is concerned.

18 Q. How about just acute toxicity? Is there a  
19 significance to the patch test in that?

20 A. There may be acute toxicity as far as the  
21 skin is concerned. If you put an acid  
22 compound on a patch test, you will get a  
23 local reaction which could be called toxic to  
24 the skin at that time. But it has nothing to  
25 do with an acute poisoning unless you are

1 hypersensitive to it, unless there's an  
2 allergic component that exists in the  
3 compound.

4 Q. Doctor, my curiosity in this emanates from  
5 the fact that it just seems to me -- and  
6 correct me if I'm wrong -- that if through a  
7 patch test the skin reacts to it, whether it  
8 turns red or you get a rash, that would, at  
9 least from a medical and scientific  
10 standpoint, be some indication of a human  
11 reaction to the product being tested.

12 A. Well, it's a human reaction on the skin, yes,  
13 certainly. That's what you're testing it  
14 for. So you find out that it reacts in the  
15 skin. But there's no relationship to whether  
16 this is going to react -- be absorbed. It  
17 has nothing to do with the general  
18 toxicological investigation of the product.

19 Q. Would a local reaction by virtue of a patch  
20 test cause a prudent scientist or medical  
21 director to inquire further into the  
22 toxicological properties of the product  
23 tested?

24 A. Not per se. Not because of the redness, no.  
25 You might inquire further for different

1 reasons; but you are testing a patch test, I  
2 have to repeat, to see what it does to the  
3 skin. And that's all you're interested in.  
4 That's all you're doing it for.

5 Q. Did Monsanto Chemical Company or you, as the  
6 medical director, ever order or request any  
7 patch tests to be done with its products,  
8 with its PCB products?

9 A. Yes, we did. At the Barnard Skin and Cancer  
10 Hospital -- I don't know the time frame -- we  
11 tested -- when we started using the material  
12 as a plasticizer, selling it as a  
13 plasticizer, we tested the vinyl film that  
14 had this material in it. We also tested the  
15 material neat; that is, just by itself. But  
16 I -- it's been quite awhile since I've seen  
17 that report. We did not get positive  
18 reactions in the vinyl film; and to the best  
19 of my recollection, at the dilution we used,  
20 we did not get any positive reactions with  
21 the 1240. I don't know which one it was with  
22 the -- with the PCBs.

23 Q. What was the purpose of ordering those patch  
24 tests?

25 A. Well, we were making a vinyl film. This was

1           going to be on -- could be on auto seat  
2           covers. You're putting somebody in shorts  
3           sitting on the sheets, and you wanted to find  
4           out whether or not it would be an irritant or  
5           a sensitizer.

6    Q.    The product that you used as a plasticizer,  
7           aside from the patch test, were other tests  
8           done?

9    A.    For different reasons, yes. But not -- not  
10           for its use as the plasticizer. We wanted to  
11           see whether it had the property of being an  
12           irritant or a skin sensitizer.

13   Q.    Were other toxicological tests done?

14   A.    Yes. We've done toxicological tests, not at  
15           the same time, but all along during the  
16           manufacture of our PCBs.

17   Q.    In particular, Doctor, I'm asking about the  
18           plasticizers that you indicated earlier that  
19           you had ordered patch tests for.

20   A.    Well, we had done them before. We did have  
21           toxicological information on it.

22   Q.    You would agree with me that from a  
23           manufacturing standpoint and a sales  
24           standpoint, it is important that the product  
25           you place on the market had been tested to

1           the extent possible for its toxicological  
2           properties, as well as its reactions through  
3           patch tests, whatever -- the acute reactions?

4                       MR. BAUER: Object to the form.

5           Vague as to what you mean by --

6    A.    Well, that is a little --

7                       THE WITNESS: Oh, sorry.

8                       MR. BAUER: Vague as to what you  
9           mean by "to the extent possible."

10                      You can answer, Doctor.

11   A.    No. I think you test a product, define --  
12           before you market it, define its  
13           toxicological properties. You do enough so  
14           that you're able to evaluate how it could be  
15           used safely in the markets for which it's  
16           intended.

17   Q.    (By Mr. Kim) Doctor, we can agree that --  
18           that all industrial chemicals at some point  
19           are toxic?

20   A.    Yes.

21   Q.    We can also agree that to the extent that you  
22           cannot eliminate the toxicity of such  
23           chemicals, that we should try at the very  
24           least to warn the users about the toxic  
25           properties?

1                   MR. BAUER:  Objection.  Asked and  
2                   answered.

3     A.     We warn the users how to protect themselves  
4             from any possible effects of the product we  
5             sell.

6     Q.     (By Mr. Kim)  Is that your personal  
7             philosophy, or are you speaking as to what  
8             Monsanto's policy was when you were medical  
9             director?

10    A.     It's both.

11    Q.     You place no importance on telling the user,  
12             by virtue of a label or warning, what the  
13             effect of misuse would be?

14    A.     We do.  Yes, we do.  We have every letter I  
15             have ever written to -- there's bundles of  
16             these in the exhibits.  I have explained what  
17             the possibilities were and what is liable to  
18             happen.  There are letters here that show  
19             that I talked and I wrote about the fact that  
20             in acute episodes you can get a chemical  
21             hepatitis.  I've written about chloracne  
22             could occur.  I've written about liver  
23             problems could occur from excessive  
24             overexposure.  We have sent out to customers  
25             bulletins, safety data sheets, and brochures

1 or reports from the American Industrial  
2 Hygiene Association that describe all the  
3 details of the PCBs.

4 So I don't agree with you that we  
5 didn't warn them.

6 Q. Did you ever --

7 A. To talk -- that we did not mention the  
8 possibilities -- where the possibilities of  
9 ill effect might be.

10 Q. Did you ever warn, through a label or warning  
11 label, of the liver being the target organ?

12 A. No, I did not. If you're at a filling  
13 station, they say, "Do not smoke while you're  
14 putting gasoline in your car." They don't  
15 say, "Do not smoke because you're liable to  
16 be blown into the next block." You tell them  
17 how to avoid any trouble.

18 Q. You've never seen -- and I'm not going to  
19 quarrel with you. But would you agree with  
20 me that at the filling station, the label  
21 that says, "Flammable," or, "Highly  
22 flammable. Do not smoke while filling your  
23 car," would be another effective than one  
24 that just says, "Do not smoke while filling  
25 your car"?

1                   MR. BAUER: Object to the form of  
2                   the question. It calls for speculation and  
3                   is obviously outside Dr. Kelly's area.

4                   MR. KIM: Absolutely not,  
5                   Mr. Bauer. Dr. Kelly in your direct  
6                   testified to the fact that he reviewed every  
7                   label and warning and correspondence with  
8                   respect to warnings about PCB products that  
9                   went out of Monsanto. To that extent, he is  
10                  entirely capable of testifying about this  
11                  unless he wants to recant that line of  
12                  questioning.

13       Q.        (By Mr. Kim) You can answer now.

14       A.        Will you give me the question so I know what  
15                  I am answering?

16       Q.        Sure. You have given us a hypothetical in  
17                  dealing with a -- filling your gas tank and  
18                  where you said the warning which was totally  
19                  effective was, "Don't smoke while filling  
20                  your car"; is that correct?

21       A.        Yes.

22       Q.        And my question to you is: As the medical  
23                  director, a person who reviewed and was in  
24                  charge of writing labels, correspondence, and  
25                  warnings while at Monsanto from 1936 to 1974,

1 do you feel that there is a difference  
2 between a warning such as you described and  
3 one that might say, "Highly flammable. Do  
4 not smoke while filling your car"?

5 A. Well, I think that's -- no. I think "highly  
6 flammable" is talking about a product -- a  
7 property of the gasoline. But maybe gasoline  
8 is a poor example, maybe. But that's  
9 something that the gasoline people would have  
10 to make a decision on. But --

11 Q. Yes, sir.

12 A. -- take iron pills. They don't say, "Iron  
13 pills call" -- "Iron pills, if they are used  
14 to an excessive extent, will cause this  
15 particular illness." They'll say it will be  
16 harmful and may be harmful.

17 Q. How about sugar? Sugar substitutes?

18 MR. BAUER: Object to the form.

19 A. Beg pardon?

20 MR. KIM: You can have a running  
21 objection to every question.

22 Q. (By Mr. Kim) How about sugar substitutes?  
23 Does Monsanto market and sell a product call  
24 Sweet'n Low?

25 A. Yes.

1 Q. Did you do, during the time period you were  
2 medical director at Monsanto, any  
3 toxicological testing with respect to that  
4 product?

5 A. Sir, the Searle Company had been  
6 manufacturing the sweetener. That was a  
7 freestanding company. It was a freestanding  
8 division. They had their own medical  
9 department. Monsanto as the parent company  
10 did not have anything to do with Searle.

11 Q. Monsanto --

12 A. From the medical -- from my medical  
13 department point of view.

14 Q. You've never reviewed any of that work, then?

15 A. No, I have not.

16 Q. Do you feel that it's prudent for a  
17 manufacturer to warn about the possible  
18 effects of ingestion or misuse of such  
19 products, any product?

20 A. The possible -- say that over. I want to be  
21 exactly sure what you're saying.

22 Q. Sure. You have talked, with respect to PCBs,  
23 that you felt it was prudent to only warn or  
24 direct people as to how to avoid exposure?

25 A. That's correct.

1 Q. You did not feel -- and you felt if you did  
2 that, it was not necessary to put the effects  
3 of such exposure on that warning or label?

4 A. That's correct.

5 Q. Is that a philosophy that Monsanto follows?

6 A. On --

7 Q. On labeling.

8 A. Are you talking about the Monsanto Company,  
9 or are you talking about some of their  
10 subsidiaries?

11 Q. Monsanto Company.

12 A. You brought in Searle. I want to be sure --

13 Q. Absolutely.

14 A. -- that you know that I -- that Searle was a  
15 company that manufactured Equal before  
16 Monsanto took it over. Their toxicological  
17 work had extended over four or five years  
18 before Monsanto took it over. The medical  
19 department had nothing to do with Searle's  
20 labels or toxicological work. Medical  
21 department of Monsanto.

22 Q. Monsanto sells the product now, though?

23 A. Yes, they do.

24 MR. BAUER: Object to the form.  
25 Lacks foundation as to him knowing what

1 Monsanto sells today.

2 MR. KIM: He just answered it.

3 A. Well, Searle, a division of Monsanto, sells  
4 it, yes.

5 Q. (By Mr. Kim) Would you agree with me, as the  
6 corporate parent of Searle, that Monsanto  
7 would have an interest in the type of  
8 warnings and directives that Searle's  
9 products would have?

10 A. Yes.

11 MR. BAUER: Object to the form.

12 A. Yes, they do.

13 Q. (By Mr. Kim) Okay. As the corporate parent  
14 and based upon your experience as the medical  
15 director between Nineteen Thirty --

16 A. -- six.

17 Q. Excuse me. Nineteen --

18 A. 1946.

19 Q. -- 1946 to 1974, do you have an opinion as to  
20 whether subsidiaries of Monsanto, such as  
21 Searle, should warn as to the effects of  
22 misuse of a product?

23 MR. BAUER: Object to the form.

24 Assumes that there were subsidiaries during  
25 that time period.

1 A. Should warn as to any possible ill effects?

2 Q. (By Mr. Kim) Yes.

3 A. Well, now, warning as to ill effects, I think  
4 I'll need a definition of that. If you want  
5 to be specific about which ill effects are  
6 liable to happen, I don't believe that is  
7 important. I think it's important to say,  
8 "You will get problems. You'll get medical  
9 problems that could be harmful to your health  
10 if you do" -- "if you use this product in a  
11 manner which it is not intended," yes.

12 Q. You don't think it's important for that label  
13 or warning to say, "You may develop liver  
14 problems. You may develop stomach problems.  
15 You may develop cancer. You may develop  
16 brain cancer"?

17 MR. BAUER: Object --

18 A. On your label?

19 MR. BAUER: Object --

20 Q. (By Mr. Kim) Yeah.

21 MR. BAUER: Object to the form.

22 It's completely hypothetical and calls for  
23 speculation.

24 A. No. I think that information is published by  
25 Monsanto, by a company, in other forms of the

1 label. The label is not intended to have a  
2 bibliography of case reports on it. I think  
3 you defeat the purpose. A label is put on to  
4 pro -- to tell the individual that comes in  
5 contact with that product how he can avoid  
6 any ill effects. I do not see the necessity  
7 for saying, "You are liable to get diabetes.  
8 You're liable to get this. You're liable to  
9 get that."

10 Q. (By Mr. Kim) Should it indicate on the label  
11 in its warnings what the laboratory studies  
12 with animals have shown possible effects to  
13 be?

14 MR. BAUER: Object to the form.

15 A. No, I don't think that should be on the  
16 label.

17 Q. (By Mr. Kim) Is that not prudent action?

18 MR. BAUER: Object to the form.  
19 Indefinite as to time.

20 Q. (By Mr. Kim) At any time.

21 A. I don't think it's necessary. I don't  
22 exactly know what you mean by "prudent" on  
23 it.

24 Q. Is it more wise or less wise to put such  
25 information in a warning?

1     A.     It's not needed. I don't think the "wise"  
2             enters into it. The labels that we put on  
3             our products -- if we're talking about PCBs  
4             now -- were perfectly adequate because the  
5             workers who used it, our customers' workers  
6             and their work -- customers -- their  
7             customers' customers, a second generation,  
8             were not harmed by the material. There  
9             were -- and I can quote the Government  
10            epidemiologist Dr. Kimbrough, who stated with  
11            the exception of chloracne -- I don't know if  
12            she mentioned -- whether she used the term  
13            "rare" or -- well, chloracne. Let's say  
14            "chloracne." There were no other ill --  
15            reports, definite reports, of illness to  
16            workers from PCBs.

17                         So the labels, in my opinion, were  
18             adequate. Perfectly adequate.

19     Q.     Doctor -- and I understand that in previous  
20             testimony you have complimented the work of  
21             the Government scientists.

22     A.     Sometimes. And sometimes I've dis -- I was  
23             uncomplimentary.

24     Q.     Is it -- did you rely upon the work of  
25             Dr. Kimbrough while you were the medical

1 director of Monsanto Chemical Company?

2 A. No. I disagreed with her in her -- on her  
3 pathologist's interpretation of her rabbit  
4 slide -- of her rat slides.

5 Q. And we're going -- did you ever personally  
6 review those slides?

7 A. No. I'm not a pathologist.

8 Q. And we'll talk about those later. But I want  
9 to get back to warnings and the labeling that  
10 you, as the medical director, were  
11 responsible for at least drafting or looking  
12 at prior to their dissemination to customers  
13 and ask, with respect to the corporate  
14 philosophy while you were the medical  
15 director from 1946 to 1974, if there was a  
16 philosophy that indicated that it was not  
17 necessary to put down laboratory findings of  
18 the toxic effects that had been observed on  
19 that label.

20 MR. BAUER: Object to the form.  
21 Specifically on a warning label.

22 MR. ROTH: Can you repeat that  
23 question, please?

24 MR. BAUER: Yeah. Yeah.

25 THE WITNESS: Yes. I'd like it,

1           too.

2                       MR. KIM: I'll just restate it.

3   Q.    (By Mr. Kim) During the time period of 1946  
4           to 1974, when you were the medical director  
5           and in charge of warnings at Monsanto  
6           Chemical Company, do you have an opinion as  
7           to what Monsanto's corporate philosophy was  
8           with respect to identifying those toxic  
9           results from animal tests?

10                   MR. BAUER: Objection. Vague.

11   Q.    (By Mr. Kim) On PCBs.

12   A.    Of identifying them?

13   Q.    (Nods head.)

14   A.    Explain that to me.

15   Q.    Okay. Let's say that -- whether we dispute  
16           some of the earlier studies or not, Doctor,  
17           I'm curious because some of the studies seem  
18           to indicate that the liver was the target  
19           organ. Can we agree to that?

20   A.    Yes, certainly.

21   Q.    And some of the studies indicated that  
22           chloracne could develop?

23   A.    Yes.

24   Q.    Some of the animal studies indicated that  
25           there could be possible systemic effects

1 through lassitude, loss of appetite, loss of  
2 libido. Can we agree with that?

3 A. Some of the studies? Some of the case  
4 reports on it?

5 Q. Yes.

6 A. I believe that was studies.

7 Q. Case reports. My question to you, Doctor, is  
8 if you felt that it was necessary or if  
9 Monsanto, while you were the medical director  
10 and in charge of warnings, had a philosophy  
11 of whether that -- of whether making workers  
12 aware of that information was necessary on  
13 the warnings or labels that accompanied the  
14 product.

15 MR. BAUER: Objection. Vague as to  
16 what you mean by "warnings or labels."

17 A. Well, there is a difference. There are  
18 really two questions. On the labels -- we  
19 were talking about labels?

20 Q. (By Mr. Kim) I'm talking about things that  
21 would be on the drums or the product itself  
22 that the everyday worker would see.

23 A. If the worker saw on a label -- my philosophy  
24 was if the worker saw on a label information  
25 that would prevent him from getting any ill

1 effects from the use of the product, that was  
2 certainly adequate and sufficient. If I put  
3 on the label, "You are liable to get  
4 diabetes. You are liable to get brain  
5 tumors. You are liable to get weakness. You  
6 are liable to feel tired after you use it," I  
7 don't believe the worker would sooner or  
8 later pay any attention to that type of  
9 information. It was not necessary on a  
10 label.

11 Q. You think it would have been ineffective in  
12 the end?

13 A. It certainly wasn't necessary, and I -- I  
14 think it would be counterproductive, yes.

15 Q. Was that your opinion or Monsanto's company  
16 position while you were the medical director  
17 between 1946 and 1974?

18 A. Well, I can't speak for the company; but  
19 that's what they put on the labels.

20 Q. Was there anyone else besides you who had  
21 input and final say-so in the information  
22 contained in the warnings and labels that  
23 accompanied the product that the everyday  
24 worker would see while you were the medical  
25 director between 1946 and 1974?

1     A.    Yes.  We had legal people in the company who  
2           might very well object to that.  I presume if  
3           the lawyer said, "We don't believe you have  
4           enough on here," we would have -- may have --  
5           if we could convince him that it would be --  
6           that was unwise, we'd -- the company may have  
7           done something different.  But they didn't,  
8           and the labels had enough information.  I  
9           come back to the point:  They've fulfilled  
10          their purpose, which was to keep workers from  
11          getting any harmful effects, regardless of  
12          the fact that these harmless effects were not  
13          mentioned on the label.

14    Q.    If you know, has that philosophy or reasoning  
15           with respect to labels and warnings that are  
16           placed on the product changed since the time  
17           you have left Monsanto?

18    A.    I don't know if it has.

19    Q.    Let me show you what is a Sweet'n Low package  
20           that I believe is marketed by one of the  
21           Monsanto subsidiaries; is that correct?

22    A.    No, I don't think it is.

23    Q.    Is it a Monsanto product?

24    A.    I don't believe -- I'm sorry to say I don't  
25           have reading glasses here.  But would you

1 read what's in it? This is not a -- I have  
2 never heard that Sweet'n Low was a Monsanto  
3 product.

4 Q. Okay. Let me show you what we'll mark as  
5 your Deposition Exhibit No. 39 --

6

7 (An instrument was marked Kelly  
8 Exhibit No. 39 for identification.)

9

10 MR. BAUER: Do you have an extra  
11 one?

12 MS. WELDON: No.

13 Q. (By Mr. Kim) -- which I believe you reviewed  
14 yesterday.

15 A. I didn't review it. I saw it.

16 Q. You saw it yesterday. I believe you also  
17 testified that you have reviewed that  
18 document in other litigation?

19 A. Yes.

20 Q. Did you know Dr. von Oettingen?

21 A. Yes, I did.

22 Q. I believe you've previously testified that he  
23 was a premier scientist?

24 A. Yes.

25 Q. You had no criticisms of him as a scientist

1           during this time period?

2     A.     That's correct.

3     Q.     During the time that you were the -- do you  
4           recall when the first time you would have had  
5           occasion to review this document that we have  
6           marked as your Deposition Exhibit No. 39?

7                   MR. BAUER:  Objection.  Asked and  
8           answered.

9     A.     It certainly was after 1974; but my  
10           supposition was I just saw it about six or  
11           eight years ago, which would be sometime in  
12           the Eighties.

13    Q.     (By Mr. Kim)  Do you have a recollection of  
14           what your thoughts were when you first  
15           reviewed this?  And if you want, we can take  
16           some time so that you can read and review  
17           this.

18    A.     Yeah.  Oh, you mean what my thoughts --

19    Q.     Did you dispute his findings, or did --

20    A.     Beg pardon?

21    Q.     Did you dispute the findings that he found?

22    A.     That's a different question.

23    Q.     Pick either one.

24    A.     Let me go through it.

25                   MR. BAUER:  Object to the form.

1 A. Maybe I thought was, where'd this come from?

2 Q. (By Mr. Kim) What were you thoughts? Let's  
3 start with: What were your thoughts when you  
4 reviewed this?

5 A. That was my thought.

6 MR. BAUER: His thoughts in the  
7 1980's when he read this article in the  
8 context of other litigation?

9 MR. KIM: Well, I think my question  
10 was, "What were your thoughts when you  
11 reviewed it?" If that's unclear --

12 MR. FEATHERSTONE: John offered  
13 Dr. Kelly the opportunity to look through the  
14 document. I presume go off the record and do  
15 that?

16 MR. KIM: Sure.

17 MR. FEATHERSTONE: So let's decide  
18 whether that's necessary.

19 THE WITNESS: Whether what's  
20 necessary? I've got to review this --

21 Q. (By Mr. Kim) Doctor, would you like to take  
22 some time to review this?

23 A. Yes, I -- if I'm going to be asked questions  
24 on it.

25 Q. You bet. Let's go off the record for just a

1           few minutes.

2                       THE VIDEOGRAPHER: We're going off  
3           the record. It's 43 minutes after 9:00  
4           o'clock.

5

6                       (A recess was taken.)

7

8                       (Instruments were marked Kelly  
9           Exhibit Nos. 40 through 41 for  
10          identification.)

11

12                      THE VIDEOGRAPHER: It's two minutes  
13          after 10:00 o'clock. We're back on the  
14          record.

15                      MR. KIM: Mr. Bauer?

16                      MR. BAUER: I'll wait till you get  
17          to one.

18                      MR. KIM: Okay.

19    Q.    (By Mr. Kim) Doctor, you've had an  
20          opportunity now to review what has been  
21          marked as your Deposition Exhibit 39; is that  
22          correct?

23    A.    Yes, sir.

24    Q.    And I believe that is a report about the  
25          toxic and potential danger -- toxicity and

1 potential dangers of Inerteen?

2 A. Yes, sir.

3 Q. What is your understanding of what Inerteen  
4 is?

5 A. Inerteen is a dielectric compound used by  
6 Westinghouse Electric. There may be other  
7 people who use it. It is a product that was  
8 made for Inerteen -- for Westinghouse to  
9 their specifications.

10 Q. Do you have any scientific or medical  
11 criticisms of Dr. von Oettingen's work, as  
12 you see before you in Exhibit 39?

13 MR. BAUER: Objection. I object to  
14 that question on the grounds that it's  
15 eliciting an expert opinion; and Dr. Kelly,  
16 as a fact witness in this case, has not been  
17 designated as an expert. And Mr. Kim, if you  
18 want to give me a standing objection to that,  
19 on that base -- just that basis to this line  
20 of questioning, then I won't have to repeat  
21 that.

22 MR. KIM: Done.

23 A. Do I answer it?

24 Q. (By Mr. Kim) Yes, you can answer now.

25 A. What was it? What was the question now? I'm

1           getting sidetracked on these --

2     Q.     I don't recall.

3     A.     -- ad libs.

4     Q.     Oh. Did you have any scientific or medical  
5           criticisms of Dr. von Oettingen's work, as we  
6           see in your Deposition Exhibit No. 39?

7     A.     No. I've had the opportunity to look this  
8           over for ten minutes, and I've come to no  
9           conclusion as to an opinion on it.

10    Q.     You have reviewed this document in  
11           preparation of testimony in other litigation,  
12           have you not?

13    A.     I don't know if I reviewed it beforehand or  
14           they handed it to me at the time of the  
15           deposition, like today I was handed one --  
16           this.

17    Q.     As we sit here today for this jury, you have  
18           no opinion with respect to the conclusions  
19           that Dr. von Oettingen reached?

20    A.     Well, I respect him as a scientist.

21    Q.     If you will turn to the second page, where at  
22           the bottom of it talks about the "Effect of  
23           Oral Administration."

24    A.     Yes, sir.

25    Q.     Is that correct?

1                   If you will then turn to the next  
2           page.

3    A.    Yes, sir.

4    Q.    The second paragraph, it says he noted that  
5           with respect to the lungs, there was edema  
6           and hemorrhaging; is that correct?   The first  
7           sentence.

8    A.    Yes, sir.

9    Q.    Okay.   And those that died spontaneously  
10          showed congestion of the lungs?

11   A.    Yes, sir.

12   Q.    What is "edema"?

13   A.    Swelling.   Fluid in the tissues.

14   Q.    And what is the layman's description of  
15          "hemorrhage"?

16   A.    You bleed.

17   Q.    Okay.   Those would be significant medical or  
18          scientific findings, would they not be?

19                   MR. BAUER:   Object to the form.

20                   MR. CAILTEUX:   Join.

21   A.    In -- Mr. Kim, in -- if you are giving an --  
22          running a toxicological experiment on animals  
23          and they die as these did, rather rapidly,  
24          these are findings you get in all deaths.  
25          These are preagonal conditions.

1 Q. (By Mr. Kim) These findings would not have  
2 caused you any concern as the medical  
3 director of Monsanto if they had been noted  
4 during a Monsanto test?

5 MR. BAUER: Object to the form.

6 A. No. Because if they died, they die of  
7 something. This is what they die from. They  
8 die from swelling of the organs of the body.

9 Q. (By Mr. Kim) Did Monsanto -- I believe  
10 you've told me, and I've forgotten -- ever  
11 order or request any testing to be done that  
12 would determine the mechanism of chemical  
13 reactions in the human body?

14 A. No, sir, we did not.

15 Q. How about animal tests?

16 A. At the time of the Bio-Test experiment --  
17 toxicological work, there was some  
18 radioactive work carried out as far as the  
19 distribution of material in the tissues. And  
20 to the best of my knowledge, there was some  
21 work done on the biochemical alterations of  
22 the product in the body. But those were not  
23 in the reports that I saw, and I do not know  
24 if they were submitted after I left.

25 Q. Would congestion of the lungs combined with

1 edema and hemorrhaging have caused you  
2 concern, as the medical director of Monsanto,  
3 with respect to the mechanism of the chemical  
4 reaction in a human or an animal?

5 A. No. It is -- this is a nonspecific situation  
6 condition. Occurs with -- whenever you give  
7 an animal enough product to kill him, kill  
8 the animal, this occurs.

9 Q. In the next sentence Dr. von Oettingen  
10 notices, with respect to the liver, that the  
11 color changed or had modeled to a gray or  
12 yellow; is that correct?

13 A. He said -- yes. In three they were pale.

14 Q. "Diffuse pallor with moderate yellowness"?

15 A. Yes.

16 Q. In the next sentence he indicates that five  
17 of the six animals studied microscopically,  
18 the liver was -- had extensive hyaline  
19 necrosis?

20 A. Yes, sir.

21 Q. What is "necrosis"?

22 A. Death of tissue.

23 Q. Would that cause you some concern, as a  
24 scientist or medical director at Monsanto, if  
25 that was the result of one of your tests?

1 MR. BAUER: Object to the form.

2 A. Well, it was of interest. But here the man  
3 gave a material to kill the animal. It also  
4 showed that the liver was quite markedly  
5 involved in this particular experiment. And  
6 we knew -- of course, I never saw this while  
7 I was at Monsanto. But we knew that the  
8 liver was a target organ. And if you could  
9 give enough of the material, you can damage  
10 the liver.

11 Q. (By Mr. Kim) Would it have caused you some  
12 concern as to the chemical mechanism that  
13 produced these results in the human body  
14 while you were at Monsanto between 1946 and  
15 1974?

16 MR. BAUER: Object to the form.  
17 Calls for speculation.

18 A. Did you say in the human body? Would you  
19 repeat that again? I don't know -- exactly  
20 know how you've brought in the human body  
21 into this experiment.

22 MR. KIM: Can you read that back?  
23 Because I don't know what I said.

24

25 (The pending question was read

1 by the court reporter.)

2

3 A. These were rats, remember. They had nothing  
4 to do with -- I had no concern. There's  
5 nothing -- they did not extend to the human  
6 body. There was no experiment or no one  
7 showed any effects like this in the human  
8 body as a result of this experimentation.

9 We did know that the liver was the  
10 target organ in the animals. And that was  
11 not news to us. We knew that.

12 Q. (By Mr. Kim) Would results in animal studies  
13 have caused you to inquire as to what the  
14 human response would be to the same chemical?

15 MR. BAUER: Object to the form.  
16 Calls for speculation and incomplete  
17 hypothetical.

18 A. Well, it is -- it may be a very simple jump  
19 from animals to humans. It may be a pretty  
20 large jump from toxicological work on animals  
21 to humans. We did know that there were a few  
22 isolated cases in a heat transfer mechanism  
23 that caused a chemical hepatitis. So we knew  
24 that if you got too much of the stuff from  
25 breathing, you would get ill effects; and we

1           knew that that was probably the liver. So  
2           that's why we warned against breathing the  
3           material or having it absorbed from the skin.

4    Q.    (By Mr. Kim) During the time that you were  
5           the medical director at Monsanto between 1946  
6           and 1974, did you ever order or request any  
7           epidemiological studies be done on behalf of  
8           Monsanto concerning polychlorinated  
9           biphenyls?

10   A.    No, sir. You asked me that two days ago.  
11           The answer is the same.

12   Q.    Doctor, I'm sorry I'm being so laborious.

13   A.    That's all right.

14   Q.    But two days ago, I believe, the questions  
15           were being directed by Mr. Bauer.

16   A.    Well, you asked me, though. One day ago,  
17           then.

18   Q.    If you'll turn to Page 3 of the Dr. von  
19           Oettingen story -- excuse me -- study. At  
20           the very top, the first complete sentence, he  
21           notices that: "Microscopically the stomach  
22           of two animals presented typical hemorrhagic  
23           erosions of the mucosa" -- or micososa. What  
24           does that mean?

25   A.    It means that the lining of the stomach

1           showed bleeding and erosions, which are small  
2           ulcers.

3    Q.    Would the combination of the observations in  
4           the lungs, liver, and stomach give rise to  
5           considerations of systemic poisoning?

6    A.    No.  These are all local.  The lungs,  
7           remember I said, were due to the death -- the  
8           conditions that existed, the death that  
9           caused the swell -- the congestion in the  
10          lungs.  Certainly the situation in the  
11          stomach was local.  If you take paper remover  
12          and swallow it in your stomach and it stays  
13          in your stomach, you will get typical  
14          hemorrhagic erosions.  That's a local  
15          action.  It's not systemic.

16   Q.    How about the liver and the stomach?

17   A.    The liver was not local, no.  The liver is  
18          systemic.  But you said "liver and stomach"?

19   Q.    Yes.

20   A.    Stomach is still local.

21   Q.    Okay.  If you will turn to -- at the top it  
22          will be Page 5.  There you go.

23                    Doctor, I believe you told me that  
24                    it was your understanding that Inerteen  
25                    and -- what's the GE trade name? -- Pyranol

1           were composed of approximately 70 percent  
2           PCBs and 30 percent trichlorobenzene.

3                       MR. BAUER: Object to the form. I  
4           think you said one of them was. But --

5    A.    I'm not sure. Yes. I know that both  
6           Inerteen and Pyranol contained Monsanto's  
7           PCBs and somebody's trichlorobenzene. I do  
8           not know the exact ratio of the two  
9           components.

10   Q.    (By Mr. Kim) Certainly during the time  
11           period that Inerteen and Pyranol was marketed  
12           by Westinghouse and General Electric,  
13           respectively, Monsanto knew that its PCB  
14           product was being combined with  
15           trichlorobenzene. Is that a fair --

16   A.    It's a supposition; but I would imagine that  
17           it probably did, yes.

18   Q.    Did you know that while you were the medical  
19           director of Monsanto?

20   A.    Yes, I did. At some time. I don't know  
21           when.

22   Q.    Did you -- excuse me. Did the medical  
23           department under your direction between the  
24           years 1946 and 1974 ever request or order any  
25           testing to be done with respect to the

1 relationship between polychlorinated  
2 biphenyls and trichlorobenzene?

3 MR. BAUER: Objection. Vague as to  
4 what you mean by "the relationship."

5 A. I don't know what you mean by it, either.  
6 But --

7 Q. (By Mr. Kim) How about the chemical  
8 relationship between the two chemicals that  
9 were being used concomitantly in the  
10 dielectric fluids?

11 A. I don't know about Monsanto. I did -- that  
12 would not be in the medical department's  
13 purview.

14 Q. Did Monsanto's medical department under your  
15 direction in the same time frame ever order  
16 or request any testing be done with respect  
17 to the toxicological properties of  
18 trichlorobenzene?

19 A. Not trichlorobenzene per se. We ordered some  
20 work done both on Inerteen which contained  
21 trichlorobenzene and Pyranol which contained  
22 trichlorobenzene.

23 Q. Did Monsanto Chemical Company during the time  
24 that you were the medical director ever  
25 explore scientifically through testing the

1 synergistic possibilities of combining  
2 trichlorobenzene and polychlorinated  
3 biphenyls, that you're aware of?

4 A. Well, I think, as I said, if you test the  
5 material toxicologically, if you test it,  
6 it's got the same two component synergy  
7 testing. If there's any synergism in there,  
8 you're testing it.

9 Q. Did Monsanto Chemical Company under your  
10 direction between 1946 and 1974 ever test or  
11 order testing done with respect to how  
12 trichlorobenzene would metabolize within the  
13 human body?

14 A. No, sir, they did not. There was information  
15 about the toxicological effects of  
16 trichlorobenzene, and I don't know if there  
17 was information about the metabolism of it.

18 Q. What information were you aware of during the  
19 time period that you were medical director of  
20 Monsanto with respect to the toxicological  
21 properties of trichlorobenzene?

22 A. Well, I knew the oral toxicity of the  
23 material; and I knew that the material could  
24 be absorbed through the skin. It could be  
25 absorbed by breathing the vapors.

1 Q. Did it have a half-life?

2 A. I don't know.

3 Q. Do you know what --

4 A. I'm --

5 Q. Excuse me.

6 A. Do I know what?

7 Q. Do you know what the half-life is of  
8 polychlorinated biphenyls?

9 MR. BAUER: Objection.

10 A. Half-life where? In an animal? In a body?  
11 In a bucket?

12 Q. (By Mr. Kim) In a human.

13 A. No, I do not.

14 Q. On Page 5, at the bottom, of Dr. von  
15 Oettingen's report, he talked about path --  
16 the very last paragraph --

17 A. Yes, sir.

18 Q. -- where he talks about pathological  
19 examination: "...animals were treated with  
20 trichlorobenzene and which died spontaneously  
21 showed 4 passive congestion of the lungs and  
22 the liver; the stomachs were distended with  
23 food; in four some blood was present in the  
24 gastric contents and in one instance there  
25 was a hemorrhagic erosion of the mucosa." Is

1           that correct?

2     A.     You're reading it correctly, yes, sir.

3     Q.     In the next sentence, at the top of Page 6,  
4           he indicates that: "In two of the rats the  
5           liver showed irregular mottling."

6     A.     Yes, sir.

7     Q.     Again, can we agree that the concern of the  
8           liver would be one indication that might  
9           cause one to suspect systemic poisoning with  
10          respect to trichlorobenzene?

11    A.     From this experiment?

12    Q.     Yes, sir.

13    A.     No. If this was an acute -- I have to go  
14          back to see how long it took these animals to  
15          die after he gave them the material.

16    Q.     I believe spontaneously. I think it was  
17          acute, Doctor.

18    A.     Beg pardon?

19    Q.     I believe it was acute.

20    A.     Well, yes. I was thinking of how acute.  
21          From this it's hard to say whether or not --  
22          well, if they showed necrosis of the liver  
23          cells, that is very probably a systemic  
24          effect.

25    Q.     And in the very next sentence, indeed,

1 Dr. von Oettingen indicated that: "Liver  
2 sections of all animals showed necrosis of  
3 the liver cells around the central veins and  
4 those in the outer parts showed vascular  
5 [sic] degeneration."

6 A. Yes.

7 Q. That would indicate the possibility, at  
8 least, of systemic poisoning?

9 A. That's correct.

10 Q. At the bottom of Page 6, in the last  
11 paragraph, it says: "It appears, therefore,  
12 that Inerteen is considerably less toxic than  
13 trichlorobenzene."

14 A. That's what it says, yes, sir.

15 Q. Do you agree with that statement, based upon  
16 the knowledge that you have accumulated from  
17 1936 to present?

18 A. He's talking now about experiments in  
19 animals. It certainly is somewhat more  
20 toxic -- Inerteen is -- trichlorobenzene is  
21 somewhat more toxic than Inerteen. Inerteen  
22 has an LD<sub>50</sub> of 3 cc's per kilo, whereas the  
23 trichlorobenzene was two point one or  
24 something like that. Whether it's more toxic  
25 in actual use is not determined by this

1 particular --

2 Q. Did Monsanto --

3 A. -- compound --

4 Q. Oh, I'm sorry.

5 A. -- report.

6 Q. Did Monsanto Chemical Company under your

7 direction as medical director between the

8 years of 1946 and 1974 order any LD<sub>50</sub> tests

9 or toxic -- LD<sub>50</sub> tests to determine the LD<sub>50</sub>

10 of polychlorinated biphenyls when used in

11 combination with trichlorobenzene?

12 A. Yes.

13 Q. Who did those studies?

14 A. Younger Laboratories.

15 Q. And those are the Younger studies that you

16 discussed with Mr. Bauer --

17 A. Yes, sir.

18 Q. -- on Tuesday?

19 On Page 7 Dr. von Oettingen next

20 talks about, in the middle, the "Effect of

21 Application to the Skin"; is that correct?

22 A. Yes, sir.

23 Q. And at the very bottom of that page, it

24 says: "Upon pathological examination the

25 liver of all animals was found to be dark

1 gray brown in color with mottling on the  
2 surface. In those rats" -- at the top of  
3 Page 8 -- "which died spontaneously there was  
4 fatty degeneration of the liver cells with  
5 necrosis of those around the central veins";  
6 is that correct?

7 A. Yes, sir.

8 Q. Would that be indication to you of the  
9 possibility of systemic poisoning?

10 A. Yes, sir.

11 Q. The very last paragraph, underlined, states:  
12 "It appears, therefore" -- of that section.  
13 I'm sorry.

14 A. Oh, okay.

15 Q. On Page 8, just before the "Effect of  
16 Inhalation."

17 A. Uh-huh. Yes.

18 Q. "It appears, therefore, that the contact of  
19 Inerteen with the skin does not only cause  
20 local reaction such as dryness, thickening,  
21 and scaling of the skin, but also systemic  
22 effects as indicated by the injurious effect  
23 on the liver."

24 A. Yes, sir.

25 Q. Did Monsanto have this knowledge -- when did

1           Monsanto acquire this knowledge?

2                       MR. BAUER: Object to --

3   Q.    (By Mr. Kim) If you know.

4                       MR. BAUER: Object to the form as  
5           to what you mean by "this knowledge."

6   A.    Well, that's what I mean. This knowledge  
7           from this experiment or whether -- first time  
8           we knew that it could be absorbed through the  
9           skin?

10   Q.    (By Mr. Kim) Fair enough. When did it first  
11           learn that absorption through the skin may  
12           lead to systemic effects, as indicated by  
13           injuries on the liver in animal studies?

14   A.    Well, we didn't know that it -- absorption  
15           through the skin in humans had caused any  
16           liver damage in humans. I was convinced in  
17           my own mind that there was a possibility that  
18           the material can be absorbed through the skin  
19           and if absorbed through the skin, can cause  
20           liver damage. But I did not see any of -- I  
21           did not have any definitive information about  
22           that.

23   Q.    And you are talking about --

24   A.    -- humans.

25   Q.    -- to humans?

1 A. Uh-huh.

2 Q. There was a question in your mind as to  
3 whether the liver would be affected through  
4 absorption in the skin -- through the skin?

5 A. I was fairly sure it would. That's why we  
6 warned against it, against continuous or  
7 repeated skin application.

8 Q. But your warning never told them what would  
9 happen, did it?

10 MR. BAUER: Objection. Asked and  
11 answered.

12 A. No. It did not give the specifics.

13 Q. (By Mr. Kim) The very next section on  
14 Page 8, Doctor, is "Effects of Inhalation of  
15 Vapors."

16 A. Yes, sir.

17 Q. And again, we're talking about Inerteen; is  
18 that correct?

19 A. Well, let's see what he says. Yes. From  
20 Inerteen, right.

21 Q. And I don't have anything highlighted on my  
22 copy. So let's go to Page 10.

23 A. We're going to 10?

24 Q. Yes, sir.

25 A. Yes, sir.

1 Q. Actually, I lied again. Let's go to

2 Page 12 --

3 A. We're really moving.

4 Q. Uh-huh.

5 -- where at the end, under the

6 title of "Resume," middle of that

7 paragraph --

8 A. Yes, sir.

9 Q. -- he notes -- Dr. von Oettingen notes that:

10 "Fatal doses will cause passive congestion

11 of all viscera" -- "viscera" --

12 A. Well, wait. I'm a little confused on the

13 pages because --

14 Q. Oh, I'm sorry.

15 MR. FEATHERSTONE: What was the

16 page, John?

17 A. Because.

18 MR. KIM: It may be 13 or 12.

19 MR. FEATHERSTONE: Well, can you

20 read the number at the bottom? Our page

21 numbers are cut off.

22 MR. KIM: Yeah. GBRN003105.

23 A. Yeah. Okay.

24 Q. (By Mr. Kim) There we go. The middle of the

25 paragraph, under the heading "Resume" --

1 A. Yes, sir.

2 Q. -- towards the bottom, Dr. von Oettingen  
3 notes: "Fatal doses will cause passive  
4 congestion of all viscera, extensive  
5 degeneration of the liver, and ulceration of  
6 the gastric mucosa."

7 A. Yes, sir.

8 Q. And at the top of the next page --

9 A. Yes, sir.

10 Q. -- he notes that: "Continued application of  
11 Inerteen to the skin of rats and humans  
12 causes dryness of the skin, thickening and  
13 scaling; and the observation made in rats  
14 indicate that sufficient quantities may be  
15 absorbed through the skin to produce  
16 injurious effects on the liver."

17 A. Yes.

18 Q. Does that knowledge, if it had been acquired  
19 during the time period that you were medical  
20 director of Monsanto, cause you any concern  
21 from a medical or toxicological standpoint?

22 A. Well, I think --

23 MR. BAUER: Objection. Calls for  
24 speculation.

25 A. I think it reinforced what my opinion was.

1           The material could be absorbed through the  
2           skin. It could cause systemic illness.

3    Q.    (By Mr. Kim) Dr. von Oettingen made some  
4           recommendations with respect to the use of  
5           Inerteen, did he not? Or do you recall from  
6           your cursory review of the document?

7    A.    Beg pardon?

8    Q.    Do you recall?

9    A.    Well, I could read it.

10   Q.    Well, let's read it together, the second to  
11           the last page, at the very bottom, last  
12           paragraph, where Dr. von Oettingen notes:  
13           "In view of the hepatotoxic action of this  
14           compound, individuals suffering from injuries  
15           of the liver, syphilis, and hearing  
16           diseases" -- at the top of the next page --  
17           "should be excluded from operations in which  
18           Inerteen is handled." Did I read that  
19           correctly?

20   A.    Yes. That's what he says.

21   Q.    Based upon the knowledge that you have  
22           accumulated up until today, do you dispute  
23           that finding by Dr. von Oettingen, or  
24           recommendation?

25   A.    Well, Dr. von Oettingen is writing about all

1           sorts of exposures. What Monsanto's  
2           situation was and the -- and the material we  
3           furnished our customers when we manufactured  
4           Inerteen for Westinghouse was that we told  
5           them how to prevent illnesses. And even if a  
6           person did have syphilis, if he didn't get  
7           any -- a lot of exposure, it were not going  
8           to bother him.

9       Q.   Do you know if Monsanto in its hiring  
10           practice -- and you may not know -- screened  
11           its employees that would be exposed to  
12           polychlorinated biphenyls for preexisting  
13           liver, syphilis, or hearing diseases?

14    A.   In the early days, we screened -- we ran  
15           Wassermann tests on all preemployment  
16           individuals. Later that became an invasion  
17           of privacy, and I believe we had to  
18           discontinue it.

19    Q.   When it was discontinued -- approximately  
20           when was that, if you have a recollection --  
21           recollection?

22    A.   Oh, gosh. I think it was a time when  
23           syphilis fell off a great deal. There was  
24           not much around. Now, of course, it's up  
25           again.

1 Q. Did you tell prospective applicants that they  
2 would be working around polychlorinated  
3 biphenyls and that if they had a preexisting  
4 liver, syphilis, or hearing disease, it may  
5 not be beneficial to work in that  
6 environment?

7 A. No, we did not.

8 Q. Doctor --

9 A. I saw no reason for that because they weren't  
10 going to get harmed by working in our  
11 environment.

12 Q. You also had an opportunity to review two  
13 other documents that we have marked as your  
14 Deposition Exhibits No. 40 and 41; is that  
15 correct?

16 A. Yes, sir.

17 Q. Did you have an opportunity to review those  
18 documents while you were employed at  
19 Monsanto?

20 A. No, sir, I did not.

21 Q. Have you ever reviewed those documents prior  
22 to today?

23 A. I've seen them. I don't really -- didn't go  
24 over them with a fine-toothed comb. But  
25 I've -- I read the resumes and the summary.

1 Q. Do you know either Dr. Fleming or Dr. Read?

2 A. I know Fleming. He was assistant at Haskell,  
3 and he eventually became medical director of  
4 DuPont.

5 MR. CAILTEUX: John, can we have  
6 Exhibits 40 and 41 identified for the record  
7 since we don't have copies?

8 MR. KIM: Sure. 40 is, I believe,  
9 an article titled, "The Toxicology of  
10 Inerteen and Related Substances Including a  
11 Method of Analysis for Halogenated  
12 Hydrocarbons in the Air," by A. J. Fleming,  
13 M.D.

14 41 is "The Effect of Inerteen and  
15 Several Related Substances Upon the White  
16 Rat." Oh, excuse me. By Dr. W. T. Read,  
17 R-e-a-d, Jr.

18 Q. (By Mr. Kim) Dr. Kelly, I think we can both  
19 agree -- or we may not be able to agree --  
20 that both these doctors indicated effects  
21 upon the liver; is that correct?

22 A. Well, let's be sure.

23 Q. With respect to the Fleming study, turn to  
24 the page that is Bates stamped No. 300024.

25 A. I have it.

1 Q. At the very top, first full sentence,  
2 Dr. Fleming indicates that: "Weakness and  
3 stupor generally supervened within a few  
4 hours until the animals could no longer rise  
5 for food and water."

6 That is an indication of fatigue or  
7 weakness, is it not?

8 A. No. It's -- the animal is being  
9 anesthetized, it looks like.

10 Q. With -- excuse me. On the previous page he  
11 talks about the procedure. It was the oral  
12 administration of Inerteen.

13 A. Yes, sir.

14 Q. Is it your testimony that your interpretation  
15 of this is that the rats were being  
16 anesthetized with Inerteen?

17 A. There were -- well, it was the action of an  
18 anesthetic. They became stuporous, and they  
19 couldn't eat or couldn't get up.

20 Q. Okay. The next sentence indicated that:  
21 "Liquids were taken, however, if  
22 administered and for a few minutes following  
23 administration the animals perked up a bit.  
24 The improvement was only temporary and the  
25 outcome, when they had thus far progressed,

1           was invariably fatal."

2     A.     Yes, sir.

3     Q.     And that's through the repeated doses of  
4           Inerteen, as you understand based upon your  
5           review of this document?

6     A.     Well, they were to -- they were really given  
7           the doses -- "Two died after the second  
8           treatment." So that wasn't a lot of  
9           repeated -- "5 were killed for autopsy...24  
10          hours after the last treatment." And another  
11          set of them, one died after one treatment,  
12          three after two, and four after the third.  
13          So that's pretty acute doses.

14    Q.     Not that repetitive, then?

15    A.     Beg pardon?

16    Q.     The doses were not that repetitive?

17    A.     Well, they were repetitive. They had four of  
18          them, obviously. But that's in a -- it  
19          doesn't say how long it took him to give  
20          those doses, whether he gave it once a -- I  
21          can't see here how fast they gave the doses.  
22          But that's -- that's a pretty acute study  
23          anyway, no matter how you cut it.

24    Q.     The effect of repeated doses, would that have  
25          given rise to questions when you were the

1           medical director of Monsanto as to the  
2           chronic effects of chronic exposure to  
3           polychlorinated biphenyls?

4    A.    No, sir, not in this --

5    Q.    The next --

6    A.    -- case.

7    Q.    -- study, which is -- or report, which has  
8           been labeled as your Deposition Exhibit  
9           No. 41, on the Page No. 4 --

10   A.    Yes, sir. I have it.

11   Q.    -- it indicates that: "The pathology  
12           resulting from oral ingestion of Inerteen  
13           (was) fairly consistent and obvious.

14                       "Large doses which (were) lethal in  
15           one or two days cause a terminal passive  
16           congestion of the viscera, extensive  
17           degeneration of the liver with necrosis about  
18           the central veins and locally ulcerations of  
19           the gastric mucosa."

20   A.    Yes, sir. You've read that correctly.

21   Q.    Would that be an indication to you of  
22           possible systemic poisoning, based upon your  
23           experiences that you have developed over the  
24           years?

25   A.    What you -- I didn't hear the middle of your

1 question.

2 Q. Based upon the experience and knowledge that  
3 you have gained over the years, would this be  
4 an indication to you of possible systemic  
5 poisoning?

6 MR. BAUER: Object to the form.

7 Calls for speculation.

8 A. No. This was really an acute dose and --  
9 that killed the animals from this dose. So  
10 certainly if you kill an animal, it's  
11 systemic. So in that sense it shows that you  
12 could kill an animal if you give enough  
13 Inerteen to it.

14 Q. (By Mr. Kim) Doctor, I believe you testified  
15 earlier that you had requested some patch  
16 testing to be done by the Barnard Free  
17 Scanning Cancer Hospital.

18 A. Yes, sir.

19 Q. Is that correct?

20 A. Yes, sir.

21 Q. Do you have a recollection of approximately  
22 when that was? Late 1940's?

23 A. I can't -- I just would be guessing.

24 Q. Did Monsanto pay for that study?

25 A. Yes, they did.

1 Q. Did Monsanto provide the Aroclors that were  
2 to be tested?

3 A. Yes.

4 Q. Did Monsanto provide the Aroclors to be  
5 tested in the Younger studies?

6 A. Yes.

7 Q. The Scientific Laboratory studies?

8 A. Scientific Associates, yes.

9 Q. The Industrial Bio-Test studies?

10 A. Yes.

11 Q. Monsanto also provided the chlorinated  
12 diphenyls in the Drinker studies, the second  
13 Drinker study?

14 A. Yes.

15 Q. Do you know if Monsanto in its manufacture of  
16 PCBs produced or prepared PCBs of higher  
17 purity than the commercial grade supplied in  
18 the bulk -- in bulk to its industrial  
19 customers?

20 A. Say that over.

21 Q. Did Monsanto prepare different grades in  
22 terms of purification of PCBs?

23 A. There may have been research samples of --  
24 that they tried to do some purification, yes.

25 Q. Were microscope immersion oils especially

1 purified?

2 A. Were what?

3 Q. Microscope -- microscopic immersion oils that  
4 comprised a part of the polychlorinated  
5 biphenyls specially prepared?

6 MR. BAUER: Objection.

7 A. Microscopic immersion oil?

8 Q. (By Mr. Kim) If you don't understand or you  
9 don't know, just tell me.

10 A. I don't know.

11 Q. Who selected the samples for research  
12 purposes?

13 A. I don't know that. The research people did.

14 Q. Who would be responsible for sending the  
15 samples from Monsanto to the various testing  
16 facilities?

17 MR. BAUER: You're talking about  
18 toxicological testing?

19 MR. KIM: Yes. The tests we've  
20 discussed: Drinker, Younger, Scientific,  
21 Barnard Free Scan, Industrial Bio-Test.

22 A. I would call the Anniston plant and say,  
23 "Send me" -- "send this particular  
24 laboratory X-amount of your product." I  
25 would not call the research department.

- 1 Q. (By Mr. Kim) They would spend -- send you a  
2 small sample that you could send on to the  
3 testing facilities?
- 4 A. They would either send it directly to Drinker  
5 or they would send me a quart of the stuff  
6 and I'd send it on. I don't know how it  
7 went.
- 8 Q. Was there any control procedure which would  
9 identify whether it was a commercial grade  
10 PCB or a PCB that had been somewhat purified  
11 for research purposes?
- 12 A. Well, I know it was run-of-the-mill  
13 production grade because that's what I told  
14 them to send. I didn't talk to the research  
15 people to send it. I talked to the  
16 production people to send it.
- 17 Q. Did you ever verify that it was sent, the --
- 18 A. Well, they got it.
- 19 Q. -- the commercial grade?
- 20 A. Beg pardon?
- 21 Q. Did you ever yourself verify what grade of  
22 PCB was actually sent to the testing  
23 facility?
- 24 A. No, sir, I did not. And I --
- 25 Q. Do you know if anyone ever did?

1 A. Beg pardon?

2 Q. Do you know if anyone at Monsanto did?

3 A. I'm sure the man that sent it knew it.

4 Q. Was there --

5 A. Verified it.

6 Q. Excuse me, Doctor. Was there ever a record  
7 kept at Monsanto Chemical Company of the  
8 particular grade of polychlorinated biphenyl  
9 sent to the research laboratories?

10 MR. BAUER: Objection. Compound.

11 A. Now, we're back on the research. We're not  
12 back on the -- what are we talking about?

13 Whose research laboratories? The  
14 toxicological researchers -- research  
15 laboratories or Monsanto research  
16 laboratories?

17 Q. (By Mr. Kim) Well, as I understand, Monsanto  
18 didn't have any research laboratories until  
19 sometime after 1974.

20 A. Yes. But we're talking all along here about  
21 research. We've got other kinds of research  
22 besides toxicological research.

23 Q. Fair enough. I'm talking in particular about  
24 the samples sent to the various contractors  
25 that you hired to do the studies for you,

1           such as the Younger Brothers, the Scientific  
2           Laboratories, Industrial Bio-Test, Drinker,  
3           Barnard Free Scan and Cancer Hospital. Would  
4           there have been a record kept as to the grade  
5           or purity of the PCB fluid sent to these  
6           facilities?

7                         MR. BAUER: Object to the form.

8    A.    The person who sent the material from our  
9           manufacturing installation would have a  
10          record of what particular lot number it was.  
11          What was done as far as the specifications on  
12          that particular lot number, I don't know.  
13          But we certainly had specifications on all  
14          our production runs, and we picked this out  
15          of the middle of a production run. So we had  
16          the specification. Where that record was  
17          kept, I don't know.

18   Q.    (By Mr. Kim) Do you know --

19   A.    I didn't have it.

20   Q.    -- if a record was kept?

21   A.    What?

22   Q.    Do you know if a record was kept or if they  
23          would just pull it and send it?

24   A.    Well, if they're pulling it out of a  
25          particular run, they had a record on the

1           run. They obviously had a record on what  
2           they pulled out of it.

3    Q.   Do you know who would have sent the samples  
4           to Industrial Bio-Test?

5    A.   Somebody at the Anniston plant. I don't know  
6           the name.

7    Q.   How about --

8    A.   The manufacturer's superintendent would be  
9           the one.

10   Q.   Do you have a recollection of who that was?

11   A.   No, I don't.

12   Q.   Okay. Do you have a recollection of who  
13           would have sent the samples to Dr. Kimbrough?

14                   MR. BAUER: Object to the form.

15   A.   I don't know if that came out of St. Louis or  
16           direct to -- from the plant. I don't -- I  
17           don't know the answer to that.

18   Q.   (By Mr. Kim) We've talked about various  
19           people; but Monsanto did send some PCB fluids  
20           to Dr. Kimbrough, as well?

21   A.   Oh, yes.

22   Q.   Who would have known about the existence of  
23           the purified PCBs?

24                   MR. BAUER: Object to the -- object  
25           to the form. All he said was there might

1           have been some efforts in the research  
2           department.

3     Q.     (By Mr. Kim) Well, let's back up, then.

4                       Were there some forms of purified  
5           PCBs for research purposes while you were the  
6           medical director of Monsanto?

7     A.     There may have been. I did not see them.

8     Q.     Do you know if they had been done who would  
9           have prepared them?

10                    MR. BAUER: Object to the form.

11    Q.     (By Mr. Kim) What department?

12    A.     Presumably the research department of the  
13           organic division of the Monsanto Company.

14    Q.     Was Aroclor 1016 ever purified?

15    A.     I don't know. And I don't know what you mean  
16           by "purified."

17    Q.     You don't understand the mechanism that  
18           Monsanto might have employed if it purified  
19           its PCBs for research purposes?

20                    MR. BAUER: Objection. Vague as to  
21           what you mean by "purified."

22    A.     You are jumping back and forth between a  
23           research product and 1016. 1016 was a sales  
24           item late in the -- in the Seventies.

25    Q.     (By Mr. Kim) Was Aroclor 1016 ever altered

1 in terms --

2 A. Ever which?

3 Q. Altered in terms of its commercial grade?

4 A. Altered by whom and altered in what way?

5 Q. By Monsanto chemically.

6 A. In its commercial -- well, I think they were  
7 always striving to improve it.

8 Q. What department would be responsible for that  
9 effort?

10 A. Still the manufacturing department of organic  
11 division.

12 Q. You told me yesterday that it was your  
13 opinion that you learned about the existence  
14 of polychlorinated dibenzofurans for the  
15 first time in the late Sixties or early  
16 Seventies.

17 A. Certainly, yes.

18 Q. Do you know if Monsanto as a company had any  
19 prior knowledge of the existence of furans as  
20 a contaminant in its PCB products?

21 A. Prior to when?

22 Q. To 1968.

23 A. To my knowledge --

24 Q. Late Sixties, Seventies.

25 A. -- I never knew that they did.

1 Q. We can agree that furans are more toxic than  
2 PCBs?

3 A. Yes. No question about it.

4 Q. I think we used salt as an example  
5 yesterday. If we put salt at one end of the  
6 spectrum and furans at the other end of the  
7 spectrum, PCBs would fall somewhere in  
8 between?

9 MR. BAUER: Object to the form.  
10 Vague as to whether you mean acute basis,  
11 chronic basis, what you're talking about.

12 A. Well, certainly salt is a household  
13 condiment. Furans and PCBs are not.

14 Q. (By Mr. Kim) Well, you can --

15 A. But they are -- I would say that PCBs are  
16 closer to furans than they are to salt. I  
17 don't know how much closer.

18 Q. Sure. Let's continue to use these three  
19 examples.

20 If you boil salt in the preparation  
21 of foods, the vapors from that are not toxic  
22 in an acute --

23 A. That's correct.

24 Q. Do you have the same opinion if PCBs are  
25 brought to a boiling temperature?

1 A. No.

2 MR. BAUER: Object to the form.

3 What's the dose?

4 A. If PCBs are brought to a boiling temperature  
5 and you inhale the vapors, that can -- could  
6 be harmful because the vapors can be toxic --

7 Q. (By Mr. Kim) A table --

8 A. -- at elevated temperatures.

9 Q. If you -- if you bring a tablespoon of PCBs  
10 to boiling temperature, the vapors could be  
11 harmful?

12 A. No, they couldn't. That's not enough to -- a  
13 tablespoonful? No, I don't think so.

14 Q. How about a tablespoon of furans?

15 A. Yes, I think so.

16 Q. If someone told you that PCBs and table salt  
17 were equivalent in terms of toxicity in human  
18 health effects, would you dispute that  
19 statement?

20 MR. BAUER: Object -- object --

21 A. I'd laugh at them.

22 MR. BAUER: Object to the form.

23 Are we talking about acute toxicity, LD<sub>50</sub>; or  
24 are we talking about chronic toxicity?

25 Q. (By Mr. Kim) You can answer.

1 A. What was the question again?

2 Q. If someone represented to you that PCBs and  
3 table salt posed the same toxicity and health  
4 concerns, how would you respond?

5 MR. BAUER: Same objections.

6 A. I would say that PCBs -- I would have more  
7 concern over a person being exposed to PCBs  
8 than exposed to salt. I would also say that  
9 if they were exposed to a sufficient amount  
10 of salt, the salt could be harmful.

11 Q. (By Mr. Kim) If -- would you make such a  
12 statement based upon the knowledge that you  
13 have acquired over the years concerning PCBs?

14 A. What's the statement?

15 Q. That PCBs and table salt are of equal toxic  
16 values.

17 A. No, I would not. And I don't think anybody  
18 from Monsanto ever did, either.

19 Q. If someone from Monsanto did, it would be a  
20 gross misrepresentation, wouldn't it?

21 MR. BAUER: Object. Objection.

22 It's argumentative. And you're talking about  
23 an acute basis or chronic basis? You're not  
24 providing him with -- well, strike that.

25 Q. (By Mr. Kim) You can answer my question.

1 A. If someone made a statement saying that PCBs  
2 and salt were equivalent in toxicity, the  
3 statement made by somebody from Monsanto?

4 Q. That would be a misrepresentation?

5 A. It wouldn't be a misrepresentation. It would  
6 be an error on his part -- his or her part.

7 Q. It would be false?

8 A. Beg pardon?

9 Q. They would be wrong?

10 A. Yes. Wrong in the sense it would not be  
11 scientifically correct or medically correct.

12 Q. And if they had the same type of knowledge  
13 that you had had as the medical director of  
14 Monsanto Chemical Company from 1946 to 1974  
15 and made that statement, it would be a lie?

16 MR. BAUER: Object to the form.

17 It's argumentative. And the statement is now  
18 is -- is --

19 A. I can't answer that.

20 MR. BAUER: -- concerns?

21 A. If somebody knew as much as I did -- why  
22 don't you say if I made that statement, it  
23 would be a -- it would be wrong, it would be  
24 lying. I wouldn't do it in the first place.

25 Q. (By Mr. Kim) But if you did, it would be a

1 lie?

2 MR. BAUER: Object to the form.

3 A. It certainly -- I don't like the term "a lie"  
4 because I don't know in what circumstances  
5 somebody may make that statement. If  
6 somebody would say, "Does PCBs have  
7 toxicity? Does salt have toxicity," even  
8 with all my knowledge from being a medical  
9 director from 1937 to 1974 --

10 Q. (By Mr. Kim) How about -- I'm sorry,  
11 Doctor.

12 A. -- I would say they both have toxicities.  
13 But we do not equate the toxicity of salt. I  
14 would never equate the toxicity of salt with  
15 the toxicity of PCBs.

16 Q. You certainly never would have done so in a  
17 press release?

18 A. I don't know what I would have done in a  
19 press release, but I would -- I don't believe  
20 I would, no. I know I wouldn't.

21 Q. Because it would be a misrepresentation?

22 MR. BAUER: Objection.

23 Argumentative.

24 Q. (By Mr. Kim) Based upon your knowledge.

25 A. I don't --

1                   MR. KIM: Put the camera on Scott  
2                   for a while, too.

3     A.     I don't know exactly what you mean by "a  
4             misrepresentation." Does that mean that you  
5             think I'm trying to deceive somebody? Maybe  
6             I had temporary insanity at that time, why I  
7             would have done it. I don't know what the  
8             reason would -- might be, but I cannot  
9             conceive of a reason of me doing it. And I  
10            also cannot see myself misrepresenting  
11            anything.

12    Q.     If a corporate --

13    A.     So I --

14    Q.     I'm sorry.

15    A.     So I find it hard to answer your question.

16    Q.     I understand. Assume with me that Monsanto  
17             makes this representation that PCBs are no  
18             more harmful than a tablespoon of table  
19             salt.

20                   MR. BAUER: No more harmful on any  
21                   basis?

22                   MR. KIM: Okay.

23                   MR. BAUER: Is that --

24    Q.     (By Mr. Kim) Do you understand what I'm  
25             saying, Doctor?

1 A. Well, there are a lot of parameters that you  
2 have not explained.

3 Q. Any basis. Acute through vaporization  
4 through heating --

5 A. Through injection --

6 Q. -- and through chronic exposure.

7 A. Through injection into your vein?

8 Q. Sure. Injection into your vein.

9 A. Concentrated salt solution?

10 Q. Table salt.

11 A. Yeah. If they did what, now?

12 Q. Are you -- let's start with injections. If  
13 you inject salt and you inject PCBs, which is  
14 more toxic?

15 A. PCBs.

16 Q. Okay.

17 A. In equal amounts.

18 Q. In equal amounts. Is there any situation  
19 that you have just described in which you  
20 would say table salt in equal amounts is more  
21 toxic than PCBs?

22 A. No, sir.

23

24 (Discussion off the record.)

25

1 THE VIDEOGRAPHER: We're going off  
2 the record. It's 55 minutes after 10:00.  
3 This is the end of Tape No. 6.

4  
5 (A recess was taken.)

6  
7 THE VIDEOGRAPHER: It's 11 minutes  
8 after 11:00 o'clock. This is the beginning  
9 of Tape No. 7. We're back on the record.

10 Q. (By Mr. Kim) Doctor, when we last left, we  
11 were talking about comparisons between PCBs  
12 and table salt.

13 A. Yes, sir.

14 Q. If I were to say to you that PCBs are  
15 considered only mildly toxic on an acute  
16 basis when ingested by humans, about on the  
17 same order as common table salt, how would --  
18 what would your reaction to that statement  
19 be?

20 MR. BAUER: Object to the form.

21 A. It all depends on the -- on the rest of your  
22 statement. It all depends on if you have any  
23 qualifying -- qualifications in that.

24 Q. (By Mr. Kim) What if I qualified it by  
25 saying that in my opinion, PCBs are not human

1 cancer causing agents and they are not deadly  
2 toxins and then I made that statement?

3 MR. BAUER: Object to the form.

4 A. That's still -- I'll have to break that  
5 down. Certainly, they are not human  
6 carcinogens. They have not been proven to be  
7 human carcinogens. I don't know -- I don't  
8 know what whoever -- if you were making that  
9 statement, what you were -- how you were  
10 qualifying "deadly." If you were saying to  
11 use in the gas chambers, it certainly isn't  
12 deadly in that sense. I think you'd have to  
13 qualify the "deadly."

14 Q. (By Mr. Kim) How about if we qualify the  
15 exposure to that mode of ingestion in humans?

16 A. From an acute point of view? Or are we  
17 comparing this now from an acute point of  
18 view what is the LD<sub>50</sub> of salt and what is the  
19 LD<sub>50</sub> of PCBs? Is that what we're comparing?

20 Q. Well, let's start there. Yes.

21 A. Yes. The LD<sub>50</sub> of salt is approximately four  
22 point zero. The LD<sub>50</sub> of PCBs is  
23 approximately three point one to three point  
24 five. So from that particular point of view,  
25 it is somewhat more toxic than salt. The

1           lower the number, obviously, the more toxic  
2           it is.

3     Q.     What if I made that representation, that PCBs  
4           are considered only mildly toxic on an acute  
5           basis when ingested by humans, about on the  
6           same order as common table salt, without any  
7           qualifications?

8                     MR. BAUER:   Object to the form.

9     A.     You are saying in the first place, PCBs when  
10            ingested by humans on an acute basis shows  
11            the same --

12                    MR. BAUER:   Well, let him re --

13                    THE WITNESS:  Oh.

14                    MR. BAUER:   Let him restate the  
15            question.

16                    THE WITNESS:  Well, I was trying  
17            to.

18     Q.     (By Mr. Kim)  My statement is -- that I'm  
19            asking you about is if the statement is made  
20            without any qualifications that PCBs are  
21            considered only mildly toxic on an acute  
22            basis when ingested by humans, about on the  
23            same order as common table salt, do you  
24            believe that that is a full and accurate  
25            description without any other qualifiers?

1 MR. BAUER: Object to the form.  
2 Specifically vague as to what you mean by "on  
3 the same order."

4 A. The last part of your sentence was, is that a  
5 full -- without any qualifications, what was  
6 the add -- I mean, I get confused when I get  
7 in the byplay.

8 Would you repeat it?

9 MR. KIM: Yeah, would you? I'd  
10 like to -- then you can have your objection.

11 MR. BAUER: Same objections.

12

13 (The pending question was read  
14 by the court reporter.)

15

16 A. Well, it depends on what is in the rest of  
17 the statement, if that is a statement, if  
18 that's all there is. That's it? You're not  
19 picking this out of a report or anything  
20 else?

21 Q. (By Mr. Kim) If that's all there is.

22 A. Do I believe --

23 Q. -- that that is a fair and accurate  
24 representation?

25 A. It's a fair and accurate representation of

1           the acute lethal dose. That's about all I  
2           can say about it.

3     Q.     As the medical director of Monsanto between  
4           1946 and 1974, would you have made such a  
5           representation nakedly to the public?

6                     MR. BAUER: Objection. Calls for  
7           speculation.

8     A.     If I were asked to make such a represent --  
9           statement, I would certainly have included  
10          some more information.

11    Q.     (By Mr. Kim) For instance, you can ingest  
12          table salt over a longer period of time than  
13          you could PCBs?

14    A.     Over -- yes. But we're not talking about the  
15          statement. We're talking about acute  
16          episodes right now.

17    Q.     Right. Absolutely. But those -- that would  
18          be one thing that you would consider?

19    A.     Yes.

20    Q.     Would be the length of exposure?

21    A.     Yes.

22    Q.     The rate of exposure?

23    A.     If I were making a statement about the  
24          general toxicity of PCBs. But for some  
25          reason, I was supposed to make a statement

1           about the acute toxicity of the material.  
2           That's -- that was the statement you asked me  
3           if I would make. And I said I would have to  
4           make not qualifications, but there would be  
5           other material that I would have added to  
6           that statement.

7    Q.    Doctor, with respect to your responsibilities  
8           as the medical director of Monsanto, did you  
9           review press releases that may have been sent  
10          out by Monsanto containing the toxicological  
11          effects of PCBs during your time period?

12                   MR. BAUER:  Objection.  Assumes  
13          that -- well, assumes facts not in evidence.

14   A.    Frankly, I don't remember many press releases  
15          being sent out while I was at Monsanto  
16          regarding toxicological information.

17   Q.    (By Mr. Kim)  How about --

18   A.    If you mean by a press release to --

19   Q.    Like newspapers.

20   A.    -- like, Associated Press?

21   Q.    Yeah.  How about notes to editors of  
22          newspapers?

23                   MR. BAUER:  Is that a question?

24   A.    By the company or by individuals of the  
25          company?  I mean, somebody --

1 Q. (By Mr. Kim) Let's start with the company  
2 first.

3 A. I'm sure we're not --

4 MR. BAUER: Objection. Vague. I  
5 don't know what the question is.

6 A. Did I review them?

7 Q. (By Mr. Kim) (Nods head.)

8 A. No, I didn't review them; but I would -- I  
9 would -- it would be my impression that the  
10 company would check with me if they were  
11 talking about toxicological information.

12 Q. And if an individual in your department sent  
13 such a letter to an editor, you would have  
14 reviewed that, as well?

15 A. Yes.

16 Q. Or someone in your department would?

17 MR. BAUER: Object to the form.  
18 Calls for speculation.

19 MR. KIM: Here you go, Scott.

20 THE WITNESS: Well, do I answer it?

21 MR. KIM: You don't need to throw  
22 this at me.

23 THE WITNESS: Do I answer the  
24 speculation?

25 MR. BAUER: John, I move to strike

1 the characterization --

2 MR. KIM: There's no -- there's no  
3 speculative objection here now.

4 Q. (By Mr. Kim) My question, Dr. Kelly, is  
5 simply if during the time period that you  
6 were medical director, if an individual in  
7 your department were to write a letter to  
8 news editors concerning the health hazards  
9 and toxicological properties of PCBs, would  
10 that have come under your review?

11 MR. BAUER: Object to the form.  
12 Calls for speculation.

13 A. It might, and it might not.

14 Q. (By Mr. Kim) In what instances would it not?

15 A. They could have written it, and I'd be in  
16 Europe.

17 Q. It would still come under your direction,  
18 though, whether you were in Europe, whether  
19 you were in Timbuktu. As the director of the  
20 medical department, it would have been your  
21 responsibility ultimately?

22 MR. BAUER: Object to the form.  
23 Calls for speculation.

24 A. Unless I were -- unless we had talked over  
25 what the gist of the letter was going to be.

1 Q. (By Mr. Kim) We talked about earlier in  
2 comparing the table salt to PCBs and furans.  
3 My question now to you would be if you can  
4 quantify in terms of magnitude, based upon  
5 your education and experience, how much more  
6 toxic furans are than PCBs.

7 A. I think the commonly accepted ratio is that  
8 furans are probably 500 to 1,000 times more  
9 toxic than PCBs. Some furans and some PCBs.  
10 I mean, there are probably 125 different  
11 furans or 100 different furans. There's  
12 some -- there's a wide divergence of the  
13 toxicity of some of them.

14 Q. I believe yesterday we talked about one furan  
15 which was named chlorinated diphenylene  
16 oxide?

17 A. Yes.

18 Q. Do you have an opinion as on an order of  
19 magnitude how much more toxic chlorinated  
20 diphenylene oxide is than polychlorinated  
21 biphenyls?

22 A. Well, it depends on --

23 MR. BAUER: Go ahead, Dr. Kelly.

24 A. It depends on where the chlorines are. It  
25 would vary depending on the structural

1           formulation of the chlorines.

2       Q.    (By Mr. Kim) Can we agree, at least for  
3           general purposes, that it would be more toxic  
4           than PCBs?

5       A.    Generally I would say "yes."

6       Q.    Can we agree that if -- if a manufacturer  
7           knew of the presence of furans as a  
8           contaminant in its PCB product, it should  
9           also warn about the presence of furans on the  
10          labels and product literature?

11      A.    No.

12      Q.    So if Monsanto knew that its PCB dielectric  
13           fluids may be contaminated with trace amounts  
14           of furans in 1956, it is your testimony that  
15           it would not be necessary to warn about the  
16           presence of such on the warnings and labels?

17      A.    Not if you knew the toxicity of the entire  
18           product. We knew the entire toxicity of the  
19           product. Our safe handling data and  
20           cautionary statements reflected the toxicity  
21           of the PCBs with whatever furans were in  
22           there, if there were any at all in there. In  
23           1956 we had no knowledge that there were  
24           any. We couldn't look for them. We couldn't  
25           look that low.

1 Q. Could you measure these furans to 1 part per  
2 million?

3 A. No, sir.

4 Q. When did Mr. Elmer Wheeler come to Monsanto,  
5 if you recall?

6 A. I think '47. Around that. '47, '48.

7 Q. Did you hire him?

8 A. Yes.

9 Q. And he worked under your direction --

10 A. Yes.

11 Q. -- in the medical department?

12 A. Yes, he did.

13 Q. Doctor, do you recall a Dr. Louis Spolyar?

14 A. Spolyar?

15 Q. Spolyar.

16 A. Yes.

17 Q. Of industrial -- at Indiana?

18 A. Yes.

19 MR. KIM: These are different.

20 MS. WELDON: 17 is what you want.

21 Sorry.

22 Q. (By Mr. Kim) Let me show you what we'll mark  
23 as your Deposition Exhibit No. 42.

24

25 (An instrument was marked Kelly

1                   Exhibit No. 42 for identification.)

2

3                   MR. BAUER: May I see it first,  
4                   please?

5                   MR. KIM: Sure.

6     A.     Yes, sir.

7     Q.     (By Mr. Kim) That is at least your name and  
8                   title at the bottom of the page?

9     A.     Yes, this is my letter.

10    Q.     You wrote it?

11    A.     Yes. I recognize by the secretary's  
12                   initials, Rose Guio. She was my secretary at  
13                   that time.

14    Q.     Is this a copy?

15    A.     Beg pardon?

16    Q.     Is this a copy of that letter, a file copy?

17    A.     I don't know whether -- where it came from.  
18                   I mean, this appears to be the letter I  
19                   wrote.

20    Q.     My question is: Would it have had Monsanto  
21                   letterhead when you sent it?

22    A.     Oh, yes, when it went out.

23    Q.     Yes.

24    A.     Certainly it would be on Monsanto stationery.

25    Q.     And I'm just curious as to the absence of any

1 designation of Monsanto Chemical Company in  
2 the letterhead. Was there a practice where  
3 the copies would not have such designation?

4 MR. BAUER: In the carbon copy  
5 days, we're talking?

6 A. Yes. Carbon copy days, when we had carbon  
7 copies.

8 Q. (By Mr. Kim) But there is no doubt in your  
9 mind that this went out on Monsanto --

10 A. Oh, no question about it.

11 Q. -- letterhead?

12 A. I said it. It went out on Monsanto  
13 stationery.

14 Q. Do you have a recollection of why you  
15 responded -- or sent this letter to  
16 Dr. Spolyar in February of 1950?

17 A. Yes.

18 Q. And what is that?

19 A. Somebody must have asked me to send him  
20 information.

21 Q. You did not voluntarily just send him this  
22 letter? It was in response to a request?

23 A. I don't believe I voluntarily, out of the  
24 blue, sent him this letter, no.

25 Q. At that point in time, as noted by the last

1 sentence of the second paragraph, you  
2 suspected the possibility existed that  
3 Aroclor fumes might cause liver damage; is  
4 that correct?

5 A. Not cause liver damage?

6 Q. Might have caused liver damage.

7 A. Oh, "might have." Yes, certainly.

8 Q. In what concentrations?

9 A. I don't think that was documented at that  
10 time when we didn't know what concentration  
11 it was, but at elevated temperatures.

12 Q. Over how long a period of time?

13 A. Depends on how elevated the concentration  
14 was.

15 Q. You would believe that -- you would agree  
16 with me that those are two considerations  
17 that are important in determining the  
18 toxicity of exposure to PCBs?

19 A. Or the hazard of it.

20 Q. Or the hazard of it.

21 A. Right.

22 Q. Did you in subsequent letters follow up with  
23 Dr. Spolyar as you gained new information  
24 about length of exposure and rate of  
25 exposure?

- 1     A.     He wrote it up in a journal, and I was never  
2            able to -- I saw the reprint. It was, like,  
3            in the Indiana State Medical Association  
4            Journal; and I saw it. But he did not have  
5            documented -- documentation as to how  
6            elevated the concentration was. But I don't  
7            have -- I don't ever know what happened to  
8            that memorandum, and I was -- I mean, that  
9            reprint. And I was never able to find it in  
10           the Index Medicus. But it was -- I thought  
11           it was a few days, but that's a supposition.
- 12    Q.     Okay. In this case, did you have any  
13            question as to whether the Brazil plant in  
14            Indiana, which is what he's referencing to,  
15            was actually using Aroclor products?
- 16    A.     No, I don't think so. I thought it was; but  
17            it was as a heat exchange, not as a -- we've  
18            been talking about transformer fluids all  
19            along.
- 20    Q.     Sure.
- 21    A.     This is no relationship. It's Pyranol rather  
22            than Iner -- it's Thermanol, rather, than  
23            Inerteen or Pyranol. But it's still a PCB.
- 24    Q.     That was used at elevated temperatures?
- 25    A.     Yes.

1 Q. Dr. Spolyar responded to you, did he not?

2 A. Yes. I don't have the -- I don't know if I  
3 remember the correspondence. I may have seen  
4 it.

5 Q. Let me show it to you.

6 A. I'm sure I've seen it, but -- but I don't  
7 recall --

8 Q. Can you identify --

9 A. -- when I've seen it last.

10 Q. Can you identify what we'll mark as your  
11 Deposition Exhibit No. 43?

12

13 (An instrument was marked Kelly  
14 Exhibit No. 43 for identification.)

15

16 Q. (By Mr. Kim) Do you recall receiving that  
17 letter?

18 A. Yes, I do.

19 Q. Can you identify it?

20 A. It's a letter from Dr. Louis Spolyar,  
21 director of department of industrial hygiene  
22 of the State of Indiana, sent to me at  
23 Monsanto Company on February the 28th, 1950.

24 Q. In 1950 Dr. Spolyar indicated to you that  
25 with respect to the Aroclor used at the

1           Brazil plant, "The chief complaints were  
2           irritation of the upper respiratory tract  
3           plus possible liver damage," did he not?

4    A.    Yes.

5    Q.    Did Monsanto reformulate its warnings and  
6           labels to address such issues?

7    A.    If they had followed the warnings that we  
8           had -- cautionary statements we had on the  
9           label, they would not have been having it.  
10           Or in our bulletins we certainly warned about  
11           leaks and hydraulic fluids, fluid  
12           applications. Here they had most pipes were  
13           leaking. We did not put on, "Don't use in  
14           pipes that are leaking," if that's what you  
15           mean.

16   Q.    Monsanto did not indicate that, "If you fail  
17           to follow our instructions, you may have  
18           irritation of the upper respiratory tract  
19           plus possible liver damage"?

20                   MR. BAUER: Objection. Vague. Are  
21           you talking about -- well, in what format are  
22           you talking about?

23                   MR. KIM: We've been talking  
24           about --

25   A.    On the labels we did not have that. We had

1 information on our sales bulletins and our  
2 development bulletins about the possibilities  
3 of problems that result from excessive  
4 exposure.

5 Q. (By Mr. Kim) Doctor, we talked about a  
6 series of tests that you ordered for Monsanto  
7 while you were the medical director,  
8 including those from Dr. Drinker?

9 A. Yes.

10 Q. And that was an acute test?

11 A. No. Drinker ran four months or something.

12 Q. It was not a chronic or lifetime test, was  
13 it?

14 A. It was according to the lights of 1936. It  
15 was a chronic test.

16 Q. Was it a lifetime test?

17 A. No, it was not. They were not doing -- this  
18 is probably as long a test on industrial  
19 chemicals as was done by anybody in 1936.

20 Q. The next series of tests that you ordered  
21 were by whom?

22 A. Series? We --

23 Q. The next test you ordered.

24 A. Well, we did some acute work at Scientific  
25 Associates. We did chronic inhalation work

1 at the Kettering Laboratory by Dr. Treon.

2 Q. When you say "chronic...by Dr. Treon," what  
3 is your definition of what a "chronic test"  
4 is during the time period that Dr. Treon did  
5 his testing?

6 A. I would say that five months would be  
7 considered chronic.

8 Q. That is not --

9 A. That's what he did.

10 Q. That is not a lifetime test?

11 A. No, it isn't.

12 Q. How about the Younger Laboratories?

13 A. They were all acute.

14 Q. What other tests did you order? Industrial  
15 Bio-Test?

16 A. Yes.

17 Q. And the first set that you ordered from them  
18 were acute tests?

19 MR. BAUER: Object to the form.

20 A. The first set -- I don't know the time  
21 frame. The first sets were either 20-day  
22 dermal application or three-generation rat  
23 studies. But the whole package included  
24 two-year testing in dogs and rats.

25 Q. (By Mr. Kim) Two-year testing in dogs and

1 rats during the time period that Industrial  
2 Bio-Test did those tests would be considered  
3 lifetime tests?

4 MR. BAUER: Object to the --

5 A. Well, no, not for dogs.

6 Q. (By Mr. Kim) How about for rats?

7 A. Pretty close to it.

8 Q. Were any monkey tests done?

9 A. Not before 1974.

10 Q. Did Monsanto ever, during the time period  
11 that you were medical director, do any  
12 primate testing on its own?

13 A. No.

14 Q. Afterwards? If you know.

15 A. I have not seen the reports, but anecdotally  
16 I had heard that they had done some. I don't  
17 know the details.

18 Q. Do you know if Monsanto ever published those  
19 reports?

20 A. I don't know. I haven't seen any reports.

21 Q. How did you -- what was the anecdotal method  
22 in which you heard of them?

23 A. Gosh, I don't remember.

24 Q. Did Monsanto ever publish any occupational  
25 studies with respect to PCB exposure of

- 1           its -- to its workers?
- 2    A.    You mean negative -- our negative
- 3           information?
- 4    Q.    Sure.
- 5    A.    No.
- 6    Q.    Or positive information.
- 7    A.    We didn't have positive information.
- 8    Q.    Did a lady named Judith Zack work for
- 9           Monsanto Company during the time period that
- 10          you were medical director?
- 11   A.    Yes. No. She did not. She came after I was
- 12          there.
- 13   Q.    I believe Ms. Zack and -- was it Dr. Zack?
- 14          Was she a doctor?
- 15   A.    Mr. -- Mrs. -- Miss -- Ms. You got it
- 16          right.
- 17   Q.    Ms. Zack and Musch?
- 18   A.    His name was on the report that I saw, but I
- 19          don't know where -- whether he worked for
- 20          Monsanto. I don't know anything about him,
- 21          Musch.
- 22   Q.    You didn't hire either one of them?
- 23   A.    No.
- 24   Q.    They had not begun the work they ultimately
- 25          did for Monsanto during the time period that

1           you were medical director?

2     A.     They did not.

3                     MR. BAUER:  Objection.  Objection.

4           Assumes facts not in evidence.

5     A.     Beg pardon?

6     Q.     (By Mr. Kim)  Are you --

7     A.     Zack did not work for Monsanto up till --  
8           during the time I was medical director.  I  
9           don't know anything about Musch, whether he  
10          ever did work for Monsanto; but he never did  
11          work up till I retired from Monsanto.

12    Q.     You would agree that Zack and Musch did a  
13          study for Monsanto that was not published --  
14          well, are you aware of a study they performed  
15          on Monsanto workers?

16    A.     Yes.  I've seen reports of it.

17    Q.     Have you reviewed it in preparation for  
18          testimony in other litigation?

19    A.     Yes.

20    Q.     Have you reviewed it for preparation of your  
21          testimony in this particular case?

22    A.     No, I haven't.  But I can review it pretty  
23          fast if you want to show it to me.

24    Q.     I'm going to give it to you --

25    A.     Fine.

1 Q. -- to review this evening so we can talk  
2 about it a little bit tomorrow, if that's  
3 okay --

4 A. It's okay with me.

5 Q. -- with your counsel.

6 MR. BAUER: Well, you can certainly  
7 give it to him. How much he's -- homework  
8 he's going to do over the night is --

9 Q. (By Mr. Kim) Well, if you want. I don't --  
10 I don't care if you do it or not. I mean,  
11 whatever you want to do, Doctor.

12 A. Give it to me, and I'll see it.

13 Q. Okay. How often were meetings held involving  
14 you at Monsanto concerning the label and  
15 warnings that would be placed upon the drums  
16 or products containing PCBs?

17 A. How often?

18 Q. (Nods head.)

19 A. Gosh, I don't remember. They weren't every  
20 week, I'll say that. But whenever new  
21 information came up or whether they were  
22 changing the type of label they were doing,  
23 whether they were going to put -- use  
24 something on a tank, in a tank car, I cannot  
25 give you how many times it was.

1 Q. Can you tell me who Jack Garrett was?

2 A. Yes. He was an industrial hygienist that was  
3 engaged by the medical department sometime, I  
4 think, around the Fifties. In the Fifties.

5 Q. Would he participate in those meetings  
6 concerning warnings and labels?

7 A. No, sir, not that I recall specifically. I  
8 don't think he did.

9 Q. Did the acute testing done by Younger  
10 Laboratories indicate possible exposure to  
11 the liver?

12 A. Did the acute testing --

13 Q. -- implicate the liver?

14 A. Well, there obviously -- there were findings  
15 in the liver. Whether these findings were  
16 due to the process that caused death -- the  
17 congestion, et cetera, in the liver -- I do  
18 not believe he did microscopic studies of the  
19 liver.

20 Q. And Monsanto ordered no further testing, as I  
21 understand, as to the mechanism of death?

22 A. Well, the mechanism of death was that they  
23 put a sufficient amount on the skin or  
24 sufficient amount in their stomach to kill  
25 them.

1 Q. I understand that.

2 A. That's what we wanted to find out.

3 Q. I understand that, Doctor. What I -- what I  
4 was talking about was the chemical reaction  
5 or mechanism that takes place in the body  
6 that ultimately causes the death.

7 A. No, we did not.

8 Q. The same general results from Scientific  
9 Associates?

10 A. Yes.

11 Q. Were Scientific Associates and the Younger  
12 Laboratories related in any manner?

13 A. The people were related at first. Younger  
14 worked for Scientific Associates and then  
15 they split up and he started his own  
16 laboratory.

17 Q. And you chose to use these two laboratories,  
18 did you not?

19 A. Yes.

20 Q. Did you help in the designing of the protocol  
21 of the studies performed by either of these  
22 two labs?

23 A. Well, we told them what we wanted. The  
24 protocols were pretty standard for acute  
25 testing. We said we wanted to get an LD<sub>50</sub>.

Martin & Associates  
(409) 762-2222

1 Q. Did you ever tell them what result you  
2 wanted?

3 A. Tell them what result? "Give me your  
4 findings," yes. But we didn't tell them to  
5 fake the results. Is that what you mean?

6 Q. (Nods head.)

7 A. No, we did not.

8 Q. Did anyone under your direction?

9 A. No, sir, they did not.

10 Q. Did -- why did you choose Younger Associates  
11 and -- or Scientific Associates and Younger  
12 Laboratories?

13 A. They were in St. Louis. It was easy to get  
14 specimens down to them. They were adequate  
15 enough for acute testing, and that's what we  
16 used them for.

17 Q. What type of analysis did you use in choosing  
18 these two laboratories?

19 MR. BAUER: Object to the form.

20 A. (A) Can they do a good job? (B) Are they  
21 convenient? (C) --

22 Q. (By Mr. Kim) Cost?

23 A. Cost is always a factor in anything.

24 Q. Did you choose -- what's the name of it? --  
25 Industrial Bio-Test?

Martin & Associates  
(409) 762-2222

1 A. Yes, I did.

2 Q. Did you help in the designing of the protocol  
3 with respect to those tests?

4 MR. BAUER: Objection. Compound.  
5 Which year are we talking about? Which  
6 tests? Or are you talking about all the  
7 tests?

8 MR. KIM: All the tests.

9 MR. BAUER: Objection. Compound.

10 A. I reviewed the protocol. These -- Industrial  
11 Bio-Test had at least three people that were  
12 toxicologists, and I relied on their  
13 expertise. I was not a toxicologist. But I  
14 knew what they were going to do, I told them  
15 the types of information we needed, and they  
16 provided a protocol to give us that  
17 information.

18 Q. (By Mr. Kim) Up until the time period that  
19 you ordered the Industrial Bio-Test studies,  
20 the chronic or lifetime studies by Industrial  
21 Bio-Test, was there any communications or  
22 considerations within the medical department  
23 while you were employed by Monsanto Chemical  
24 Company as to what the possible health and  
25 toxic effects of PCBs would be upon chronic

1 exposure?

2 MR. BAUER: Object to the form.

3 A. Was there any communication inside the  
4 Monsanto Company?

5 Q. (By Mr. Kim) Yes.

6 A. Is that what you said?

7 Q. Yes, sir.

8 A. The only chronic exposure we considered  
9 before we ordered the test was the  
10 information -- the material could possibly be  
11 in the food supply, in the food chain. And  
12 that was around the late Sixties, '67, '68.  
13 We did have communication as to whether or  
14 not there could be chronic exposure to small  
15 leaks, et cetera, in heat transfer and in  
16 hydraulic fluid applications. That's when we  
17 ran the Treon chronic inhalation  
18 experiments. They were not lifetime; but  
19 they were five months, 150 days, which was  
20 certainly chronic for an inhalation exposure.

21 Q. When did Monsanto Chemical Company ever  
22 determine how PCBs were excreted or passed  
23 through the human body?

24 A. I can't answer that, when they did. I knew  
25 they did it --

1 Q. Did they do it --

2 A. -- at the time of the Bio-Test experiments.

3 Q. Which Bio-Test experiment -- or what  
4 information existed that told you how PCBs  
5 passed through the human body?

6 A. Well, the radioactivity tests were carried  
7 out; and I don't know that I received a  
8 report on that or whether that report, if it  
9 ever came in, came in after -- after my  
10 departure from the company.

11 Q. Do you have a recollection if that report  
12 that you read indicated how long it took for  
13 the PCBs to pass through the human body?

14 A. I didn't say I read a report.

15 Q. Reviewed a report?

16 A. I didn't -- I didn't see the report. I said  
17 I do not know when that report came, if it  
18 came at all. I do know we -- they had  
19 deep-freezes full of specimens that they were  
20 waiting to analyze from the radioactivity  
21 point of view.

22 Now, what was your question?

23 Q. Okay. My question, Dr. Kelly, is: When did  
24 Monsanto Chemical Company determine the  
25 mechanism by which PCBs were excreted from

1 the human body?

2 A. I don't know if they ever did.

3 Q. When did Monsanto Chemical Company determine  
4 if PCBs were excreted from the human body at  
5 all?

6 A. Well, I think they found out that studies  
7 carried out by other people, it showed in the  
8 literature that there was a falling off of  
9 the PCB levels of blood after the cessation  
10 of occupational exposure and that there was  
11 not a same amount of accumulation in the  
12 fat -- in the fat. So those -- Monsanto did  
13 not carry out any of their own that I  
14 recollect.

15 Q. Do you have a recollection of which studies  
16 you referred to that Monsanto would have  
17 known about that would have indicated --

18 A. I can't hear you. Would you repeat it?

19 Q. Sure. Excuse me.

20 Do you have a recollection of which  
21 studies those were that you just referred to  
22 that would indicate a diminution in the blood  
23 levels?

24 A. After --

25 MR. BAUER: Object --

1 A. -- removal from --

2 MR. BAUER: Object -- object to the  
3 form.

4 Go ahead and answer.

5 A. After removal -- after the person was removed  
6 from occupation?

7 Q. (By Mr. Kim) Sure.

8 A. Yes. I think there were studies in some of  
9 the transformer or capacitor workers. I  
10 don't know the names of the people, but  
11 they're in the literature.

12 Q. Do you have a recollection if any of those  
13 studies included an analysis of those workers  
14 who continued to be exposed to PCBs?

15 A. I don't recall.

16 Q. Do you have any knowledge while you were  
17 employed by Monsanto Chemical Company of what  
18 the quality control procedure was regarding  
19 the manufacturing of PCBs?

20 A. Regarding the details of the quality control,  
21 no, I do not.

22 Q. Do you know if there were batches that were  
23 sometimes rejected?

24 A. I do not know. I know there were  
25 specifications for the material, but I do not

1 know if any of the batches did not meet the  
2 specifications.

3 Q. Do you know if there was any variances  
4 allowed with respect to the specifications  
5 that would have still enabled the product to  
6 go out commercially?

7 A. I do not know that.

8 Q. Do you know if any preservatives were added  
9 to PCBs destined to be used in electrical  
10 equipment?

11 MR. BAUER: Objection. Vague.

12 A. Preservatives?

13 Q. (By Mr. Kim) Any preservatives. Any  
14 chemical preservatives.

15 MR. BAUER: Objection. Vague.

16 A. I don't know what you mean by  
17 "preservative." To keep it from spoiling or  
18 to --

19 Q. (By Mr. Kim) To enhance them.

20 A. A scavenger? A scavenger to --

21 Q. Sure.

22 A. A preservative?

23 Q. We talked about scavengers earlier as -- I'm  
24 sorry -- as a part of the PCB dielectric  
25 fluid. Do you have an idea of what chemicals

1 or what compounds were used as scavengers?

2 A. No, I don't. They were used -- they were put  
3 in -- if they were put in by Monsanto, they  
4 were put in on specifications from the major  
5 customers, GE or Westinghouse.

6 Q. I think I'm confused now, Doctor. I thought  
7 yesterday -- and I may be wrong -- you told  
8 me that with respect to Inerteen and --  
9 what's GE's?

10 A. Pyranol.

11 Q. -- Pyranol -- with respect to Inerteen and  
12 Pyranol, that they were a combination of 70  
13 percent PCBs and 30 percent  
14 trichlorobenzene.

15 A. Yes, sir.

16 Q. And was that mixture done at the Monsanto  
17 plant, or was it done at the Westinghouse and  
18 GE plants?

19 MR. BAUER: Objection. Lacks  
20 foundation and indefinite as to time.

21 A. For some time -- I do not know how long, and  
22 I do not know the time frame -- it was done  
23 at Monsanto. Other times it was done  
24 someplace else outside of Monsanto. I don't  
25 know where it was.

1 Q. (By Mr. Kim) Monsanto certainly knew that  
2 its PCB product was going to be used in  
3 combination with trichlorobenzene, did it  
4 not?

5 A. If it was used in a transformer, yes.

6 Q. That was foreseeable to Monsanto?

7 A. Yes. They knew it.

8 Q. Did Monsanto, during the time period that it  
9 mixed the PCBs and trichlorobenzenes, utilize  
10 scavengers, as well?

11 A. I don't know.

12 Q. Did Monsanto know -- when did Monsanto learn  
13 that Westinghouse or General Electric may  
14 have added scavenger chemicals to the  
15 mixture?

16 MR. BAUER: Objection. Lacks  
17 foundation.

18 A. I don't know.

19 Q. (By Mr. Kim) Do you know if they did?

20 A. I don't know anything about it.

21 Q. We can agree that at some point in time in  
22 the 1970's, Monsanto learned that the  
23 dielectric fluids containing -- called  
24 Inerteen and Pyranol consisted of PCBs  
25 manufactured by Monsanto; is that correct?

1 A. Yes.

2 Q. It also consisted of trichlorobenzene mixed  
3 with the PCBs?

4 A. Yes.

5 Q. And also contained some scavenger chemicals,  
6 as well?

7 A. Yes. I don't know what ones it was. I don't  
8 know what Monsanto knew about it. I can't  
9 speak for the -- for Monsanto in that point  
10 of view. I don't know -- but I knew they  
11 knew that other things were in there,  
12 obviously. Not obviously, but they did.

13 Q. Monsanto foresaw that companies such as  
14 Westinghouse and General Electric might  
15 utilize scavengers when they mixed --

16 A. Yes.

17 Q. -- the compounds together?

18 Also during this time period in the  
19 1970's, Monsanto learned that the dielectric  
20 fluids might contain trace amounts of  
21 polychlorinated dibenzofurans.

22 MR. BAUER: Can I hear the question  
23 back, please?

24

25 (Discussion off the record.)

1 (The pending question was read  
2 by the court reporter.)

3

4 MR. BAUER: Object to the form.

5 A. Well, I think you'll have to be more precise  
6 about the years because in 1970 the  
7 information that Monsanto had was by Dr. Vos,  
8 who checked for dibenzofurans in Monsanto PCB  
9 and in Monsanto -- and in French PCB and  
10 German PCB and maybe Italian PCB. In other  
11 words, two -- two European PCBs. And they  
12 found PCB -- they found furans in the  
13 European PCBs but not in the Monsanto PCBs.  
14 So --

15 Q. (By Mr. Kim) I'm sorry, Doctor.

16 A. So whether or not Monsanto at some later date  
17 arrived at the conclusion that there were  
18 PCB -- or were furans in our PCBs, I can't  
19 tell the date when they did.

20 Q. Vos was in 1969; is that correct, Doctor?

21 A. '70. I thought it was '70.

22 Q. Okay.

23 A. Or '69.

24 Q. In any event, did you review --

25 MR. FEATHERSTONE: February

1 of '70 is, I think, the publication date.

2 MR. BAUER: There is more than one  
3 publication. So it --

4 MR. FEATHERSTONE: All right.

5 MR. BAUER: But they're in the  
6 literature.

7 Q. (By Mr. Kim) Doctor, in any event, you  
8 reviewed Dr. Vos' work while you were still  
9 employed at Monsanto Chemical Company?

10 A. Yes.

11 Q. As a result of Dr. Vos' work, did you order  
12 or institute any further testing to be done  
13 to the Monsanto PCB product to see if there  
14 were, indeed, trace amounts of  
15 polychlorinated dibenzofurans into the PCB  
16 product?

17 A. I don't think I had to because I believe the  
18 analytical people ran it themselves. I was  
19 not worried about the traces, whether it was  
20 one trace or two traces, because we had  
21 tested the Monsanto product, we had tested  
22 the PCBs at intervals during the course of  
23 the manufacturing. And if there were any  
24 dibenzofurans in there, they contributed to  
25 the toxicity. So we really tested the whole

1 ball of wax.

2 Q. I understand your answer, Doctor. But my  
3 question was: After your review of the Vos  
4 literature, did you specifically order any  
5 further testing to be done to determine  
6 whether the Monsanto PCB product contained  
7 trace amounts of polychlorinated  
8 dibenzofurans?

9 A. No, I did not.

10 Q. Did you request the analytical chemistry  
11 department of Monsanto to look into this  
12 issue?

13 A. No. But I knew they were.

14 Q. Have you ever seen any of the reports or  
15 conclusions from the analytical chemistry  
16 department with respect to this issue?

17 A. I saw no reports during my term at Monsanto  
18 that showed that PCBs were present -- that  
19 dibenzofurans were present in the PCBs. I  
20 was told by analytical people at the time of  
21 the '70 and '71 that, "We can't find the  
22 stuff." Eventually -- I know also  
23 anecdotally that after 1974 they did find  
24 some trace amounts of the material.

25 Q. Had Monsanto -- strike that.

1                   During your tenure as the medical  
2           director of Monsanto, you were responsible  
3           for the toxicological review of other  
4           chemicals outside of PCBs, were you not?

5    A.    Yes.

6    Q.    And in your tenure at Monsanto Chemical as  
7           the medical director, had you run across  
8           other occasions where a Monsanto product may  
9           have been contaminated with a furan?

10   A.    May have been?

11                   MR. BAUER:  Yeah.  Object to the  
12           form, what "may have been" means.

13   Q.    (By Mr. Kim)  Was contaminated with a furan  
14           in the absolutist of senses.

15   A.    No, I don't believe I did.

16   Q.    Did you ever do any review work at the Nitro  
17           plant or --

18   A.    Yes.

19   Q.    -- in West Virginia?

20   A.    Yes.

21   Q.    Can we agree that -- well, okay.

22                   MR. KIM:  What time is it?

23                   MS. WELDON:  It's 12:00.

24                   MR. KIM:  Let's take a break.

25                   THE VIDEOGRAPHER:  We're going off

1 the record. It's 12:00 o'clock.

2

3 (A recess was taken.)

4

5 THE VIDEOGRAPHER: It's 15 minutes  
6 after 12:00 o'clock, and we're back on the  
7 record.

8 MR. KIM: Does anyone have any  
9 birthday cake?

10 Q. (By Mr. Kim) Doctor, I want to turn your  
11 attention now to when you first became aware  
12 of the possible environmental concerns of  
13 PCBs. Do you have a recollection of when  
14 that first was?

15 A. Yes. That was either the end of 1966 or the  
16 beginning of 1967.

17 MR. KIM: '79.

18 Q. (By Mr. Kim) What is your recollection of  
19 how you learned about the possibility of  
20 environmental contamination in '79?

21 A. There were two Swedish individuals. I do not  
22 know their background, but they did  
23 analytical work in -- off the coast of Sweden  
24 or Norway or someplace in Scandinavia and  
25 found that PCBs were present in the -- in the

1 environment in -- off the coast. They found  
2 also that -- I don't know what time this was,  
3 but they found that it was present in the  
4 feathers of some birds.

5 Q. Did you believe that the product that they  
6 had identified at that time was Aroclor?

7 A. I was not sure.

8 Q. You questioned it?

9 A. Yes.

10 Q. In what manner was the chlorinated phenol  
11 being used, if you have a recollection, that  
12 Jensen and Widmark found?

13 A. Chlorinated phenol?

14 Q. (Nods head.)

15 A. I don't know if he was --

16 MR. BAUER: You mean o-l or --

17 A. I don't know if he's talking about phenol.

18 Q. (By Mr. Kim) It is my understanding -- and  
19 correct me if I'm wrong -- that the first  
20 work, the Swedish study that you talked  
21 about, was done by two gentlemen named Jensen  
22 and Widmark?

23 A. Right.

24 Q. They reported in the literature that they had  
25 found traces of chlorinated diphenyls or

1 polychlorinated biphenyls in the fish and  
2 wildlife; is that correct?

3 A. Yes. I don't know about fish. I know  
4 certainly in the wildlife.

5 Q. Did you have an idea of how that PCB exposure  
6 could have occurred?

7 MR. BAUER: Object to the form.

8 A. You mean how it got in there?

9 Q. (By Mr. Kim) Sure.

10 A. No, I don't know. I did not have an idea at  
11 that time. I wasn't even sure that it was  
12 PCB because I thought he was also working --  
13 looking for DDT.

14 Q. And we talked yesterday about the persistence  
15 of both DDT and PCB?

16 A. Yes.

17 Q. Doctor, do you know what "trichlorophenol"  
18 is?

19 A. Trichlorophenol?

20 Q. Phenol. n-o-l.

21 A. Yes.

22 Q. What is it?

23 A. It's a benzene radical with an OH making it a  
24 phenol and with three chlorine atoms.

25 Q. Is that any way related to a chlorinated

1           diphenyl?

2                   MR. BAUER:  Objection.  Vague as to  
3           what you mean "in any way related."

4    A.   Well, it's got chlorine.  But that doesn't  
5           make it a close relation.

6    Q.   (By Mr. Kim)  Is it a PCB?

7    A.   No.  Because it's not a biphenyl.

8    Q.   Is it a chlorinated polyphenyl?

9    A.   No.  It's a mono phenol.  Chlorinated --  
10           trichlorophenol is one phenol rad --  
11           molecule.

12   Q.   Would a pentachlorophenol be a  
13           polychlorinated phenol?

14                   MR. BAUER:  Now, wait a minute.  
15           Let's -- can you spell these?  Because  
16           there's phenol, p-h-e-n-o-l, and phenyl,  
17           p-h-e-n-y-l.  And I can't even tell when  
18           you're using -- the difference when you're  
19           talking.

20                   MR. KIM:  I understand.  Let me  
21           make this easy and hand Dr. Kelly what we'll  
22           mark as Deposition Exhibit No. 44.

23

24                   (An instrument was marked Kelly  
25           Exhibit No. 44 for identification.)

1                   MR. KIM:  -- which I believe is a  
2                   letter that Dr. Kelly wrote, Counsel.

3    Q.    (By Mr. Kim)  Doctor, do you have a  
4           recollection of writing that letter?

5    A.    Wait till I read it, please.

6    Q.    You betcha.

7                   MR. BAUER:  What's the number,  
8           Dr. Kelly?  Exhibit number.

9                   MS. WELDON:  44.

10                  THE WITNESS:  44.

11   A.    Yes, I have a recollection.

12   Q.    (By Mr. Kim)  It is dated December 12th,  
13           1966?

14   A.    That's correct.

15   Q.    And it seems to have your name for signature  
16           at the bottom?

17   A.    Yes.

18   Q.    Who is Mr. D. Wood, to whom this is  
19           addressed?

20   A.    He was somebody in our Brussels office.  I  
21           don't know if he was in research or  
22           marketing.

23   Q.    Do you have -- do you know why you were  
24           writing him concerning -- what were you  
25           writing him about in this letter?

1     A.     Whether about Aroclor -- a period -- well, I  
2            was writing him about the -- there must have  
3            been a seminar talking about polychlorinated  
4            biphenyls being discussed -- phenols being  
5            discussed in Stockholm on November the 27th.  
6            And I said we can't accept Aroclors as a  
7            synonym for polychlorinated phenols because  
8            it isn't.

9     Q.     In essence, you were disputing whether the  
10            chemical that Jensen and Widmark had  
11            identified was, indeed, a polychlorinated  
12            biphenyl?

13    A.     No. Because I don't -- didn't mention Jensen  
14            and Widmark in this at all. I don't know who  
15            discussed what at the Wenner-Gren Centre in  
16            Stockholm on November the 17th. But if I was  
17            told -- or I must have seen someplace that  
18            they were discussing polychlorinated  
19            phenols. And I said, "Aroclor is not a  
20            phenol."

21    Q.     Let me --

22                   MR. BAUER: That's with an o-l. Is  
23            that right, Dr. Kelly?

24                   MR. KIM: I think the letter that  
25            he wrote have the spellings.

1 Q. (By Mr. Kim) Are there any spellings that  
2 you want to change --

3 A. Are there any what?

4 Q. Are there any spellings of the chemical  
5 compounds that you want to change in that  
6 letter?

7 MR. BAUER: Well, let me just ask  
8 the court reporter, when he says "phenol" and  
9 "phenyl," are you being able to make sure --  
10 are you picking up the distinction? And  
11 obviously the tape will.

12 A. No, I don't see any changes.

13 Q. (By Mr. Kim) Okay. You mentioned that you  
14 didn't know -- or you were unclear as to the  
15 response or why you wrote that response. Let  
16 me show you what we'll mark as Deposition  
17 Exhibit No. 45 --

18

19 (An instrument was marked Kelly  
20 Exhibit No. 45 for identification.)

21

22 Q. (By Mr. Kim) -- which, I believe, is a  
23 letter that was directed to Mr. Buchanan,  
24 George Buchanan, of Monsanto from Mr. Wood;  
25 is that correct?

1 A. Wait till I -- please.

2 Q. You betcha.

3 A. Yes, it is a letter from Wood to Buchanan  
4 with a -- I was copied in on it.

5 Q. Do you recall reading it?

6 A. I do now, after looking it over.

7 Q. And what concerns or considerations were  
8 raised by Mr. Wood in his correspondence to  
9 Mr. Buchanan on December 1st of 1966?

10 MR. BAUER: Object to the form.

11 A. The concerns were, it appeared to be in this  
12 last paragraph, the method of disposal of the  
13 material, are there any safe methods being  
14 developed for the disposal of the waste  
15 Aroclor.

16 Q. (By Mr. Kim) How about the -- well, did you  
17 have any questions as a result of this letter  
18 as to the proper identification of the  
19 chemicals in the Jensen and Widmark work?

20 A. Well, no, I didn't, with the exception of the  
21 postscript where he talked about the amount  
22 of Aroclor being used compared to larger  
23 amounts of pentachlorophenol and  
24 pentachlorophenate. And he stated: "Is it  
25 likely that the chlorinated phenols" --

1           that's o-l -- "above show similar  
2           chromatographic traces to the chlorinated  
3           bi-phenols?" Again, I don't -- if that isn't  
4           an Aroclor letter, he's -- there's a typo  
5           there. It should be chlorinated biphenyls.  
6           So, yes, there was concern that what are they  
7           talking about.

8    Q.    And that was part of the concern that you  
9           addressed in your response that we looked at  
10          earlier as Deposition Exhibit No. 44?

11   A.    Yes.

12   Q.    Okay. Doctor, turning back to Deposition  
13          Exhibit No. 45, there seems to be an  
14          attachment to that letter, as well.

15   A.    Yes.

16   Q.    Do you have a recollection --

17   A.    Yes, there is an attachment.

18   Q.    Do you have a recollection of reviewing that  
19          attachment in December of 1966?

20   A.    I don't recall this -- I have no recollection  
21          this being attached. I don't connect the  
22          two. I'm not sure whether I ever saw this  
23          before.

24   Q.    You have no recollection of ever seeing this?

25   A.    I may have, but I have no definite

1 recollection.

2 Q. In 1966, through any source, were you made  
3 aware of the fact that Jensen and Widmark  
4 indicated that they had found polychlorinated  
5 biphenyls in salmon and in pike in Sweden?

6 A. I remember the feathers of eagles and I  
7 remember something about finding it in fish,  
8 but I -- salmon is new to me. I never  
9 connected salmon with that in this report --

10 Q. Do you have a -- I'm sorry, Doctor.

11 A. -- whether this situation existed in Europe.

12 Q. Did anyone tell you or do you have a  
13 recollection of learning in 1966 or '67 that  
14 Jensen and Widmark thought that PCBs were  
15 closely related to and equally poisonous as  
16 DDT?

17 MR. BAUER: Object to the form.

18 A. I don't think Jensen ever said that, did he?  
19 I didn't hear any -- I don't recall any  
20 statement where Jensen equated toxicity of  
21 PCB and DDT. This attachment is certainly  
22 not from Jensen. It's from somebody at --  
23 Henry Strand, whoever he is.

24 Q. (By Mr. Kim) Do you recall learning from any  
25 source of information during 1966 whether it

1           was alleged that PCBs were broken down  
2           considerably slower than DDT and gave rise to  
3           damage of the liver and skin?

4    A.    No, sir, I do not recall that.

5    Q.    If you had learned of such information --  
6           that being that polychlorinated biphenyls are  
7           closely related to and equally poisonous as  
8           DDT and that they are broken down  
9           considerably slower than DDT, which may give  
10          rise to damage of liver and skin -- would  
11          that have caused you concern as the medical  
12          director of Monsanto in 1966?

13                       MR. BAUER:  Object to the form.

14   A.    If I had learned that this was positive?

15   Q.    (By Mr. Kim)  Yes.

16   A.    If I knew this was positive in 1966, it would  
17          have given me concern, yes.

18   Q.    If you learned of such information but were  
19          not sure as to whether it was positive or  
20          not, would you have ordered or asked for  
21          further testing to do a comparative analysis  
22          between DDT and PCBs?

23                       MR. BAUER:  Object to the form.

24   A.    I don't know which analysis -- which way?

25   Q.    (By Mr. Kim)  A chemical analysis.

1           Analytical chemistry analysis, to begin  
2           with.

3    A.    I didn't have to order it. I knew that our  
4           people started looking for it at the -- when  
5           they found out about this.

6    Q.    Started looking for what when they found out  
7           about what?

8    A.    To see what the relationship between PCBs and  
9           DDT was as far as Widmark and Jensen's work  
10          was concerned.

11   Q.    When you say "our people," to whom are you  
12          referring?

13   A.    The Monsanto people in the -- both in the  
14          United Kingdom and in the United States.

15   Q.    Did you ever review any of the results of  
16          that work?

17   A.    Well, I heard about it from talking to  
18          people. We had people right in St. Louis.  
19          They didn't send me reports. But I talked to  
20          Bob Keller and Scott Tucker, and I knew they  
21          were working on this. And they said, "We  
22          haven't been able to find it." So they went  
23          over to -- eventually went over to Widmark  
24          and Jensen to find out -- to be sure for  
25          themselves what -- "How's he doing this, and

1 is he really finding PCBs?" As I understand  
2 it, Widmark was looking for PCBs first -- for  
3 DDT first. And he found a confounding peak  
4 in his chromatograph that he eventually  
5 called PCBs.

6 Q. I understand, Doctor. But my question was:  
7 Did Monsanto personnel do any comparative  
8 analysis between PCBs and DDT?

9 MR. BAUER: Objection. Asked and  
10 answered.

11 Q. (By Mr. Kim) To your knowledge.

12 A. I do not know if they did or not. That would  
13 be in the analytical department's --

14 Q. So you have never reviewed --

15 A. -- purview.

16 Q. -- any such reports from the analytical  
17 department?

18 A. No, sir, I have not.

19 Q. Are you aware if any such reports exist?

20 A. No, I don't know whether they exist or don't  
21 exist.

22 Q. Your letter, Deposition Exhibit No. Forty --

23 A. My letter to Wood?

24 Q. Yes, sir.

25 A. 44? Yes, sir.

1 Q. The last sentence of the third paragraph:  
2 "Our only problem is whether or not we want  
3 to bring" up -- excuse me -- "we want to  
4 bring these facts up and have our herbicide  
5 program receive another black eye."

6 Did I read that correctly? Second  
7 to the last sentence. Excuse me.

8 A. Yes, you're reading it. But --

9 Q. What other --

10 A. -- that's --

11 Q. Go ahead, Doctor.

12 A. That's what it says. But you're picking this  
13 out of a paragraph without any reference to  
14 what I said up above. I said: "There are  
15 many chlorinated polyphenyls that can be  
16 formed during the manufacture of 2,4,5-T" --  
17 I don't know how accurate I was on that,  
18 but -- "and probably pentachlorophenol, as  
19 well." I don't know what I meant by saying:  
20 "Our only problem is whether or not we want  
21 to bring these facts up and have our  
22 herbicide program receive another black eye.  
23 This, I will have to leave to your judgment."

24 I don't know if we were selling  
25 herbicides over in Europe or not.

1 Q. What other black eyes had the herbicide  
2 program had?

3 A. There were -- there was chloracne occurring  
4 in some instances of 2,4,5-T manufacture and  
5 2,4,5-T use.

6 Q. Where was that manufactured? At the Nitro  
7 plant?

8 A. Nitro.

9 Q. Were polychlorinated biphenyls used as  
10 extenders in those herbicides?

11 A. No, sir. They were not used not by us. I  
12 don't know if they ever were. In fact, I  
13 don't think so because I think whatever minor  
14 use of extenders was in household  
15 applications for roaches and things like  
16 that, not out in field crops.

17 Q. What other black eyes had Monsanto  
18 experienced in its herbicide program?

19 A. I don't know of any other than that.  
20 Probably "black eye" was not a very smart  
21 statement to make. Because I don't recall  
22 much publicity about it.

23 Q. In any event, you conclude in your last  
24 sentence of the letter that, quote: "I admit  
25 I am out of my depth here, but I think

1 another compound is indicated rather than  
2 Aroclor," end quote. Is that correct?

3 A. That's right.

4 Q. Just as with Dr. Drinker's initial reports,  
5 you questioned the initial identity of the  
6 products found by Jensen and Widmark.

7 MR. BAUER: Object to the --

8 Q. (By Mr. Kim) Is that correct?

9 MR. BAUER: Object to the form.

10 A. Just as I don't think there was --

11 Q. (By Mr. Kim) Well, let me break this down  
12 for you.

13 A. Yeah.

14 Q. In the --

15 A. You're making a comparison that I just don't  
16 agree with.

17 Q. I'm going to ask you a couple simple  
18 questions, then.

19 A. Fine.

20 Q. With respect to the Drinker study --

21 A. Yes.

22 Q. -- when it was initially reviewed by you, you  
23 disputed whether, indeed, the chemical  
24 identified as chlorinated diphenyl was  
25 actually such?

1 A. That's correct. I did that.

2 Q. When the Jensen and Wood report was submitted  
3 to you for your review in this case, again  
4 you questioned whether the chemical or  
5 product identified was, indeed, an Aroclor or  
6 a polychlorinated biphenyl, did you not?

7 A. Yes, I did.

8 Q. In any event, we ultimately learned that  
9 Jensen and Widmark were correct and it was  
10 PCBs that they had identified?

11 A. Eventually also learned that I was right on  
12 Drinker, too. You forgot that one.

13 Q. Absolutely. And eventually we also learned  
14 that Monsanto sent him some Aroclor products,  
15 paid for him to do a study, paid for him to  
16 report it to Monsanto, and gave you a  
17 favorable report, did he not?

18 A. That has no relationship. The report -- we  
19 did not pay him to give us a favorable  
20 report. We paid him -- we engaged him to run  
21 the toxicity on a Monsanto  
22 pentachlorinated -- polychloro --

23 Q. Take your time.

24 A. -- polychlorinated biphenyl. And we did not  
25 pay him for a favorable report.

1 Q. Does Monsanto have in its possession the  
2 underlying raw data that was generated by  
3 Dr. Drinker in preparing his special report  
4 to Monsanto?

5 A. We do not. And you do not get the raw data  
6 from a recognized scientist or recognized  
7 laboratory. You --

8 Q. How do we know if the data is accurate or  
9 not?

10 MR. BAUER: Object to the form.

11 A. How do we know? You have to go by  
12 reputation. You have to go by what you know  
13 about the individual. You have to also know  
14 whether it agrees with your clinical  
15 observations of your workers. That's how we  
16 know.

17 Q. (By Mr. Kim) It really doesn't matter as  
18 long as you get the result you desire, does  
19 it, Doctor?

20 MR. BAUER: Object to the form.

21 A. It isn't a question -- I wasn't --

22 MR. BAUER: Object to the -- let me  
23 finish, Dr. Kelly.

24 THE WITNESS: Okay.

25 MR. BAUER: Object to the form.

1 Argumentative.

2 Now you can go ahead.

3 A. All I wanted to do was get the facts. I  
4 didn't care whether it was favorable or not.  
5 I wanted to get the facts. If the facts  
6 turned out to be favorable, that's fine.

7 Q. (By Mr. Kim) Was the possibility of  
8 environmental contamination one basis that  
9 you ordered the chronicity studies to be done  
10 by Industrial Bio-Test --

11 A. No.

12 Q. -- Laboratories?

13 A. It was one basis, but it was -- the main  
14 basis was that the possibility of the PCBs  
15 getting into the food chain, was the main  
16 reason.

17 Q. Let me show you what we'll mark as your  
18 Deposition Exhibit No. 46.

19

20 (An instrument was marked Kelly  
21 Exhibit No. 46 for identification.)

22

23 Q. (By Mr. Kim) You can put those up. We're  
24 through with them.

25 -- which, I believe, is a letter

1 from a Mr. Hardy to a number of people, one  
2 of which was you; is that correct?

3 A. That is correct.

4 Q. Do you recall receiving this letter sometime  
5 in January of 1967?

6 A. Yes, I do.

7 Q. Did you read it then?

8 A. Yes, I did.

9 Q. In the middle of the paragraph, he notes that  
10 he -- that a Mr. Richardson of Shell  
11 Chemicals had spoken with the Swedish press.  
12 And in any event, the conclusion in the  
13 sentence states, quote: "He had already  
14 found that the chlorine-containing residue  
15 contained substances more stable than DDT.  
16 and just as Soren Jensen reports he has  
17 obtained spectrographic evidence that these  
18 are very similar if not identical with  
19 Aroclors," end quote.

20 A. Yes, sir.

21 Q. Did that cause you concern about the  
22 persistence of PCBs in the environment?

23 A. Well, we knew that they were persisting in  
24 the environment. We knew -- we had thought  
25 that the material was nonbiodegradable and if

1           it were discarded into a landfill, it would  
2           stay there. If it was accidentally leaked  
3           into a body of water, in a stream, it would  
4           lie down on the bottom like a lump of coal or  
5           a piece of gravel. We knew it was there.

6    Q.    Okay. When did Monsanto first know it was  
7           nonbiodegradable and persistent?

8                       MR. BAUER: Object to the form.

9    A.    I -- you've got two different questions  
10           there.

11   Q.    (By Mr. Kim) When did Monsanto first know  
12           that it was nonbiodegradable?

13   A.    I can't answer that. I don't know when.

14   Q.    Well, was it before this letter?

15   A.    I believe it was. I believe I believed it.  
16           I don't know the reasons for my belief, but I  
17           can't tell you the time frame exactly.

18   Q.    Can you give me a ballpark? Was it five  
19           years earlier, ten years earlier?

20   A.    It wasn't ten years earlier. It was somewhat  
21           earlier. I can't tell you any closer than  
22           that.

23   Q.    When did Monsanto Chemical Company first  
24           learn that PCBs were environmentally  
25           persistent?

1 A. That, I do not know.

2 Q. Was it prior to the Jensen and Widmark work  
3 in 1966?

4 A. I do not know.

5 Q. The reason I'm asking these questions,  
6 Dr. Kelly, is you just told me that, "We  
7 already knew" -- meaning Monsanto -- "that it  
8 was persistent."

9 MR. BAUER: Objection. That  
10 mischaracterizes his testimony.

11 Q. (By Mr. Kim) If it does, you can correct me,  
12 Doctor.

13 A. I forgot. What did you say?

14 MR. KIM: Can you read that back to  
15 him?

16

17 (The pending question was read  
18 by the court reporter.)

19

20 MR. BAUER: The same objection.

21 A. Yes. The impression I had was that people --  
22 the people at Monsanto, as well as myself,  
23 believed that the material was persistent,  
24 was nonbiodegradable. That belief -- I  
25 cannot tell you how long that belief existed,

1 but sometime in the Sixties we found out we  
2 were wrong in that supposition. We had a  
3 compound that was not soluble in water; and  
4 we thought that if it went into a stream or  
5 into a body of water, it would not be  
6 absorbed by the water. So that was our --  
7 the basis for our belief.

8 Q. (By Mr. Kim) And we're talking about  
9 polychlorinated diphenyls?

10 A. That's correct.

11 Q. So when you initially had this knowledge, you  
12 thought --

13 A. When I initially had what?

14 Q. When you initially -- or Monsanto initially  
15 had this knowledge of stability, persistence,  
16 nonbiodegradability, at that point in time --  
17 initially, at least -- Monsanto did not think  
18 it was an environmental problem?

19 A. That is correct.

20 Q. And as such, no such warnings were given?

21 A. That's correct.

22 MR. BAUER: Object to the form.

23 Q. (By Mr. Kim) No warnings were given with  
24 respect to the possible environmental  
25 contamination until sometime after the Jensen

1 and Widmark work?

2 A. That is correct.

3 Q. Until sometime after the Riseborough work?

4 A. Yes, sir.

5 Q. Was Mr. Papageorge employed as the head of  
6 the environmental section at the time that  
7 Monsanto had knowledge that PCBs may persist  
8 or be nonbiodegradable?

9 MR. BAUER: Object to the form.

10 A. Yes.

11 MR. BAUER: Assumes facts not in  
12 evidence.

13 Q. (By Mr. Kim) Was Mr. Papageorge responsible  
14 for any analytical work with respect to  
15 environmental concerns, or would that still  
16 have fallen under your direction prior to  
17 1966?

18 A. I --

19 MR. BAUER: Objection. Vague and  
20 indefinite as to time.

21 A. Environmental concerns?

22 Q. (By Mr. Kim) Doctor, we've agreed, although  
23 you can give me no time frame, that Monsanto  
24 Chemical Company knew prior to 1966 that PCBs  
25 were nonbiodegradable, stable, and had a

1 possibility of persisting in the  
2 environment.

3 MR. BAUER: Objection. That --

4 A. Yes.

5 MR. BAUER: -- mischaracterizes --

6 A. Knew we believed that, yes.

7 Q. (By Mr. Kim) Okay. And my question is: If  
8 further testing was to be done with respect  
9 to that supposition, would that have been the  
10 responsibility of you and the medical  
11 department or of Mr. Papageorge?

12 A. Mr. Papageorge.

13 Q. Did Mr. Papageorge, to your knowledge, ever  
14 direct that any environmental analytical  
15 tests be run with respect to the persistence  
16 of PCBs in the environment prior to the  
17 Jensen and Widmark work?

18 A. Mr. Papageorge was not in that position prior  
19 to the Jensen and Widmark work. He came to  
20 work in 1970.

21 Q. Who was in that position that would have been  
22 responsible?

23 A. There was --

24 MR. BAUER: Objection. Assumes  
25 facts not in evidence.

1 A. There was nobody in charge of the  
2 environmental work as one individual, as far  
3 as I know.

4 Q. (By Mr. Kim) Under whose direction would  
5 that department have fallen under?

6 MR. BAUER: Objection. What  
7 department?

8 A. There wasn't any department.

9 Q. (By Mr. Kim) There was no environmental  
10 department prior to 1966?

11 A. There was no definite environmental  
12 department prior to 1966. There were people  
13 in the marketing department and in the  
14 development department that might have had  
15 some input into the environment, but it was  
16 not -- the problem was not considered to  
17 be -- it was not considered to be a problem  
18 until it showed up in that it was appearing  
19 in wildlife and in some fish.

20 Q. And my question, Dr. Kelly, is: How did  
21 Monsanto know that that persistence and  
22 stability was not a problem environmentally?

23 A. I think they knew from the type of the  
24 product, from the physical characteristics  
25 and the solubility of the product, that the

1 material was not soluble in water, it was not  
2 going to be a problem.

3 Q. Who ran those tests?

4 A. Somebody did because certainly at Monsanto --  
5 somebody at Monsanto ran the solubility tests  
6 because they were in our bulletin. They  
7 showed what the solubility in water was, and  
8 there were a bunch of zeros before a "1."

9 Q. Have you seen those tests?

10 A. I've seen the bulletins. I haven't seen the  
11 tests.

12 Q. During that time period, who would have been  
13 responsible for running or ordering those  
14 solubility tests?

15 A. The manufacturing department of -- that  
16 manufactured PCB.

17 Q. Do you have a recollection, in 1965, who is  
18 the director of the manufacturing department?

19 A. No, I do not.

20 Q. From a medical standpoint it caused you no  
21 concern that Monsanto did not know how PCBs  
22 were excreted through the human body and  
23 disposed of; is that correct?

24 MR. BAUER: Object to the form.

25 A. That it caused me no concern that PC -- that

1           we didn't know how PCBs were excreted or  
2           absorbed through the body?

3    Q.    (By Mr. Kim)   Yes, sir.

4    A.    Well, no, because we did not expect  
5           individuals to get PCBs.   PCB was an  
6           industrial chemical that was not supposed to  
7           enter into the human body.   If you followed  
8           the cautionary information we gave, it didn't  
9           get in there.   So we didn't worry about the  
10          excretion.

11   Q.    But you knew that workers and people could  
12          accidentally be exposed to PCBs?

13   A.    Yes.

14   Q.    Okay.

15                       MR. KIM:   Do you want to stop now?

16                       MR. FEATHERSTONE:   (Nods head.)

17   Q.    (By Mr. Kim)   Why don't we stop for the day,  
18          Doctor.

19   A.    Whatever you say.

20   Q.    Okay.

21                       THE VIDEOGRAPHER:   We're going off  
22          the record.   It's 48 minutes after 12:00  
23          o'clock.   This is the end of Tape No. 7.

24

25

(Whereupon the deposition of Robert Emmet Kelly, M.D., was recessed at 12:48 p.m. and is to be continued at 9:00 a.m. on February 18, 1994.)

THE STATE OF Missouri :  
COUNTY OF ST. LOUIS :

I, ROBERT EMMET KELLY, M.D., hereby certify that I have read the foregoing transcript of my testimony given in the foregoing numbered and styled case and that same is true and correct to the best of my knowledge and belief.

I further certify that any and all corrections have been made on a separate page and initialed by me.

This the 30th day of March, 1994.

Robert Emmet Kelly MD  
ROBERT EMMET KELLY, M.D.

SUBSCRIBED AND SWORN TO BEFORE ME,  
this the 30th day of March, 1994.

Josephine S. Niblock  
Notary Public in and for  
the State of Missouri

My Commission Expires \_\_\_\_\_

Job No. 94-513

JOSEPHINE S. NIBLOCK  
NOTARY PUBLIC STATE OF MISSOURI  
ST. LOUIS COUNTY  
MY COMMISSION EXP. JAN. 15, 1995

Martin & Associates  
(409) 762-2222

1 THE STATE OF TEXAS :

2 I, Irma L. Reyes, Certified  
3 Shorthand Reporter in and for the State of  
4 Texas, hereby certify that this deposition  
5 transcript is a true record of the testimony  
6 given by the witness named herein, after said  
7 witness was duly sworn or affirmed by me.

8 I further certify that I am neither  
9 attorney nor counsel for, related to, nor  
10 employed by any of the parties to the action  
11 in which this testimony was taken. Further,  
12 I am not a relative or employee of any  
13 attorney of record in this cause, nor do I  
14 have a financial interest in the action.

15 Further certification requirements,  
16 if any, pursuant to the Rules will be  
17 certified to in the Supplemental Certificate  
18 after they have occurred.

19 the 7th Subscribed and sworn to on this,  
20 day of March, 1994.

21  
22   
23 \_\_\_\_\_  
24 Irma L. Reyes, CSR  
25 Certificate No. 4071  
Expires December 31, 1994

My Notary Commission expires September 21,  
1996

LIST OF CHANGES OR CORRECTIONS

To the Deposition of Robert Kelly MD

If there are any changes or corrections, please list them below giving the page number, line number, and reason for the change.

The reasons for making changes are:

- (1) To clarify the record:
- (2) To conform to the facts:
- (3) To correct transcription errors:

Page No. 363 Line No. 13 Reason for Change mis-transcription

Changed Call To Cause

Page No. 363 Line No. 3425 Reason for Change Confusion + mistake on the part of the witness

Changed ye To no.

Page No. 387 Line No. 11 Reason for Change mis-transcription

Changed paper To paint.

Page No. 439 Line No. 1211 Reason for Change mis-transcription

Changed and To in.

Page No. \_\_\_\_\_ Line No. \_\_\_\_\_ Reason for Change \_\_\_\_\_

Changed \_\_\_\_\_ To \_\_\_\_\_

Page No. \_\_\_\_\_ Line No. \_\_\_\_\_ Reason for Change \_\_\_\_\_

Changed \_\_\_\_\_ To \_\_\_\_\_

Page No. \_\_\_\_\_ Line No. \_\_\_\_\_ Reason for Change \_\_\_\_\_

Changed \_\_\_\_\_ To \_\_\_\_\_

Page No. \_\_\_\_\_ Line No. \_\_\_\_\_ Reason for Change \_\_\_\_\_

Changed \_\_\_\_\_ To \_\_\_\_\_

Page No. \_\_\_\_\_ Line No. \_\_\_\_\_ Reason for Change \_\_\_\_\_

Changed \_\_\_\_\_ To \_\_\_\_\_

Robert Kelly MD  
Witness