

IN THE CIRCUIT COURT OF MILWAUKEE COUNTY
STATE OF WISCONSIN

STROH DIE CASTING COMPANY,)
)
 Plaintiff,)
vs.) Case No. 639887
)
MONSANTO COMPANY,)
)
 Defendant.)

DEPOSITION OF WILLIAM B. PAPAGEORGE

Taken on behalf of the Plaintiff
April 4th and 5th, 1991



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DEPOSITION OF WILLIAM B. PAPAGEORGE, produced,
sworn, and examined on behalf of the Plaintiff, on April 4th
and 5th, 1991, between the hours of eight o'clock in the
morning and six o'clock in the evening of that day, at the
law offices of Caruthers, Herzog, Crebs and McGhee, in the
City of St. Louis, State of Missouri, before NICKI J.
MADISON, a Professional Reporter and a Notary Public within
and for the State of Missouri.

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

The Plaintiff was represented by counsel, Mr.
Donald H. Carlson and counsel, Mr. John R. Pendergast of the
law firm of Riordan, Crivello, Carlson, Mentkowski &
Steeves, 701 N. Plankinton Avenue, Milwaukee, Wisconsin.
53203.

The Defendant was represented by counsel, Mr.
Andrew R. Running of the law firm of Kirkland & Ellis, 200
East Randolph Drive, Chicago, Illinois 60601.

INDEX OF
DEPOSITION EXHIBITS

PLAINTIFF'S
EXHIBIT

		<u>Page</u>
1	Diagram made by Mr. Papageorge	10
2	Letter to W. B. Papageorge from H. Stein November 4, 1975	12
3	Memo to E. Wheeler from W. R. Richard March 6, 1969	103
4	Copy of Pydraul F-9 label	109
5	Rubber Age Article - August 1943	110
6	Copy of Pydraul F-9 label	110
7	Copy of Pydraul 312 label	110
8	Copy of Pydraul 312a label	111
9	Copy of Pydraul Fire Resistant Brochure	120
10	Letter from D. Wood to G. Buchanan December 1, 1966	128
11	Letter from H. Strand to D. Wood November 28, 1966	128
12	Letter from O. Fancher to D. Gordan January 14, 1972	142
13	Memo from W. R. Richard to W. A. Kuhn December 30, 1968	147
14	Minutes from Ad Hoc Committee Meeting	161
15	Executive Summary - October 29, 1969	175
16	Letter from C. Paton to W. R. Richard June 18, 1968	188
17	June Summary of PCB Environmental Problem from W. P. Papageorge to H. S. Bergen and J. E. Springgate - June 30, 1970	191

**Plaintiff's
Exhibit**

		<u>Page</u>
18	Memo from P. L. Wright to G. Roush July 15, 1977	193
19	Monsanto Sales Form	194
20	Sales and Gross Profit Summary from A. J. Koenig to W. R. Corey	198
21	May Summary of PCB Environmental Problem from W. Papageorge to J. Bergen and J. Springgate - May 27, 1970	201
22	Industrial Hydraulic Fluids Plan	202
23	Inerteen and Environmental Contamination Statement - September 1968	207
24	Outline of PCB Environmental Pollution Abatement Plan - November 10, 1969	216
25	PCB label	245
26	Presentation by Mr. Wheeler	249
27	Memo from D. A. Olson to H. S. Bergen December 11, 1969	251
28	Presentation on Pydraul Fluids	252
29	Note to Howard from NTJ	260
30	Pollution letter from N. T. Johnson February 16, 1970	266
31	Memo from R. E. Kelly to W. B. Papageorge March 30, 1970	282
32	Letter from J. T. Garrett to S. Facini August 29, 1960	297
33	Presentation Outline for PCB Problem	284
34	Management Plan from W. B. Papageorge April 7, 1970	286
35	PCB Waste Control & Disposal Draft August 31, 1970	295

Plaintiff's
Exhibit

		<u>Page</u>
36	Letter from H. Bergen to W. Papageorge October 19, 1970	300
37	Industrial Hydraulic Fluids Transition Plan	304
38	Pydraul Reformulation Letter to Customers January 25, 1971	309
39	Status Report of PCBs	309
40	Memo from C. L. Bradford & N. T. Johnson to T. L. Gossage - November 17, 1971	310
42	Research Report February 12, 1971	314

1 IT IS HEREBY STIPULATED AND AGREED by and
2 between Counsel for the Plaintiff and Counsel for the
3 Defendant that this deposition may be taken in shorthand
4 by NICKI J. MADISON, a Professional Reporter and Notary
5 Public, and afterwards transcribed into typewriting. The
6 signature of the Witness was waived by the agreement of
7 Counsel and consent of the Witness.

8
9
10 o-o-o

11
12
13 WILLIAM B. PAPAGEORGE,

14
15 of lawful age, being produced, sworn, and examined on the
16 part of the Plaintiff, deposes and says:

17 MR. RUNNING: Before we begin, I'd just like
18 to note, we were discussing this before the start of the
19 deposition, Mr. Papageorge had disc surgery in his back
20 late last fall, and its been recommended that he take
21 breaks every 45 minutes and stretch his legs. So without
22 interrupting the deposition, before the questioning, I'd
23 like to try to do that. And with that statement, we are
24 ready to begin.

25 MR. CARLSON: Very good.

1 DIRECT EXAMINATION

2 QUESTIONS BY MR. CARLSON:

3 Q. Mr. Papageorge, as you know, I'm Don Carlson
4 from Milwaukee. Mr. Pendergast is here with me. And
5 we'd like to ask you some questions about some matters
6 concerning Monsanto and some of the work you did with the
7 company. You are here pursuant to a subpoena, are you,
8 sir?

9 A. Yes, I am.

10 Q. And counsel from Monsanto made reference to
11 the fact that you recently had back surgery. You don't
12 have to wait for 45 minutes. If you start feeling
13 uncomfortable at any time, you just let me know, and
14 we'll take a break so that you do feel comfortable. If
15 you want to do anything else, if you need a drink of
16 water or anything else for your own personal comfort,
17 just, please, let us know, and we can take a break then,
18 okay?

19 A. I will. Thank you.

20 Q. Is there any chance I can convince you to
21 come up to Milwaukee for the beginning of the trial, is
22 there?

23 MR. RUNNING: That decision has been made,
24 Mr. Carlson.

25 MR. CARLSON: Okay.

1 Q. (By Mr. Carlson) Has that decision been
2 made by Monsanto counsel and you are just going to follow
3 what they've asked you to do?

4 A. Well, they are also serving as my counsel,
5 so I will abide by their recommendation.

6 Q. They are serving as your personal counsel?

7 A. Yes.

8 Q. Okay. How long were you with Monsanto?

9 A. A little over 35 years.

10 Q. And starting with the company in, what,
11 about '51?

12 A. 1951, yes, sir.

13 Q. And during the course of your work with the
14 company, you managed a plant at Coomer?

15 A. No, sir,

16 Q. Where did you manage your plant?

17 A. The plant in Anniston, Alabama.

18 Q. And what kind of products did they make
19 there, sir?

20 A. When you say kind, do you want a broad
21 classification?

22 Q. Yes, that would be fine.

23 A. Well, it was primarily industrial chemicals
24 and pesticides for agriculture.

25 Q. Did they make polychlorinated biphenyls

1 there?

2 A. Yes, they did.

3 Q. In 1969, you took a new position with the
4 company, didn't you?

5 A. More correctly, I think you are referring to
6 early 1970.

7 Q. Okay. What position did you take then?

8 A. I was appointed manager of environmental
9 control.

10 Q. And in that capacity, did you have occasion
11 to become familiar with PCB issues?

12 A. Oh, yes, definitely.

13 Q. And at times you acted as a spokesman for
14 the company on PCB issues?

15 A. Yes.

16 Q. Did you continue to act in that capacity
17 until your retirement?

18 A. No, sir.

19 Q. How long did you work in that capacity?

20 A. Until February 1st, 1976.

21 Q. You are a chemical engineer by profession?

22 A. Yes, sir.

23 Q. And you have a masters?

24 A. Yes.

25 Q. And you've done some work towards your

1 doctorate?

2 A. Yes.

3 Q. I'd like to have you, if you would, help me
4 in understanding some of the terms that we find ourselves
5 discussing when we talk about PCBs. In the letters PCB,
6 what does the word or the P stand for?

7 A. Poly.

8 Q. And the C?

9 A. Chlorinated.

10 Q. And the B?

11 A. Biphenyl.

12 Q. Bi meaning two?

13 A. Yes.

14 Q. And what is a phenyl?

15 A. It describes a combination of carbon and
16 hydrogen, and the relationships of the carbons form a
17 hexagon at the corners. That is referred to as a phenyl
18 group by the chemist.

19 Q. And so then you have, for biphenyls, two of
20 these hexagons?

21 A. Yes.

22 Q. Could you diagram for me what a --
23 schematically, what a biphenyl looks like?

24 A. Yes, I can do that.

25 Q. Okay. Thank you.

1 (Witness is drawing a diagram on a yellow sheet of
2 paper.)

3 A. The diagram I have sketched here depicts
4 graphically the relationship of the 12 carbons and the
5 hydrogens associated with them. Altogether they form the
6 chemical called biphenyl.

7 MR. CARLSON: Thank you. I'd like to have
8 the court reporter mark this if we could. Actually, I
9 think we'll save time. We have an exhibit sticker
10 ourselves, if that's all right.

11 (Plaintiff's Deposition Exhibit One was marked.)

12 Q. (By Mr. Carlson) I've had marked as
13 Plaintiff's Exhibit Number One, is that the drawing that
14 you just made for us?

15 A. Yes, sir.

16 Q. And in describing the term PCBs, you talked
17 about chlorinated. What does that mean?

18 A. That means, chemically, that the hydrogens
19 that I showed on the diagram had been replaced by a
20 chlorine.

21 Q. Okay. Poly meaning then that there is more
22 than one chlorine?

23 A. Yes.

24 Q. How many possible chlorines can there be on
25 a biphenyl?

1 A. The maximum number would be ten, replacing
2 the ten hydrogens.

3 Q. On this particular drawing, could you, for
4 example, show me a -- molecularly what it would look like
5 if there were three chlorines, for example?

6 MR. RUNNING: Do you want him to strike out
7 the hydrogen atoms?

8 MR. CARLSON: Sure.

9 Q. (By Mr. Carlson) You can just cross out
10 hydrogens and put in chlorines where they may be found.

11 A. Okay. Now, I can show you there is more
12 than one opportunity for chlorine to attach in three
13 different places.

14 Q. Because we have ten hydrogens --

15 A. Because there are ten positions, but any of
16 the hydrogens can be replaced by a chlorine, so an
17 example would be let's take the one hydrogen I crossed
18 here --

19 Q. Okay.

20 A. -- and replace with a chlorine or it can be
21 down and over here or it can be over here. That would
22 represent a three chlorine type PCB.

23 Q. Thank you.

24 MR. CARLSON: We'll offer Plaintiff's Exhibit
25 Number One into evidence.

1 Q. (By Mr. Carlson) Are there PCBs in which
2 all ten of the hydrogens have been replaced by chlorine?

3 A. Did you say are there?

4 Q. Yes.

5 A. Yes, there are. It's called
6 decachlorobiphenyl.

7 Q. And for the folks on the Jury that may have
8 the opportunity to view this, on your diagram, the C
9 stands for carbon?

10 A. Yes.

11 Q. And the H for hydrogen?

12 A. Yes.

13 Q. And the Cl for chlorine?

14 A. Yes.

15 Q. If you can bear with me just one second.

16 (Plaintiff's Deposition Exhibit Two was marked.)

17 Q. (By Mr. Carlson) Mr. Papageorge, I've had
18 marked a number of pages jointly as Plaintiff's Exhibit
19 Number Two, and I think you will see that the first page
20 is a November 4th of 1975 letter to yourself from Harvey
21 Stein, apparently with the Department of Health,
22 Education, and Welfare, and I'd just like to have you
23 familiarize yourself with the document for a moment if
24 you would.

25 A. It's been many years since I've read this.

1 Q. I can understand that.

2 A. I'd appreciate taking the time --

3 Q. That's no problem at all.

4 A. -- refreshing my memory.

5 Q. That's no problem at all. Any time that I
6 ask you to take a look at a document, you take all the
7 time you want so that you are comfortable that you know
8 what is in it.

9 A. Thank you.

10 (There was a break in the deposition for the
11 witness to read the document.)

12 A. I have reviewed the document.

13 Q. (By Mr. Carlson) Mr. Papageorge, you've had
14 an opportunity to review the document?

15 A. I have.

16 Q. Do you remember when you received it?

17 A. I recall it now, yes.

18 Q. You received that in the normal course of
19 your business?

20 A. Yes.

21 Q. If you would be kind enough to take a look
22 at the page entitled Table II, Description of PCB
23 Mixtures.

24 A. Table II.

25 Q. I think it's about the third page from the

1 end.

2 A. I have it.

3 Q. Okay. Thank you. On that particular table,
4 there is use of the word Aroclor, A-r-o-c-l-o-r, could
5 you be kind enough to tell us what the word Aroclor
6 means?

7 A. That's Monsanto's trademark used to describe
8 a series of chlorinated industrial chemicals.

9 Q. Does that include PCBs?

10 A. Yes.

11 Q. For example, here it shows Aroclor and
12 there's a 1242 that's referenced?

13 A. I see it.

14 Q. What do the numbers 1, 2, 4, and 2 stand for
15 in that designation?

16 A. The 1-2 stands for the biphenyl product.
17 The 42 is the percent by weight of chlorine present in
18 that chlorinated biphenyl.

19 Q. And then if we run down that particular
20 table, we see, for example, that there is reference to
21 monochlorobiphenyls, do you see that?

22 A. I see that.

23 Q. And it says that there is a one at that
24 location --

25 A. Yes.

1 Q. -- for the 1242. What does that mean?

2 A. I'm trying to determine -- oh, that
3 represents the number of the chemicals that are
4 represented by that group.

5 Q. That group being, in this particular case, a
6 biphenyl that just has one chlorine?

7 A. Yes.

8 Q. I see. And then going down that same table,
9 we show that there is dichlorobiphenyl, do we not?

10 A. Yes.

11 Q. And there is 16 referenced there?

12 A. Yes.

13 Q. For trichlorobiphenyls, that seems to be the
14 majority, there's 49 of them at that -- or 49 of them
15 indicated there?

16 MR. RUNNING: Why don't we refer to percents
17 instead of amount.

18 MR. CARLSON: All right.

19 Q. (By Mr. Carlson) Is this in percentages?

20 A. Let me see. Yes. It is percentage.

21 Q. So that 49 percent of the Aroclor 1242 is
22 made of trichlorobiphenyl?

23 A. Yes.

24 Q. And we go down to tetrachlorobiphenyls and
25 we have 25 percent; is that correct?

1 A. That's what this chart shows, yes.

2 Q. And for pentachlorobiphenyls, eight percent?

3 A. That's what it shows.

4 Q. And hexachlorobiphenyls is one percent?

5 A. Yes.

6 Q. But it's your understanding that these are
7 approximations?

8 MR. RUNNING: Well, I'll object to
9 foundation. He's just reading off the table the same way
10 you are, Mr. Carlson, but he's giving you his
11 interpretation. I don't think these numbers are in great
12 dispute.

13 MR. CARLSON: Okay.

14 Q. (By Mr. Carlson) Do you have any dispute
15 with the percentages listed for the Aroclor 1242 as
16 listed on table two?

17 A. This could well represent the analytical
18 chemists determination of a particular batch of the
19 material that there is a variation between batches
20 because this is not a refined chemical. It's a
21 commercial and industrial type mixture.

22 Q. I see.

23 A. So there will be variations.

24 Q. Okay. If we look to the column to the right
25 of the Aroclor 1242, we have Aroclor 1254; is that

1 correct?

2 A. That is correct.

3 Q. And again, the 12 meaning that it's a
4 biphenyl?

5 A. Yes.

6 Q. And 54 meaning that its approximate chlorine
7 content is 54 percent?

8 A. That is correct.

9 Q. And then if we look at the composition of
10 the PCBs in the 1254, we find that some of them that are
11 in the 1242 are also in the 1254, do we not?

12 A. That is true in smaller quantities.

13 Q. Smaller quantities for the lower
14 chlorinated?

15 A. Yes, considerably so.

16 Q. Right. And then if we get, for example, to
17 the tetrachlorobiphenyl, tetra meaning what?

18 A. Four chlorines.

19 Q. We have 21 percent of the Aroclor 1254 is
20 tetrachlorobiphenyl, correct?

21 A. That is what it shows.

22 Q. As opposed to the 25 percent in the 1242
23 mixture?

24 A. That's what it shows, yes.

25 Q. And then the pentachlorobiphenyl is shown to

1 be at 48 percent?

2 MR. RUNNING: In the Aroclor 1254?

3 MR. CARLSON: In the Aroclor 1254.

4 A. That's true.

5 Q. (By Mr. Carlson) And in the Aroclor 1242,
6 we found that there was only eight percent?

7 A. In this case, yes.

8 Q. But we do find that we have comparable or
9 some comparable biphenyls in both the 1242 and the 1254,
10 do we not?

11 A. Yes.

12 MR. RUNNING: I'll object to the
13 characterization, comparable. The numbers are there on
14 the table, we don't need to characterize them.

15 Q. (By Mr. Carlson) Is that true, sir?

16 A. Yes.

17 Q. And then if we look at the Aroclor 1260, we
18 find that, first of all, that's 60 percent chlorine?

19 A. That is correct.

20 Q. And it has pentachlorobiphenyls at 12
21 percent, correct?

22 A. That's what's shown on the chart.

23 Q. And 38 percent at hexachloro?

24 A. Yes.

25 Q. Penta meaning what?

1 A. Five.

2 Q. And hexa meaning what?

3 A. Six.

4 MR. CARLSON: We'll be offering Exhibit
5 Number Two into evidence.

6 MR. RUNNING: Just for the record, we are
7 reserving our position of all exhibits to the trial.

8 MR. CARLSON: That's fine. If you have any
9 specific objections with regards to foundation of the
10 exhibits that we've referenced to, I would request and
11 expect that you make those objections at this time
12 however.

13 Q. (By Mr. Carlson) In looking at questions
14 surrounding PCBs, I run across the word isomer on
15 occasion. Can you tell me what isomer means?

16 A. It is generally used by the chemist to
17 describe the fact that some chemicals have the same basic
18 structure but the configuration is different in each
19 case. Take, for example, the trichlorobiphenyl we talked
20 about earlier. The three chlorines that are attached to
21 the two biphenyls, to the two phenyl groups, can position
22 themselves in any one of several positions. Each one of
23 those is a isomer of the other.

24 Q. I see.

25 A. Is the way that chemists describe these

1 materials.

2 Q. For example, on Plaintiff's Exhibit Number
3 One, if we move one of the chlorines that's on the far
4 right-hand side of the drawing to the far left-hand side,
5 that would be an isomer?

6 A. No, that would be the same.

7 Q. That would be the same.

8 A. That's just a mirror image. If you flip the
9 molecule over and you have the same.

10 Q. Okay.

11 A It would have to go to an entirely different
12 position other than the end molecule.

13 Q. Either one of the top or bottom molecules of
14 the hydrogen carbon group?

15 A. Yes.

16 Q. Okay. I've also run across the term
17 terphenyl in looking at the PCBs. Can you tell me what
18 terphenyl means?

19 A. Terphenyl is a chemical that consists of
20 three phenyl groups attached to each other instead of the
21 two.

22 Q. Did your company manufacture at one time
23 hydraulic fluids utilizing terphenyls?

24 A. Yes.

25 Q. Were they chlorinated?

1 A. Yes.

2 Q. Were the chlorines in the terphenyls
3 attaching to the hydrogens as they were for the
4 biphenyls?

5 A. Yes.

6 Q. And did the chlorinated terphenyls that your
7 company manufactured as hydraulic fluids or for hydraulic
8 fluids, did they also contain some biphenyls?

9 A. There was a presence of biphenyls as a
10 contaminant, not as a deliberately manufactured portion.

11 Q. When did your company find out that your
12 terphenyls were contaminated with biphenyls?

13 A. As best I remember, it was about 1975,
14 somewhere in there.

15 Q. Okay. Another word that I find in looking
16 at PCBs and hydraulic fluids is the word Pydraul. What
17 does the word Pydraul mean?

18 A. Pydraul is Monsanto's trademark that was
19 used for a series of fluids used as industrial hydraulic
20 fluids.

21 Q. Was there at one time a fluid known as
22 Pydraul F-9?

23 A. Yes.

24 Q. And when did your company first start to
25 manufacture Pydraul F-9 if you recall?

1 A. Best I can recall is about the middle 1950s.

2 Q. And did the Pydraul F-9s have as a principle
3 component an Aroclor?

4 A. I would characterize it as a component not a
5 principle component.

6 Q. And which Aroclor was a component of the
7 Pydraul F-9?

8 A. As best I recall, it was Aroclor 1248.

9 Q. That would mean that it's 48 percent
10 chlorine?

11 A. Yes.

12 Q. The Aroclor 1248, I don't see that on table
13 II that we had referenced before as a part of Exhibit
14 Two, I believe. Do you, by any chance, happen to
15 remember the composition of the different chlorinated
16 biphenyls that made up the Aroclor 1248?

17 A. No, I don't really.

18 Q. Okay.

19 A. It's somewhat close to the 1242, as best I
20 recall.

21 Q. Would you expect that there were some common
22 chlorinated biphenyls to the 1248 and the 1254?

23 A. Yes, just like the 1242.

24 Q. And then I have also seen a Pydraul 312
25 mentioned, and can you tell me what Pydraul 312 is?

1 A. That's another one of the many industrial
2 hydraulic fluids sold by Monsanto.

3 Q. And are PCBs a component of Pydraul 312?

4 A. Yes.

5 Q. And which of the Monsanto Aroclors was the
6 component of the Pydraul 312?

7 A. Aroclor 1242.

8 Q. Do you recall prior to 1970, on any of the
9 labels that Monsanto used for its Pydraul F-9, did the
10 designation PCB or the words polychlorinated biphenyls
11 ever appear?

12 A. There was, as I recall, an early label that
13 referred to chlorinated diphenyls. Bi is another way to
14 express the presence of two phenyl groups. Subsequent
15 labels referred to chlorinated hydrocarbons, which was a
16 designation which was believed by Monsanto to be better
17 understood by the normal industrial customer that was
18 receiving it.

19 Q. The -- strike that. Did you use the word
20 Aroclor on the labels for the Pydraul F-9?

21 A. No.

22 Q. Did you use the word Aroclor on the labels
23 for the Pydraul 312?

24 A. No.

25 Q. To your knowledge, did your competitors know

1 what the principle -- strike that. Did your competitors
2 know what one of the components -- strike that. To your
3 knowledge, prior to 1965, did Monsanto's hydraulic fluid
4 competitors know that polychlorinated biphenyls were a
5 component of its hydraulic fluids?

6 A. I don't have any knowledge to answer that.

7 Q. Is it true that your company made a decision
8 not to reference polychlorinated biphenyls on the labels
9 of the F-12 -- I'm sorry, F-9 and 312 so that your
10 competitors wouldn't know that one of the components was
11 the polychlorinated biphenyl?

12 A. That is not true because our competitors had
13 sophisticated laboratories and they could find out within
14 an hour the presence of polychlorinated biphenyls.

15 Q. As of what year?

16 A. Well, from the very beginning of the Pydraul
17 formulation, 1950s on.

18 Q. Down to what detection limits do you think
19 the methodology was available to look at polychlorinated
20 biphenyls in your mixtures?

21 A. At what point in time?

22 Q. As of 1960.

23 A. 1960. The capability of most good
24 laboratories ranged down to the percent level, and these
25 materials were present in tens of percent levels, so it

1 would not have been difficult to defect.

2 Q. Fair. Another word that I run across in
3 looking at PCBs is the word biodegrade. Can you tell me
4 what that means?

5 A. That's an expression normally used to
6 describe the situation where a material exposed to
7 elements in nature is converted from its original
8 identity to some other type of material.

9 Q. Do all the of the different kinds of
10 chlorinated biphenyls biodegrade at the same rate?

11 A. No.

12 Q. Do some of the chlorinated biphenyls, to
13 your knowledge, biodegrade?

14 A. Yes, they do.

15 Q. Which chlorinated biphenyls biodegrade more
16 rapidly than others?

17 A. The lower chlorinated biphenyls degrade more
18 rapidly than the higher chlorinated.

19 Q. Is the resistance to biodegrading of the
20 chlorinated hydrocarbons in the upper levels, is that one
21 of the good features of the product or for the product
22 that Monsanto used them for back in the '50s and '60s?

23 A. No. The fact that they were resistant of
24 biodegradation was not a factor in determining the
25 qualities that were sought for. It just supports

1 previously known information that these materials were
2 chemically stable as well.

3 Q. Chemically stable meaning what?

4 A. They are not affected by exposure to the air
5 or to other chemicals and solvents and detergents that
6 most other industrial chemicals that are available. They
7 are not the type of chemicals that react readily.

8 Q. Do you recall that at one time some
9 Pydraul -- strike that. Do you recall at one time some
10 Aroclor 1242 and I think 48 and 54 was intentionally
11 placed on the ground back in about 1939 to see what would
12 happen to it?

13 A. I recall an experiment that was conducted
14 that was primarily designed to establish the
15 effectiveness of wood preserve -- wood preservative
16 chemicals and some of the mixtures that were used
17 included PCBs as the solvent. I do recall the one test.
18 I don't know of any others personally.

19 Q. Do you have some recollection of in the late
20 1960s or early 1970s, being advised that the chemicals
21 that were used in this 1939 experiment were still present
22 in the environment in the late '60s and early '70s?

23 Q. I had a report that said that and included
24 that the presence of the wood preservatives sterilized
25 the environment in which the PCBs were present to the

1 point where there was no biological activity taking
2 place. There was nothing there to degrade the PCBs.

3 Q. Well, some products degrade in air?

4 A. Yes.

5 Q. Okay. And the air didn't degrade the PCBs?

6 A. No, air won't degrade PCBs. It takes some
7 living creature, bacteria for example.

8 Q. Okay. When you said that the PCBs
9 sterilized the area, what did you mean?

10 MR. RUNNING: No, no, that's no what he
11 said. I object.

12 MR. CARLSON: Okay.

13 A. I said that the wood preservative
14 chemical --

15 Q. (By Mr. Carlson) Sterilized the air?

16 A. -- destroys all living creatures in that
17 whole in the ground which is really what it's supposed to
18 do to preserve the wood, and it creates an environment
19 right in that locality where there is no activity by
20 bacteria or fungus or whatever else might have been
21 present originally to the point where the PCB that's
22 there is not exposed to anything that would destroy it.

23 Q. For example, are PCBs degraded by water --

24 A. No.

25 Q. -- or moisture?

1 A. No, unless the water has bacteria in it.

2 Q. Another word that I've run across is
3 biomagnification. Can you tell me what that word means?

4 A. That's used by the biologist who described
5 the situation where a material that's present in the
6 environment and consumed by the the living creatures
7 builds up in these creatures that consume it in their
8 bodies, so to speak, and when they in turn are consumed
9 by a bigger creature, it builds up into bigger creatures'
10 body to the point where the creature at the top of the
11 food chain ends up with an amount of that material that
12 is many times greater than what was present at the very
13 beginning.

14 Q. And does the word biocumulate mean the same
15 as biomagnification?

16 A. Roughly so, yes.

17 Q. Can you give me an example that you are
18 aware of today in showing a concentration level perhaps
19 at a very low level of PCBs in the environment where it
20 has been biomagnified to the point that in some
21 creatures, the concentrations are substantially higher?

22 A. I don't recall specifics, but I can give you
23 an example. There are many studies that were made back
24 in the '70s, demonstrating where a small amount of
25 material is in the water, let's say --

1 Q. Okay.

2 A. -- and that is consumed by algae and other
3 small creatures in the water. They in turn are consumed
4 by the small fish, and then the bigger fish eat the small
5 fish so that by the time the larger fish is analyzed, the
6 chemist finds that that material which was very dilute in
7 the water in the first place is many many times greater
8 in the tissue of that large fish.

9 Q. Can you give me some rough idea of what
10 kinds of increase and concentrations have been seen?

11 A. Well, of course, this depends on the
12 chemical study. It's different from mercury and cadmium
13 and selenium and PCBs.

14 Q. Okay. Well, let's talk about PCBs.

15 A. PCBs. I have heard numbers that are in the
16 tens of thousands, 70,000 is a number that comes to mind
17 in one study. In other words, the fish tissue was
18 analyzed and they found PCBs in it. And the amount there
19 is 70,000 times the quantity found in the water in which
20 this fish was presumed to have existed.

21 Q. To your recollection, has it been found that
22 birds that eat fish also biocumulate PCBs?

23 A. Yes.

24 Q. And does the biomagnification that you've
25 described for me early continue on when birds eat the

1 fish?

2 A. True. That's another step in the food
3 chain, yes.

4 Q. And then if humans eat birds that have eaten
5 PCBs to the bio -- does the concept of biomagnification
6 continue so that it would be a continuing buildup in a
7 human that had a steady diet of these contaminated foods?

8 A. Well, that's the key word, steady diet, so
9 that the input remains almost constant. Eventually, yes,
10 you will find that buildup in a human being.

11 Q. Another word that I see cropping up on
12 occasion with regards to PCBs is the word furans. Can
13 you tell me what a furan is?

14 A. Furans. Well, the word furans applies to a
15 given family of chemicals which consist of carbon and
16 hydrogen just like the biphenyls, and they have, in
17 addition, to carbon and hydrogen, they have oxygen.
18 There is an oxygen involved. That is the proper use of
19 the word furans, the carbon, hydrogen, oxygen chemical.

20 Q. Do furans, to your knowledge, appear
21 naturally in the environment?

22 A. I personally don't know. I have not heard
23 that they have.

24 Q. Do PCBs or polychlorinated biphenyls appear
25 in the environment naturally?

1 A. I, again, do not know. I've never heard of
2 any report that supported that.

3 Q. A phrase that I've run across also is a
4 phrase acute toxicity. Can you tell me what that means?

5 A. That describes the results of tests designed
6 to indicate the amount of material fed to a test animal
7 that would lead to the death of half of the group of
8 animals being tested.

9 Q. Is the phrase acute toxicity different than
10 the concept of long term effects?

11 A. Oh, yes, definitely.

12 Q. What's the difference, conceptually?

13 A. Well, the acute toxicity is one where the
14 results that are noted are very dramatic, and, as I said,
15 the creature that's being exposed dies from that
16 exposure.

17 Q. Okay. What does long term effects then
18 mean?

19 A. Long term tries to describe effects to the
20 test animal that are noted after of the animal is exposed
21 to a steady level of that chemical for it's -- the best
22 approach is the one where it's fed throughout its entire
23 life and the researcher, the person conducting this
24 study, attempts to determine if there is anything unusual
25 happening to that test animal.

1 Q. Do long term effects transcend one
2 generation?

3 MR. RUNNING: Do they always?

4 MR. CARLSON: No, may they.

5 A. I'm not aware of the long term effects that
6 are typically studied being the type effects that one
7 would expect in future generations.

8 Q. (By Mr. Carlson) Okay. What does the word
9 carcinogen mean?

10 A. It describes a material that is demonstrated
11 to cause cells in a living creature to abnormally
12 reproduce and form what we commonly know as cancer.

13 Q. And what does the word mutagenic mean?

14 A. Mutagenic. Keep in mind I'm not a physician
15 or toxicologist.

16 Q. I understand.

17 A. Mutagenic refers to a material that when fed
18 to the parents, let me call it, of the offspring results
19 in some change in the offspring that was not present in
20 the parents.

21 Q. Okay. I'd like to discuss with you a little
22 bit the concept of PCBs and whether or not they are
23 found, you know, in food, okay, just as a reference. Can
24 you tell me, have PCBs been found in cows milk?

25 A. Yes, they were found.

1 Q. And when you were at Monsanto, was that a
2 concern of the company?

3 A. Certainly.

4 Q. Can you tell me, did Monsanto make some
5 effort to determine how PCBs got into cows milk?

6 A. Yes, we did.

7 Q. And can you tell me what the results of your
8 work showed?

9 A. There were two sources identified the
10 presence of PCBs in milk. The first source that was
11 studied determined that cattle that were grazing under
12 power lines, the ground of which had been sprayed with
13 oils to reduce growth, weeds, bushes, trees, and the
14 like, were contaminated with PCBs. The cattle then
15 grazing on that grass consumed some PCBs and the PCBs
16 eventually were found in their milk. The other source
17 was the use by some silo construction companies and silo
18 service companies in a coating that was applied to the
19 concrete silo walls to prevent the acids that are
20 generated when the silage ferments from eating into the
21 concrete and destroying the silo. That coating
22 eventually chipped off, peeled off, got into the soddage,
23 the soddage was fed to the cattle, and the PCBs was
24 detected in their milk.

25 Q. Did Monsanto discontinue manufacturing the

1 coatings that were used by these silo service companies
2 and manufacturers?

3 MR. RUNNING: That assumes a fact that's not
4 in evidence that Monsanto did manufacture it in the first
5 place.

6 MR. CARLSON: That's a fair statement.

7 Q. (By Mr. Carlson) Monsanto sold PCBs that
8 were used as plasticizers?

9 A. Yes, sir.

10 Q. And did Monsanto sell PCBs to companies that
11 used PCBs in manufacturing coatings?

12 A. To some of them, yes.

13 Q. For example, can you tell me one or two of
14 the companies that you sold it to for that purpose, if
15 you recall?

16 A. I know they were the major paint companies.

17 Q. And at some time did Monsanto recommend that
18 PCBs not be used in coatings that would be used inside
19 silos?

20 A. Definitely, yes.

21 Q. And that was after the PCBs were found in
22 the milk?

23 A. Yes. I don't want to lead the impression
24 Monsanto sold PCBs directly to the silo contractors.

25 Q. Oh, I understand. You sold them to a

1 coating manufacturer?

2 A. No.

3 Q. No?

4 A. No. We sold them to distributors who then
5 in turn sold them to anyone who came along and bought it.
6 The distributor may or may not have been known what the
7 eventual use was of these PCBs. It's just like you and I
8 going to the store and getting a can of tomatoes and we
9 don't know where the tomatoes are going to end up.

10 Q. I guess that's an interesting analogy.
11 Presumably the grower of the tomatoes knows that
12 eventually they are going to be eaten by somebody. Did
13 Monsanto know eventually that some of its PCBs were going
14 to be used in coatings?

15 A. In coatings, yes.

16 Q. Okay. And Monsanto, prior to PCBs being
17 found in cows milk, did not put any restrictions on the
18 kinds of coatings that the PCBs could be used in?

19 A. No, we did not.

20 MR. RUNNING: If you've reached the end of
21 that line of questioning, why don't we take a break, if
22 you have a few more questions.

23 MR. CARLSON: No, no, that's fine. We can
24 take a break at any time. That's fine.

25 MR. RUNNING: Okay.

1 (At this time, there was a ten minute break in the
2 deposition.)

3 Q. (By Mr. Carlson) Mr. Papageorge, we've had
4 a chance to have a break, and are you feeling
5 comfortable?

6 A. Yes, sir.

7 Q. Okay.

8 A. Thank you.

9 Q. When you talked a little bit about how PCBs
10 get into tissue of fish and into birds and into milk, are
11 PCBs or have PCBs been found in animal feed?

12 A. Yes.

13 Q. How did it get there?

14 A. Of course, we have to include soddage as an
15 animal feed.

16 Q. Right.

17 A. We talked about --

18 Q. How they got there.

19 A. -- in the soddage. There are examples of
20 PCBs getting into animal feed where ingredients that went
21 into blending the animal feed had previously been
22 contaminated.

23 Q. Can you give me an example?

24 A. Well, there is one example I recall where
25 stale bakery goods in the original wrappers were crushed

1 and ground and prepared as a component in the animal feed
2 that was finally fed to the animals, and the PCBs were
3 found in some of those feeds and it was, although
4 difficult to demonstrate, it was presumed at the time it
5 came from either the adhesives on the packaging or the
6 printing inks.

7 Q. PCBs being a component of each of those?

8 A. Of those printing inks or adhesives. There
9 was one instant where a fish meal that was to be used in
10 poultry feed was being sterilized using PCBs as a means
11 to get a lot of heat on the fish meal to kill the
12 bacteria. Well, it turns out that this fish meal was
13 contaminated because there was a leak in the system, and
14 the PCB oil got into the fish meal, the fish meal was
15 blended into the poultry feed, and the chickens were
16 contaminated.

17 Q. What happened or what kind of equipment
18 developed the leak?

19 A. This was a heat transfer system.

20 Q. What did they do with the chickens?

21 A. I really don't know.

22 Q. Do you remember if they were slaughtered and
23 disposed of?

24 A. They were slaughtered. I don't know what
25 the final disposal was.

1 Q. Have PCBs been found in human lung tissue?

2 A. Human lung tissue. I have not seen any
3 report to show that.

4 Q. Have PCBs been found in human tissue?

5 A. I have heard allegations that they have
6 been, but I have not seen any official report personally
7 that tells me that.

8 Q. Okay. Have you read any studies on long
9 term neurological effects caused by PCBs in humans?

10 A. I'm not aware of any such study.

11 Q. Are there -- first of all, what is the FDA?

12 A. That's the Food and Drug Administration.

13 Q. And amongst other activities, do you know if
14 the FDA has set a maximum PCB concentrations allowable in
15 different kinds of foods?

16 A. Yes, they have.

17 Q. For example, are you currently aware of the
18 maximum PCB concentrations permitted in milk?

19 A. I don't know how current my information is.
20 When I was involved, it was at five parts per million in
21 the butter fat.

22 Q. What did that convert to in milk?

23 A. Well, whole milk is about four percent
24 butter fat, four or five percent, so if it's five parts
25 per million -- I'd have to have a piece of paper and

1 pencil to calculate it, it's quite small in the total
2 milk because it's, as you can see, 95 percent of that
3 milk is PCB free.

4 Q. Have there been any guidelines or advisories
5 issued by any regulatory agencies that you are aware of
6 relative to pregnant women consuming food stuffs that are
7 contaminated with PCBs?

8 A. I'm not aware of any reference specifically
9 to pregnant women and PCBs.

10 Q. Are you aware of any regulatory agencies
11 that have issued any guidelines with regards to maximum
12 concentration levels for fish of concentration levels of
13 PCBs?

14 A. The FDA had a level, as I remember. It was
15 in the edible tissue, about five parts per million, and I
16 recall some states along the Great Lakes had advisories
17 as distinguished from regulations --

18 Q. Right.

19 A. -- in which they advised the general public
20 regarding the eating of fish which contained PCBs. I
21 forget exactly what they advised them except to caution
22 them not to over do it.

23 Q. Have there been any regulations from the FDA
24 issued on PCB concentrations allowable in poultry?

25 A. Yes.

1 Q. Do you remember what the concentrations
2 were?

3 A. I'm not certain of this number. I think
4 it's something like five parts per million.

5 Q. And how about in meat, that is in beef?

6 A. I don't remember any limit on meat
7 specifically.

8 Q. How about eggs?

9 A. Eggs. There was a limit on eggs. I don't
10 recall the amount.

11 Q. We have been discussing to some extent PCBs
12 that get into fish, and I think you've explained to me
13 one of the ways that PCBs get into fish tissue. Is it,
14 from your reading and understanding of PCBs, possible for
15 fish to take PCBs directly through the gills?

16 A. Yes.

17 Q. How does that occur?

18 A. Well, I'm not a fish scientist. I
19 understand that the gills are capable of absorbing
20 materials like PCBs through their fatty cells and then
21 that in turn is moved into the body of the fish and gets
22 distributed. That's my laymen's understanding of what
23 happens.

24 Q. I think from our discussions earlier, you
25 had indicated PCBs aren't soluble in water, are they?

1 A. They are very very slightly soluble. There
2 is an amount that does dissolve in water.

3 Q. When PCBs get into the fish gills, for
4 example, does that -- how does the PCB -- strike that.
5 Is the PCB there floating around in the water or is it
6 bound to something else in the water?

7 A. If could be both ways. There could be some
8 of the PCB actually dissolved in the water, especially
9 when it's say five parts per billion kinds of
10 concentrations. It is also possible for particulate
11 matter, little grains of sand or whatever exists in the
12 water, to carry with it a little PCB. And as that flows
13 through the gills, it could be captured by the fish's
14 system.

15 Q. Have PCBs been found in many lakes?

16 A. Oh, I wouldn't say many, some lakes.

17 Q. Have they been found in rivers?

18 A. Some rivers, yes.

19 Q. Streams?

20 A. Streams, yes.

21 Q. Have PCBs been found in the Great Lakes?

22 A. Yes.

23 Q. Including Lake Michigan?

24 A. Yes.

25 Q. Do you know if PCBs have been found in the

1 Milwaukee River?

2 A. I believe, yes, I believe I remember that.

3 Q. And do you recall PCBs have been found in
4 the Sheboygan River in Wisconsin?

5 A. Yes.

6 Q. With regards to the PCBs found in a river,
7 let's take the Sheboygan River for example, how do PCBs
8 get in the river?

9 A. Well, there are many ways. It all depends
10 what that river is associated with in terms of industries
11 or other streams feeding it. The PCBs could get in there
12 from accidental spills, for example, or someone dumping
13 into a landfill that isn't the proper type and the PCBs
14 work their way in the underground water and end up in the
15 stream or river. It could end up with the disposal into
16 the river of material that were painted with coatings
17 that had PCBs on them or the carbonless copy paper that
18 had, at one time, PCBs in it. I guess to summarize,
19 most -- many of the uses of PCBs at one time were
20 involved with could have found their way into this water
21 system somehow.

22 Q. Your reference to PCBs that were deposited
23 in landfill that was not of the proper type, I believe,
24 if we can go back and look, for example, in a period of
25 time prior to 1970, are you aware did Monsanto issue any

1 advisories as to what a proper type of landfill would be
2 for disposing PCBs?

3 A. Well, the advice was not of a scientific
4 nature. It referred to the use of a landfill approved by
5 the local authorities who were the people monitoring the
6 landfill activity, its location, and whatever it took to
7 run a responsible landfill, so the advice was dispose
8 this material in a properly authorized landfill.

9 Q. And did that information appear on the
10 Pydraul F-9 label?

11 A. Not on the label, no.

12 Q. Did it appear on the Pydraul 312 label?

13 A. Not on the label.

14 Q. Did that information appear on the Pydraul
15 312a label?

16 A. No. The labels do not refer to disposal and
17 landfills for any chemical that I'm aware of.

18 Q. Did any of those -- strike that. The 312a
19 label, what product does that stand for?

20 A. 312a was the formulation in which the PCBs
21 were removed and the polychlorinated terphenyls were used
22 to give the fire resistance.

23 Q. Did Monsanto at any time place any
24 statements about not disposing of PCB products -- strike
25 that. Did Monsanto ever include on any of its products

1 utilizing PCBs on the label information with regards to
2 protecting the environment from exposure to these
3 products?

4 A. Oh, yes.

5 Q. For example, did you do that with regards to
6 your Pydraul 1260?

7 MR. RUNNING: Pydraul 1260?

8 Q. (By Mr. Carlson) I'm sorry, the Aroclor
9 1260, products using trhe Aroclor 1260.

10 A. Yes, we did.

11 Q. Your company did not put such a statement on
12 the labels for the Pydraul F-9, did it?

13 A. That's not true.

14 Q. Is it your testimony that the Pydraul F-9
15 label contains a statement about protecting the
16 environment from exposure to PCBs?

17 A. No. The container of Pydraul F-9 shipped to
18 the customer in addition to its identity label had a
19 second label affixed which carried the environmental
20 message of proper handling, disposal, and use.

21 Q. Was that a Department of Transportation
22 label?

23 A. No, that's a Monsanto-designed label.

24 Q. The labels themselves, that is the F-9
25 label, did not contain such information?

1 MR. RUNNING: The identity label as opposed
2 to the environmental label?

3 MR. CARLSON: Yes, the identity label.

4 A. The identity label did not contain the
5 environmental statement. The environmental statement was
6 affixed to the container separately.

7 Q. (By Mr. Carlson) The concept of PCBs being
8 in the waterways that we discussed, one of the things I
9 think you talked about was where the waterways were in
10 proximity to industry and whether or not there maybe PCBs
11 present.

12 A. And the question?

13 Q. Okay. I mean, that's one of the things that
14 you would look at to see if there is a potential for PCBs
15 to be present in waterways is whether or not there is
16 industry present?

17 A. Yes.

18 Q. And as Monsanto found that over the years
19 PCBs would get into cooling waters of manufacturing
20 facilities?

21 A. I've never heard such a report. I do not
22 know.

23 Q. With regards to die cast companies, do you
24 know is water used for particular purposes in die cast
25 operations.

1 A. I understand that they do use cooling water,
2 yes.

3 Q. And do you know what purposes that -- or
4 what it cools, what does that water use to cool?

5 A. I think it's the hot metal, isn't it?

6 Q. Okay.

7 A. That's my understanding.

8 Q. Okay. And do you know if PCBs have been
9 found in cooling waters of die cast facilities?

10 A. I do not know that.

11 Q. Is -- have PCBs been found in the
12 Sheboygan -- strike that. Have PCBs been found in the
13 Waukegan Harbor?

14 A. Yes.

15 Q. And has Monsanto looked at where those PCBs
16 came from?

17 A. I don't think I understand the question.
18 You mean does Monsanto conduct any program to do this?

19 Q. Or review any literature or talk to anybody.

20 A. We -- Monsanto is aware of the presence of
21 PCBs in Waukegan Harbor primarily because of the
22 environmental protection agency activities in that area.

23 Q. And from the work by the environmental
24 agency commonly known as the EPA?

25 A. Yes.

1 Q. Was there some information that was
2 generated as to where those PCBs came from?

3 A. Yes.

4 Q. Where was that?

5 A. That was from a plant of a company that
6 manufactured outboard motors for boats, at least
7 manufactured parts of the motor. I don't know how
8 complete.

9 Q. And where did the -- or where were the PCBs
10 used in that manufacturing operation?

11 A. Die casting operations.

12 Q. And then how did the PCBs get from the
13 outboard motor manufacturer to the harbor?

14 A. I can give you my understanding.

15 Q. Okay.

16 A. They had in that particular plant a system
17 that involved an extensive sewer system which led to the
18 environment eventually. There was a mixing of water and
19 hydraulic fluid which contained PCBs, and these mixtures
20 were allowed to enter the sewer system and that's how
21 they found their way into the harbor.

22 Q. Were the PCBs to -- as you understood it,
23 intentionally mixed with water?

24 A. Oh, no, it's not an intentional mixture.

25 Q. How does that occur?

1 MR. RUNNING: How did it occur --

2 MR. CARLSON: Yes, that's right. How did
3 that occur.

4 MR. RUNNING: If you know.

5 A. I don't know personally how it occurred
6 other than the general problems that a die casting
7 operation might encounter.

8 Q. (By Mr. Carlson) What kind of general
9 problems are those?

10 A. There are potentials there for leakage from
11 the systems and senses is employed under high pressure,
12 you have that stress on the hoses, the hoses fail
13 occasionally, so there's a lot of opportunity for the
14 liquid to get out of the system, onto the floor, mix with
15 water, and then end up down the sewer.

16 Q. If PCBs are in concentration levels of water
17 of 100 parts per million, can you see the PCBs?

18 A. At 100 parts per million, yes.

19 Q. What levels can't you see them to the naked
20 eye?

21 A. It depends on the type of PCB. The higher
22 the chlorinated content, the less will dissolve in water.

23 Q. Okay. For example, if we looked at the
24 Aroclor 1242 and its mixture of the various molecules, at
25 what percentage level would you expect to be able to see

1 the Aroclor 1242 in the water?

2 A. As I recall, Aroclor 1242 at room
3 temperatures will dissolve in water to a level of about
4 200 parts per billion. Anything above that is not truly
5 dissolved. It's two phases. Now, it can exist if there
6 is enough of it as two layers, a water layer and a PCB
7 layer, but generally, it will appear as a cloudiness in
8 the water.

9 Q. Okay. At some point in time, did regulatory
10 agencies start to place upper limits of concentration of
11 PCBs that would be allowable in cooling water discharge
12 from facilities such as die cast companies?

13 A. I understand such levels were eventually
14 established, but this happened after I was transferred
15 from this PCB assignment.

16 Q. And again, when was that?

17 A. '76.

18 Q. If you'll bear with me, I'm going to take a
19 break for a second. Is that okay?

20 A. Fine.

21 Q. Okay. Thanks.

22 (At this time, there was a short break in the
23 deposition.)

24 Q. (By Mr. Carlson) We are back on the record,
25 and I appreciate this. Were there some Monsanto products

1 that utilized PCBs as a component in which the label
2 itself was modified to contain an environmental
3 statement?

4 A. Yes.

5 Q. Can you give me an example of some of those
6 kinds of products?

7 A. Do you want it by the trademark
8 description --

9 Q. Sure, that would be fine.

10 A. -- or the types of applications?

11 Q. Trademark description would be fine.

12 A. Well, the Aroclor -- all of the
13 Aroclor-contained PCBs that were sold to the plasticizer
14 application eventually were converted when the old supply
15 labels was consumed where a new printing was ordered, the
16 new message was added along with the other information on
17 the label.

18 Q. I see.

19 A. And that also happened with the electrical
20 fluids that were produced by Monsanto. Again, a case of
21 when the old labels were used, the new labels were
22 modified to show the new message.

23 Q. Did you discuss with people in Monsanto the
24 question whether or not the Pydraul labels should be
25 modified to contain such an environmental statement?

1 A. Yes, we did.

2 Q. And who did you discuss that with?

3 A. With the representatives of the business
4 group that sold the Pydrauls.

5 Q. And was the decision made as to whether or
6 not you would make a similar environmental statement on
7 the Pydraul labels that you were making on the these
8 other labels that you described for me?

9 A. No, because the plans were well underway for
10 eliminating the presence of PCBs in the Pydraul product
11 line and there was ample supply of the old labels still
12 on hand, and it was deemed appropriate to continue to use
13 the add-on label, a separate label to convey the message.

14 Q. Okay. The add-on label or the separate
15 label, is that a label that was developed in 1970?

16 A. Yes.

17 Q. So that the F-9s sold prior to 1970, did not
18 have this sticker that we talked about?

19 A. Not only the F-9, but all of the PCB
20 products did not contain that message.

21 Q. Did you do any work or check up to see if,
22 in fact, the lable that you are making reference to or,
23 I'm sorry, the sticker that you are making reference to
24 was, in fact, put on these barrels of the F-9 and 312
25 after they became in use in 1970?

1 A. Do you mean that I stayed there and watched
2 ever container leaving the plant?

3 Q. Well, did you see some of them leaving the
4 plant that way?

5 A. I saw some of them being -- the label being
6 added onto the drum at the end of the packaging line.

7 Q. And if the drum arrived at a customer
8 without this sticker on it, that would be contrary to
9 your wishes as of the end of 1970, for example?

10 A. By the end of 1970 -- I don't know if it
11 would be contrary to my wishes. It would -- I'd be very
12 surprised if it didn't have it on by the end of 1970.

13 Q. Okay. Is it possible that some drums did go
14 out without the sticker that were in inventory somewhere
15 at the end of 1970?

16 A. I suppose anything is possible, but the
17 chances of that happening, I just would be, again,
18 surprised. The inventories were never that great that
19 they would last that long.

20 Q. Why did Monsanto develop --strike that. Why
21 did Monsanto put an environmental statement on the labels
22 of some of its PCB products in 1970?

23 A. We put it on all of the PCB products in
24 1970.

25 Q. Well, you put it on the labels, the

1 identifying labels themselves in some products and the
2 sticker on other products.

3 A. Well, the intent is the same.

4 Q. Okay. And I don't want to quibble about
5 that. Why did you decide to do that?

6 A. Again, it was a practical kind of thing. If
7 you have thousands of labels available --

8 Q. I don't want to interrupt you. I think we
9 have an understanding of that. What I'm interested more
10 in is what had occurred in science that led to Monsanto
11 to putting these environmental statement on its products?

12 A. I misunderstood.

13 Q. No, you didn't misunderstand. I didn't say
14 it very quick clearly.

15 A. The statement, whether it appeared on the
16 total label or as two labels was affixed on the product
17 package after Monsanto was firmly convinced that the
18 reports that had been circulating for a couple of three
19 years were truthful, that PCBs were indeed identified as
20 being found in various places in the environment that
21 they could be a contaminant, and the need to control it
22 was established in Monsanto's thinking, that's when the
23 words were put together to convey to the user.

24 Q. When you say that the need to control it was
25 accepted by Monsanto, what do you mean by that?

1 A. Well, I don't know that it was accepted so
2 much as recognized that in order to keep this material
3 from being found in the environment, you've got to
4 control it back where it's manufactured, where it's
5 shipped, where it's used, on and on.

6 Q. Why did it make a difference as to whether
7 or not it was found in the environment?

8 A. (Witness didn't respond to the question.)

9 Q. What was it that was occurring in the
10 environment that prompted this concern to put the sticker
11 on or the label on that contained this statement?

12 A. At what point in time?

13 Q. 1970.

14 A. 1970. There were reports that some species,
15 an example given of an extremely sensitive one was the
16 baby shrimp were affected by PCBs of the higher
17 chlorinated type. There were some reports that the
18 investigator wasn't too sure if it was the pesticides or
19 PCBs, but some wild birds eggs that weren't hatching
20 properly or the egg shell was so thin that the mother
21 bird would break it as she sat on it. There were reports
22 that it was being found in fish. Now, the effect on fish
23 wasn't established. The presence was. And Monsanto
24 decided that since this is a industrial chemical that it
25 manufactured and not knowing what the effects in the

1 environment might be, the responsible thing to do is to
2 prevent it from getting into the environment.

3 A. Did Monsanto sell Aroclors to Westinghouse
4 or PCBs to Westinghouse?

5 A. PCBs to Westinghouse, yes.

6 Q. And did Westinghouse resell those to its
7 customers or some of them to its customers?

8 A. Yes.

9 Q. And did Westinghouse put an environmental
10 statement on its PCB products?

11 A. Well, that was Monsanto. Monsanto packaged
12 the material for Westinghouse using Westinghouse's
13 trademark.

14 Q. Didn't Westinghouse put an environmental
15 statement on it's PCB products in 1968?

16 A. '68. I'm not aware of that. I don't know.

17 Q. How are PCBs made?

18 A. We start with a material called biphenyl
19 which in turn is made from benzine which is fairly
20 commonly known. The biphenyl itself at room temperature
21 is a solid material. It looks an awful lot like white
22 candle wax. It is put into big tanks and heated so it
23 becomes a liquid, and then chlorine, the very same kind
24 of chlorine that's used to sterilize or treat swimming
25 pools, the same kind of material, is bubbled through this

1 liquid biphenyl. In the presence of iron, we used to use
2 iron filings, and it was agitated. And from experience,
3 the operator knew that in order to make a certain kind of
4 mixture, for example, the Aroclor 1242, he had to
5 continue this chlorination for so many hours. At the end
6 of that period, he takes a sample, and he determines
7 its -- what we call its specific gravity, its weight, and
8 if it reads properly, he stops the chlorination. The
9 material is then flushed with air to remove any chlorine
10 that's still in there and other gases, and it also cools
11 down the material a little bit. That -- we called it
12 crude PCB is transferred over to another system where
13 heat is applied and the vapors are driven off and
14 distilled and captured and that's the finished product.

15 Q. Okay. When you talk about chlorine that is
16 used, and that's the chlorine atoms that have talked
17 about on our drawing here, Exhibit Number One?

18 A. That is true.

19 Q Chlorine at temperatures that we find, I
20 don't know, in North America, what form is that, is that
21 a liquid, is that a gas, is that a solid?

22 A. Well, it's predominantly -- I can speak
23 better, I suppose, of the industrial uses where it's
24 compressed, put under pressure until it becomes a liquid,
25 and it's stored in steel cylinders and shipped to the

1 user. The user in every case that I'm aware of uses it
2 as a gas for his purposes, so it does exist in both
3 forms.

4 Q. All right. As a liquid under pressure?

5 A. Yes.

6 Q. Chlorine by itself doesn't persist in the
7 environment, for example, in bound dirt in the ways that
8 PCBs do, does it?

9 A. No.

10 Q. Just a little bit ago we had talked about
11 PCBs being found in the environment. When did PCBs first
12 start -- when were they first manufactured for industrial
13 purposes of any type?

14 A. The first industrial manufacturer occurred
15 in, as best I recall, about 1929, in this country.

16 Q. That was by the Swan Chemical Company?

17 A. Yes.

18 Q. And did Monsanto buy Swan?

19 A. Yes.

20 Q. And when PCBs were first started to be used,
21 in what applications were they used?

22 A. They were used as an ingredient in
23 transformer oils.

24 Q. And what property was it about PCBs that
25 made them good for that?

1 A. The two properties, the key one that made it
2 different from other oils was the fact that it was fire
3 resistent. It would not burn readily. The other, of
4 course, it had to be a good insulator. It can't conduct
5 electricity.

6 Q. Does the term dielectric come into play
7 there?

8 A. That's the word used to describe a liquid
9 that has this insulating property. It does not conduct
10 electricity.

11 Q. And then when did Monsanto first start to
12 use the PCBs in any hydraulic fluid application?

13 A. In the 1950s.

14 Q. And from the documents of Monsanto that
15 you've had an opportunity to review, have you found
16 documents which indicate that Monsanto was aware of the
17 potential PCB hydraulic fluid to mix with cooling water
18 under some circumstances?

19 A. I have -- yes, there are some documents I've
20 personally seen which refers to this potential.

21 Q. And prior to 1970, were there any Monsanto
22 documents that you ran across which directed die cast
23 companies not to allow this to occur?

24 A. I don't know your meaning of directed. We
25 had no such control over any customer. I recall

1 references to the undesirability of mixing it with water
2 and there were also some references, I recall, where
3 procedures for salvaging the oil for reuse were
4 described. So the topic of water and oil or fluid
5 mixture was covered in the older documents.

6 Q. This reclamation of Pydraul fluids, that's
7 what you are talking about in one of the types of
8 documents that you were able to see?

9 A. Well, that is a part of the -- a
10 reclamation, by my definition, implies that some chemical
11 is added or taken out, some processing is involved,
12 whereas in a way recycling of the usable -- still usable
13 material is a little different.

14 Q. Okay. Monsanto at one point had made
15 recommendations to its die cast customers using Pydraul
16 fluids as to a way that the Pydraul fluids could be taken
17 out of water that it had inadvertently mixed with and
18 then going on to be processed so that it could be reused,
19 did it not?

20 A. Yes.

21 Q. And the documents that reference that
22 reference that it can be done for economical reasons?

23 A. Well, it's certainly a factor, yes.

24 Q. What does the document say?

25 MR. RUNNING: Well, why don't you show him

1 the product. There's no reason for him to have a memory
2 test over what the documents say.

3 Q. (By Mr. Carlson) Do you recall?

4 A. Not specifically. There was the factor of
5 the economic advantage. I don't recall the specifics at
6 all.

7 Q. Prior to 1970, there was no information on
8 any of the advice that Monsanto gave to its customers on
9 separating Pydraul fluids from its water that this should
10 be done to protect the environment; isn't that true?

11 A. That is true.

12 Q. And the fact that you knew that the water
13 and the Pydraul fluid was going to be in existence
14 together, subjected so that it could be recycled if one
15 chose to, you also knew that water could go somewhere
16 else, didn't you?

17 MR. RUNNING: Well, I object. You haven't
18 led the foundation of the predicate for the question.
19 You are assuming that it takes place in every instance or
20 the instance in Waukegan. Each plant is different. Each
21 plant has its own unique environment. And many plants
22 don't even have sewer systems connected to the poise of
23 the die cast areas. Stroh is an example.

24 Q. (By Mr. Carlson) Can you answer the
25 question?

1 A. I think forgot what the exaction question
2 is.

3 Q. Sure. Monsanto recognized that in die cast
4 plants there was potential for Pydraul fluid mixed with
5 water and that Pydraul fluid would then go out into the
6 environment either discharged as part of its cooling
7 water and not -- that is the Pydraul not being separated
8 from the water; isn't that true?

9 A. I don't believe that Monsanto automatically
10 assumed it would enter the environment. There are some
11 practices -- there were even at that point in time
12 practices that an industry were followed to prevent
13 industrial chemicals from being freely discharged into
14 sewer systems or back yards, back of the back lot of the
15 plant, that was not a common enough practice to lead
16 Monsanto to believe that a gross release was taking
17 place. The material really was treated as an industrial
18 chemical like thousands of others are.

19 Q. Okay. Well, let's talk first of all about
20 ways in which the water and the hydraulic fluid maybe
21 mixed together, okay. And one of the ways that could
22 occur is if you have, for example, a pump in the
23 hydraulic system and that fluid gets on to the floor and
24 if it's washed up that can get into water at the plant,
25 correct?

1 MR. RUNNING: Well, I object to the question
2 unless you get particulars. You are making a lot of
3 assumptions that you aren't sharing with the witness. If
4 it's like the Stroh plant --

5 MR. CARLSON: I don't need for this
6 particular deposition anything other than an objection.
7 If you want to object, object. If you don't want to
8 object, don't object.

9 MR. RUNNING: Listen, Mr. Carlson, don't
10 instruction me on how to state objections.

11 MR. CARLSON: Do you want to go off the
12 record?

13 MR. RUNNING: No, let's not go off the
14 record.

15 MR. CARLSON: All right. All right.

16 MR. RUNNING: Let's just stay on the record,
17 and I'm telling you that the question has a lot of
18 assumptions that are improper and it's not an
19 intelligible question.

20 MR. CARLSON: Then don't start referencing
21 particular situations such as a particular company.

22 MR. RUNNING: Well, if you are asking
23 relevant questions, it will be about the Stroh plant, and
24 you know very well the Stroh plant does not have a floor
25 sewer system that leads to a muninciple sewer system. It

1 has a trench system that leads to an oil collection
2 system, so all of these questions are irrelevant and none
3 of them have any purpose except to mislead this witness
4 or to mislead the Jury.

5 MR. CARLSON: No. You know and the witness
6 knows that Monsanto knew that hydraulic fluid and water
7 was getting mixed together and it was going into streams,
8 it was going into lakes, and it was polluting this
9 country, and this is the one of the ways that it occurred
10 without any wrongdoing by the Monsanto customers. You
11 know that and the witness knows that.

12 MR. RUNNING: I'm sure you'll have other
13 opportunities to rehearse your Jury speeches, Mr.
14 Carlson. All I'm asking you is that you give the witness
15 in your questions enough facts so that he can answer the
16 questions intelligently. I don't agree with your Jury
17 speech, but you are a capable lawyer and I know you will
18 give a great Jury speech come the openin argument but
19 let's save it.

20 MR. CARLSON: Okay. Why don't you then
21 object to the question and we'll let the witness answer
22 it just like the rules provide.

23 MR. RUNNING: That's exactly what I did.
24 I'm asking you to state relevant objections.

25 MR. CARLSON: No, you are asking me to state

1 questions.

2 MR. RUNNING: I'm sorry. I'm sorry. I'm
3 asking you -- I mean, a relevant question is a question
4 that pertains to the Stroh plant and you know about the
5 floor systems.

6 MR. CARLSON: The relevant question that
7 pertains to what Monsanto knew about what was happening
8 with its hydraulic fluids in the die cast industry. Now,
9 I will ask the question and you will object to the
10 question and we'll kind of proceed on an early basis.
11 And, Mr. Papageorge, you've been around lawyers long
12 enough that you know that we will get into these tiffs
13 and I'm sure that won't affect you.

14 Q. (By Mr. Carlson) Now, it is true, isn't it,
15 that prior to 1970, Monsanto knew that Pydraul containing
16 PCBs on occasions would become mixed with cooling water
17 in die cast facilities, that is true, isn't it?

18 A. Yes. The key word there also, Mr. Carlson,
19 is on occasion. It doesn't happen as a normal practice.

20 Q. But it can happen?

21 A. It can happen.

22 Q. And it is also true that on occasion Pydraul
23 containing PCBs can become mixed in die cast plants with
24 water used to clean the plant?

25 A. I personally don't know of how plant

1 management goes about arranging for cleaning its plant.

2 I don't know enough about it to comment on that.

3 Q. For example, you don't know if die cast
4 companies use water to clean its floors?

5 A. Yes, I don't know that.

6 Q. From documents that you reviewed, did
7 Monsanto -- other people in Monsanto know that at some
8 point prior to 1970?

9 A. There were occasions when Monsanto people
10 knew of some instances where the industrial fluid
11 containing PCBs was being released to sewers. This was
12 not perceived to be a general practice, but there were
13 occasions.

14 Q. And after -- strike that. At some point in
15 time, Monsanto recognized that its customers should be
16 told not to allow this to occur; would that be a fair
17 statement?

18 A. Yes.

19 Q. That was the purpose of the stickers and the
20 warnings that you put on your products?

21 A. That is correct.

22 Q. Now, would it be correct to say that
23 Monsanto was concerned about the long term effects of
24 PCBs on the environment at the time it abides its
25 customers not to permit to the water and Pydraul to

1 become mixed and discharged into the environment?

2 A. The long term effects were certainly a
3 consideration, but you limited your comment by saying not
4 to mix with water and enter the environment. There are
5 ways to get into the environment other than mixing with
6 water.

7 Q. Surely.

8 A. This label tried to cover any means whereby
9 PCBs end up out there in the environment.

10 Q. Okay. Now, from 1929 until 1968, almost 40
11 years, I guess, what studies did Monsanto do on the
12 potential long term effects of PCBs on wildlife in the
13 environment?

14 A. None. No different than any other
15 industrial chemical.

16 MR. CARLSON: And we'll strike the last
17 portion as being a voluntary statement.

18 Q. (By Mr. Carlson) At the Anniston plant, was
19 there a water discharge from that plant?

20 A. Yes.

21 Q. And what kinds of chemicals showed up in
22 that discharge?

23 A. I, again, don't know how to answer to your
24 kinds of chemicals. There were certainly PCBs. And the
25 discharge, are you talking about the discharge from each

1 operating unit to this system?

2 Q. No, from the system into the Snow Creek, I
3 think it was. I'm sorry, there was a river or stream
4 going by there?

5 A. There is a creek, Snow Creek, but there was
6 no discharge into that creek. There was rain wash off
7 across the property into that creek.

8 Q. Okay. Did that rain wash off, from what
9 you've been able to determine, carry PCBs with it?

10 A. On occasion it did.

11 Q. And it was recognized back in the early
12 '60s, that there was no life in Snow Creek in the area
13 where these chemicals were being washed into it; is that
14 true?

15 A. It's a dry creek except when it rains, so
16 it's just a natural ditch.

17 Q. And where did that ditch run to?

18 A. As I recall, it emptied into another creek
19 called Shockalocka Creek (phonetic).

20 Q. And where did that go?

21 A. That eventually went into a local lake.
22 I've forgotten the name of the lake. There is a man-made
23 lake in that area.

24 Q. Was any work ever done to determine the
25 effect of these chemicals that have been washed off the

1 Monsanto property into that lake?

2 A. There was some studies made about 1970, '71,
3 as best I recall, in which fish were captured and
4 analyzed for presence of PCBs.

5 Q. But nothing prior to 1970?

6 A. That is right.

7 Q. Wasn't there a water discharge from the
8 Anniston plant as well?

9 A. Yes.

10 Q. And where was that water discharged to?

11 A. To the City of Anniston sewage system.

12 Q. And did that water discharge contain PCBs?

13 A. No.

14 Q. Did it on occasion?

15 A. On occasion, I'm sorry. It did on occasion.

16 Q. For example, if you had a pump leak, it
17 could contain PCBs?

18 A. Hum. If that pump leak wasn't properly
19 controlled, it's possible for it to end up in the sewer
20 system, which we try to avoid as much as possible.

21 Q. Are there areas of the country where PCBs
22 are found where there haven't been direct contamination
23 as were some, you know, PCB containing fluid wasn't
24 deposited or the solids stored or land filled or
25 something?

1 A. Yes, there were. I, of course, don't
2 remember all of it, but the two that do stand out in my
3 mind is we have never been able to establish why the
4 brown pelicans off the southern coast of California
5 somehow got exposed to PCBs. There were reports also out
6 of Arkansas, Stuttgart, as I remember was the name of the
7 city there in that area where PCBs were found, and there
8 is no industry there, there was no connection that we can
9 make between industrial use and the presence of PCBs.

10 Q. Did the scientist at Monsanto develop some
11 theories as to how that occurred based on the documents
12 you've add an opportunity to review and the people in
13 Monsanto you've talked to?

14 A. Well, they had some considered scientific
15 opinions.

16 Q. Okay. Do you recall what those were?

17 A. It was primarily one of -- considering the
18 sources coming from the carbonless copy paper
19 application, and the thought occurred that this paper was
20 in many cases probably burned in the typical kind of
21 municipal system, and the burning was not enough to
22 destroy the PCBs. All they did was vaporize it. It got
23 up into the atmosphere, and the rain patterns deposited
24 it in these areas where they were surprised to find it.
25 That was the principle opinion that I heard expressed.

1 Q. Let me go back to die cast companies for a
2 second. Obviously, that's of interest to me. Can you
3 tell me prior to 1970, how did Monsanto expect die cast
4 companies to handle its cooling waters and cleaning
5 waters?

6 A. Expect them to handle like responsible
7 members of industry and each one had to design its own
8 procedures and equipment and make sure that they were
9 being followed. That's the expectation.

10 Q. And what kinds of procedures did you at
11 Monsanto expect them to develop with regards to the
12 handling of the their cooling waters and cleaning waters?

13 MR. RUNNING: Objection. The questions
14 ambiguous. Are you assuming that those waters are
15 contaminated with PCBs?

16 MR. CARLSON: I'm not assuming anything. I
17 just want to know what Monsanto thought about how they
18 were handling the waters.

19 MR. RUNNING: If Monsanto had any opinions.

20 A. It covers a full spectrum of ways to handle
21 industrial waste waters, entrapment, diverting them to
22 the proper places, to disposing properly, to treating,
23 all kinds of treating technologies available. It's
24 nothing so sophisticated that a modern industry couldn't
25 get -- didn't have access to.

1 Q. (By Mr. Carlson) Well, Monsanto had some
2 large customers of its hydraulic fluids I presume such as
3 General Motors?

4 A. Yes, they did.

5 Q. I suspect Monsanto had some very small
6 customers of hydraulic fluids that bought maybe just one
7 or two barrels a year?

8 A. They had small ones, yes. I don't know the
9 quantities involved.

10 Q. Was it Monsanto's expectation that the small
11 die cast companies would be handling hydraulic fluids the
12 same way -- strike that. The small die cast companies
13 would be handling its cooling waters and cleaning waters
14 the same way as the larger companies like General Motors?

15 MR. RUNNING: Objection. The questions
16 compound assuming cooling waters and waster waters.

17 Q. (By Mr. Carlson) Go ahead.

18 A. I don't know that the expectations that
19 Monsanto had. I had no information to lead me to think
20 that the expectations varied with the size of the
21 customer. They were expected to behalf responsibly with
22 the material.

23 Q. What was the maximum concentrations of PCBs
24 in cooling water in 1965, that Monsanto thought its die
25 cast customers could release them to the environment

1 without fear of damaging that environment?

2 A. I don't know of any number that was
3 established at that time. It was primarily one of
4 visible to the naked eye presence of oil in that water
5 that was discharged. The analytical methodology was not
6 such that it could have detected the levels that were
7 detectable in later years.

8 Q. When did Monsanto first tell its customers
9 the maximum concentration levels that it recommended that
10 could be discharged safely into the environment?

11 A. Monsanto did not arrive at a number that was
12 official. They had a recommendation.

13 Q. What was the recommendation?

14 A. Ten parts per billion.

15 Q. And when did that recommendation come into
16 effect?

17 A. About 1970. That was dependent on the
18 analytical capability that was considered to be something
19 that was feasible, responsible, and capable of being
20 achieved by a good well-managed laboratory, not
21 necessarily at the forefront of research, but day in, day
22 out kind of analysis.

23 Q. And how did Monsanto convey that
24 recommendation to users of the Pydraul fluids in the die
25 cast industry?

1 A. Primarily through the field representatives
2 in which the field representative was made aware of what
3 Monsanto's plants were striving for as a target. That's
4 the primary means of doing so, yes.

5 Q. So that about 1970, or in that era, Monsanto
6 developed a recommended maximum PCB discharge level in
7 waste water of ten parts per billion?

8 A. Yes.

9 Q. And that was Monsanto's own internal
10 standard that it had tried to adhere to?

11 A. Yes.

12 Q. But Monsanto did not write to the customers
13 that had purchased, for example, Pydraul 312 telling them
14 that they should have their water analyzed to see if
15 their discharge contained PCBs in excess of ten parts per
16 billion?

17 A. No. We were told to keep it out of the
18 environment.

19 Q. Prior to 1970, you didn't tell them
20 anything?

21 A. That's true.

22 Q. And then the ten part per billion, when you
23 say keep it out of the environment, you personally,
24 because 1970 you were involved, you knew that absolute
25 zero concentration level wasn't feasible for die cast

1 companies, didn't you?

2 A. Well, I don't know that I limited to die
3 cast companies. I personally believe that there was a
4 practical level that could be measured and achievable and
5 that from all I could understand, that amount would not
6 cause problems with the environment and that's how I
7 arrived at that number.

8 Q. Okay. But -- strike that. Were there any
9 memorandum given to salesmen -- directing salesmen to
10 tell Pydraul customers to keep their water discharges
11 down to a maximum of ten parts per billion of PCB?

12 A. I don't recall any memorandum. I do know
13 that there were training sessions of which this was
14 discussed.

15 Q. Was this a concept that was important to
16 Monsanto?

17 A. Sure. Yes.

18 Q. Have you read any of the depositions in this
19 case?

20 A. Yes, I have.

21 Q. Have you read Mr. Damiani's (phonetic)
22 testimony.

23 A. Yes, I have.

24 Q. Have you talked to Mr. Damiani?

25 A. No.

1 Q. Are you aware of any indication that Mr.
2 Damiani ever told people at Stroh that their water
3 discharge should be kept down to a maximum of ten parts
4 per billion of PCB contact?

5 A. I'm not aware of that.

6 Q. Was he supposed to have done that back in
7 1970 or when ever he was calling on Stroh?

8 A. From my position, I relied on individuals
9 like Mr. Damiani to convey these messages.

10 Q. So was he supposed to do that?

11 A. Yes. From where I was sitting, he was the
12 link between my office and the customer.

13 Q. At any time that Monsanto manufactured
14 Pydraul hydraulic fluids containing PCBs, did the company
15 ever tell a customer how to properly dispose of the
16 hydraulic fluid containing those PCBs?

17 A. There were suggestions made on methods that
18 Monsanto had personally tried and found successful. And
19 these methods were shared with customers that had a need
20 for them.

21 Q. For example, you shared that with
22 Westinghouse?

23 A. That's one example. There were thousands.

24 Q. Did you ever share that with smaller
25 companies purchasing your hydraulic fluids such as Stroh?

1 A. If there was a need to, yes.

2 Q. Okay. There --

3 A. I didn't perceive Stroh as having that kind
4 of need. We are talking now about discharges and water?

5 Q. No, we are talking about how to properly
6 dispose of hydraulic fluid containing PCBs?

7 A. Ah, yes, yes.

8 Q. Okay. You did tell your customers?

9 A. Yes.

10 Q. And how did you go about doing that?

11 A. Some of it by written letters.

12 Q. Okay. Can you give me some examples --

13 A. Some --

14 Q. I'm sorry. Go ahead. You can list them and
15 then we'll go through those. Some by letters.

16 A. Letters. Some were the general mailing type
17 and some were in response to specific questions. There
18 were instructions on labels of some of the PCB products
19 that survived after the 1970 withdraw program giving a
20 telephone number for its intermission service available.
21 And, of course, the word of mouth approach by the field
22 representative.

23 Q. Okay. Now, if we direct our attention to
24 the time that Monsanto made the Pydraul F-9 and 312, was
25 there a general mailing to those customers of those

1 particular products advising them how to properly dispose
2 of the Pydraul hydraulic fluid during the time you
3 manufactured them?

4 A. I'm not aware of -- you are talking now
5 about the period of 1950s, 1960s?

6 Q. Up until whenever you stopped making the 312
7 and F-9.

8 A. Well, sometime in 1970, 1970 on, the
9 availability of an incineration service was made known.

10 Q. There was a letter sent to the Pydraul 312
11 and/or F-9 customers advertising them that this
12 incineration service was available?

13 A. Yes. There was a letter -- I believe it was
14 1973 or so, somewhere in there.

15 Q. You weren't making 312 or F-9 in '73, were
16 you?

17 MR. RUNNING: They were making 312.

18 MR. CARLSON: Okay.

19 Q. (By Mr. Carlson) You were making 312 in
20 '79?

21 A. That's beside the point. The fact is that
22 many units still had them in their symptoms.

23 Q. I'm not quarreling about the decision. I'm
24 just trying to get my time frame straightened out. Were
25 you making 312 in 1973?

1 A. In 1973, we had 312c. It was a second
2 reformulation.

3 Q. Okay. You had 312, 312a -- was there a
4 312b?

5 A. No.

6 Q. I didn't think so. And there's a 312c?

7 A. Yes.

8 Q I'm just looking at the 312a was a
9 terphenyl?

10 A. Yes.

11 Q. 312 was biphenyl?

12 A. Yes.

13 Q. And what I'm trying to look at is for the
14 F-9 and the 312, not the 312a and the 312c, but for the
15 period of time for the F-9 and 312, did Monsanto ever
16 tell its customers how to properly dispose of that
17 hydraulic fluid?

18 MR. RUNNING: As opposed to reclamation
19 disposal?

20 MR. CARLSON: That's right.

21 A. The advice that was given as to properly
22 dispose of it, we were not in any position to recommend
23 specific engineering technologies for treating the waste
24 such that it was acceptable to a public system or really
25 to open streams like using carbon beds, clay beds,

1 distillation, catalytic approach. There was several
2 technologies that could have been recommended. Not
3 knowing the total picture at any plant in terms of what
4 chemicals were present, how much water is involved, and
5 how often it happens, that one cannot make specific
6 suggestions. All you can say is handle it responsibly
7 and that's the only message that Monsanto could give at
8 the time.

9 Q. Later on you told some customers to burn
10 their -- that is incinerate their hydraulic fluids?

11 A. We didn't tell them. We just said if you
12 decide to dispose of material and want some help in so
13 doing responsibly, Monsanto has a service which we are
14 happy to provide for a cost that we hope is break even.
15 We are not going to make any money at it, but we want you
16 to have a responsible place to go. This is available.
17 And that happened starting in 1970 and continued until
18 1977.

19 (At this time, there was a short break in the
20 deposition.)

21 Q. (By Mr. Carlson) We've had a change of the
22 tape so now we can continue. With regards to
23 incineration, the incinerators were first built by
24 Monsanto for that purpose when?

25 A. It was one incinerator installed and

1 operating in 1972, as best I recall, but the material to
2 be destroyed was being accumulated starting in the middle
3 of 1970.

4 Q. And you were charging 3 cents a pound at
5 that time plus shipping?

6 A. Initially it was 3 cents and as time went on
7 and cost and energy costs particularly kept going up, we
8 had to increase the price. It did go up somewhat, but we
9 could not keep ahead of the fuel cost. Energy cost was
10 tremendous.

11 Q. The company also kicked up the prices of the
12 PCB products that were still on the market because of the
13 environmental problems they were causing also, though,
14 didn't you?

15 A. Well, certainly the costs associated with
16 addressing the environment were part of it, but there
17 were other increased costs associated, labor, materials,
18 everything was going up.

19 Q. You specifically told some of your customers
20 buying PCB products after the environmental problems
21 became known that you were going to increase those costs
22 because of the environmental problems that were
23 associated with it; is that true?

24 A. That was one --

25 MR. RUNNING: What relevance does that have

1 with this case?

2 MR. CARLSON: You don't object to relevancy.

3 A. That was one of the reasons for the increase
4 cost, yes.

5 Q. (By Mr. Carlson) Every once in a while I go
6 off on tangents, so I'm trying to get where I started at
7 one point. And that was hydraulic fluid mixing with
8 water and die cast, okay, and one of the things we talked
9 about was you can have a pump that starts to leak, that's
10 one thing that may occur, correct?

11 A. That can occur, yes.

12 Q. Have you ever seen a die cast machine?

13 A. Yes, I have.

14 Q. A die cast machine in which aluminum is
15 handled will utilize about how many gallons or use how
16 many gallons of hydraulic fluid in the system?

17 MR. RUNNING: Object to the question. You
18 have to know the tonnage of the press. It's not a
19 aluminum machine, you have to come into the press.

20 Q. (By Mr. Carlson) There's a couple things
21 about that, all of which you say is accurate and you can
22 give me a range.

23 MR. RUNNING: If you can. It sounds like
24 guesswork to me.

25 A. I don't know anything about the design of

1 that machinery, so I can not tell. I don't know.

2 Q. (By Mr. Carlson) You've seen some
3 calculations at Monsanto for clean up costs using a
4 hypothetical of 200 gallons or a die cast machine?

5 A. I don't remember that.

6 Q. Okay. We'll refresh your recollection
7 later. What I'm interested in is in a die cast machine,
8 are there just one or two hydraulic connections or five
9 or six or lots of them?

10 A. I don't know the exact number. I'm under
11 the impression there are several.

12 Q. Okay. Is it your understanding that in the
13 die cast industry every one of the connections of the
14 hydraulic system on a die cast machine is subject to
15 leakage at some point?

16 MR. RUNNING: On connections are you
17 referring to valves?

18 Q. Hosing, hosing and pipe -- piping.

19 A. Any connection that consists of these two
20 parts is subject to leakage.

21 Q. Okay. And when that occurs in a die cast --
22 have you seen that occur in a die cast house?

23 A. No, not personally.

24 Q. Is it your understanding when that occurs
25 typically you have some fluid that will leak onto the

1 floor?

2 A. That's one of my understandings, yes.

3 Q. And is another way that hydraulic fluid --
4 hydraulic fluid was not inexpensive back in the late
5 '60s, early '70s, was it?

6 A. I don't know what to compare it to. If you
7 compare it to just plain old mineral oil, it's more
8 expensive. I don't know what relative value with
9 anything else.

10 Q. Okay. In any event, it's not something you
11 would expect your customer to try to waste?

12 A. No, I wouldn't expect them to, not if it's
13 responsibly managed.

14 Q. But in filling hydraulic systems, does some
15 spillage occur?

16 A. Never having seen that done, I'd only be
17 guessing. I don't know.

18 Q. Is it your understanding that some leakage
19 of hydraulic fluid occurs in areas of gaskets in
20 hydraulic systems of die casting machines?

21 A. I understand that some of that occurs on
22 occasion, yes.

23 Q. And that material can work its way onto the
24 floor?

25 A. In some cases, yes.

1 Q. One of the ways to keep hydraulic fluid out
2 of the general cleaning water of the plant would be to
3 build a dike around a die cast machine; is that true?

4 A. That's a way to do it.

5 Q. And did Monsanto ever make a recommendation
6 to any of its customers buying hydraulic 9 or 312, would
7 that be done?

8 A. I am under the impression on occasion, yes.

9 Q. And was that information that was conveyed
10 in a product brochure for the 312 and the F-9 fluids?

11 A. I don't remember it being included in the.
12 brochure.

13 Q. Was this something that a salesperson could
14 tell a customer if a customer was experiencing a
15 particular problem?

16 A. Yes, definitely.

17 Q. But it was not something that Monsanto asked
18 its customers to do in order to contain the hydraulic
19 fluid, is it?

20 A. Well, Monsanto did not ask it to do, it
21 suggested when the question of how do I control did come
22 up, we were in a position to suggest that as one
23 approach.

24 Q. But Monsanto did not make a general
25 recommendation to all of its customers that it do that?

1 A. No.

2 Q. For the sales of Pydraul 312 and F-9
3 hydraulic fluids to die cast houses, now, prior to 1970
4 or '71, or perhaps forever, did Monsanto understand that
5 there would be sales of hydraulic fluids to these
6 companies to make up for the fluids that had been lost
7 during the normal course of the business of that company?

8 A. Well, what do you mean by the word lost?

9 Q. Escaped. The machines had to be -- the
10 fluid had to be added to the machines.

11 A. I understand. In other words, the fluid
12 left the system for which it was intended and had to be
13 replenished?

14 Q. That's correct.

15 A. Yes, we understood that.

16 Q. Prior to 1970, did Monsanto ever make a
17 study to determine what was happening to that fluid?

18 A. If by a study, do you mean a very formal
19 kind of project with engineers involved and statistics or
20 data tape?

21 Q. I'll take any kind of study that you want to
22 talk about, either casual observations of formal studies.

23 A. Well, there were casual observations made in those
24 situations where our field representative had the
25 opportunity to go back into the operation and see things.

1 This doesn't always happen. Many companies do not want
2 outsiders walking through their plants, so we are not in
3 a position to know everything that went on. Depending on
4 the point in time, if it happened after the environmental
5 issue became a point, our field people would emphasize
6 the need to control losses.

7 Q. Let's take a look at prior to 1970. Where
8 did the company think all of this make up fluid that you
9 were selling or the fluid that you were making up had
10 gone?

11 A. Well, some of it was returned for
12 reclaiming, attempts to reclaim.

13 Q. What percentage?

14 A. Oh, gosh, I you have no number personally.

15 Q. A small amount?

16 A. (Witness didn't respond to the question.)

17 Q. Compared to total sales.

18 A. I don't know how to compare small.

19 Q. Five percent.

20 A. In terms of total fluids in systems
21 throughout the country, it is small.

22 Q. Okay.

23 A. The -- I lost my train of thought.

24 Q. We were looking at where did the company
25 think all of this fluid had gone that you were selling as

1 make up fluids?

2 A. Some of it was presumed to be disposed in
3 land fills authorized by the local communities because
4 that's where most of the landfills were authorized,
5 counties, municipalities in which chemicals were
6 permitted to be disposed.

7 Q. I don't want to interrupt you, but I want to
8 explore that just a little bit. Under what circumstances
9 would a die cast company put hydraulic fluid into a
10 landfill?

11 A. It would have to be a judgment on the part
12 of the managers that economically, for one reason, it is
13 better for them to introduce new material into their
14 system rather than try to recover and reclaim. He may
15 not want to or may not have enough material at any one
16 time to send to a reclaiming company such as Monsanto
17 provided. On the the other hand, the contamination maybe
18 so severe because of the operation of whatever took
19 place, that it would not be capable of being reclaimed.
20 So that a judgment call was called for here.

21 Q. Are we talking again -- I want to make sure
22 you and I are tracking together right now. When we are
23 talking about putting the hydraulic fluid into a
24 landfill, are you talking about hydraulic fluid that has
25 mixed with other fluids, for example, water in the plant?

1 A. That's an example.

2 Q. Okay. Are you saying that die cast
3 companies would take barrels of straight Pydraul
4 hydraulic fluid out of its system and put them into a
5 landfill?

6 A. Some of them did that had a lot of
7 contaminant -- metal contamination was one that I was
8 aware of. Other chemicals that were used, releasing
9 oils, and I'm not familiar with all of them, but there
10 are other chemicals on site. Even detergents, when they
11 wash down the equipment and so on, get mixed in to it to
12 the point where it's not recoverable and economically,
13 they make a decision rather than send it to Monsanto or
14 some other company to recover, I will choose to put it in
15 a landfill.

16 Q. And where else did these fluids go that you
17 were selling as make up or part of your make up sales?

18 A. I can't think of any other place where we'd
19 take quantities that would amount to anything.

20 A. Land fills were the principle one.

21 Q. Did Monsanto believe that some of the fluids
22 it was replacing had made its way into lakes and rivers
23 and streams?

24 A. Yes, some of them were later on particularly
25 determined to have ended that way.

1 Q. When you say later on, is that because of
2 changes in the die cast practice or because of increased
3 knowledge by Monsanto?

4 A. Because of increased knowledge, we are in a
5 position to ask questions and get the answers as to where
6 the material went -- in some cases not all.

7 Q. Okay. As I understand it, the salesmen were
8 kind of your window to the die cast world?

9 A. Well, that's the way I precieve them. They
10 really reported to another line of management. They were
11 the company spokesmen in the field.

12 Q. And the salesmen report back to management
13 saying here is how or customers are handling the fluids
14 and here is how they are getting mixed with water and
15 here is how they are getting out into the environment,
16 and make recommendations about those kinds of things to
17 the management?

18 A. That would happen. Many times the salesmen
19 would take the initiative and call the individual in
20 Monsanto and he felt he could give him the best advice.
21 It might be the product specialist who is in St. Louis
22 who has the technical background and use background and
23 can guide them, especially if the salesman in the field
24 is relatively knew, or he can ask the research man or the
25 engineering department or he can even call me and say can

1 that happen on occasion or he can call the manufacturing
2 plant at Monsanto. So he had access to a lot of people
3 who were familiar with the material and could give him
4 some points that he could share with the customer. But
5 at no time was a salesman expected to be an engineering
6 consutant to sit down and make blueprints that he gives
7 to his company and as to how to design this system and
8 operate it and what results we can expect. We just
9 didn't have that capability, and we were not an
10 engineering consulting business.

11 Q. Okay. If one of your salesmen back in the
12 late '60 -- '69 isn't the year, but there is no magic
13 about that, I guess -- and come to you and said, well, we
14 have a situation where a die cast machine leaks like all
15 die cast machines leak, and there's some make up fluid
16 that has to go in it each year, and this die cast fluid
17 is getting onto the floor and folks are washing it up and
18 there's some of this fluid that I know is mixing with
19 water and it's going into the river near by, okay? And
20 he comes to you with no more information than that. This
21 is just, you know, he doesn't know how many gallons of
22 water they are using in the plant and they don't know,
23 you knowm, the precise number of gallons of hydraulic
24 fluid that's being leaked. What kind of guidelines did
25 you give your salesperson to help the customer understand

1 the nature of the problem from that year -- in that year?

2 A. I, first of all, will review with them to go
3 back to that customer and talk to the right people there,
4 wh oever -- what ever it takes, talk to the people that
5 are in the position to do something and make certain that
6 they understand the need for tight control.

7 Q. In 1969?

8 A. I'm sorry. No, I wasn't in a position in
9 '69. I'm assuming it was after I was in a position to
10 receive such a message. That would have had to be after
11 '70.

12 Q. From the documents you've reviewed, what
13 would your company's position be in 1969?

14 MR. RUNNING: If you know.

15 A. I don't really know.

16 Q. (By Mr. Carlson) Okay. Did you ever draft
17 suggestions for die cast companies where you would
18 recommend to them that they go to a closed loop cooling
19 system?

20 A. No.

21 Q. I can never go into a subject ahead of
22 myself. Specifically, do you recall on August 31, 1970,
23 drafting any suggestions for customers to prevent mixing
24 of PCBs with water?

25 A. Yes.

1 Q. And did that involve a closed loop
2 recommendation?

3 MR. RUNNING: As opposed to a closed loop
4 cooling system?

5 MR. CARLSON: That's right.

6 A. It's a closed -- the expression closed loop
7 from my position at the time referred to the PCB fluid
8 and its control. I was in no position to advise die
9 casting customers how to design their cooling systems. I
10 knew nothing about those.

11 Q. (By Mr. Carlson) Okay. So you had drafted
12 suggestions for going to a closed loop system for
13 handling the hydraulic fluids?

14 A. Yes.

15 MR. RUNNING: I think of the expression,
16 Don, is closing the loop.

17 MR. CARLSON: Pardon me?

18 MR. RUNNING: I believe the expression is
19 closing the loop.

20 MR. CARLSON: Well, we are both wrong. It's
21 close the loop.

22 MR. RUNNING: Close the loop.

23 MR. CARLSON: Close the loop.

24 MR. RUNNING. All right. No jarring.

25 MR. CARLSON: That's right.

1 Q. (By Mr. Carlson) Was that particular
2 recommendation set out to the general customers of the
3 Pydraul 312 fluid?

4 A. Not at Monsanto, no.

5 Q. Did Monsanto, prior to 1970, know that PCBs,
6 at least the higher chlorinated PCBs were not
7 biodegraded?

8 MR. RUNNING: Higher referring to what, five
9 chlorine?

10 MR. CARLSON: Four.

11 MR. RUNNING: I object to the
12 characterization.

13 MR. CARLSON: Okay.

14 A. Monsanto --

15 MR. RUNNING: He's asking you about four
16 chlorine.

17 A. I understand.

18 Q. He knows.

19 A. Monsanto did not arrive at any conclusion
20 that the four chlorine type of PCBs were not degrading.

21 Q. How about for five and up?

22 A. For five chlorine and up, they had a very
23 strong scientific opinion that the five chlorine and
24 higher would be resistant to degradation starting in as
25 soon as we began to believe the analytical results which

1 would be '69, '68 period, where we began to believe the
2 results say, yes and truth that is an Aroclor 1254, that
3 representatives the five chlorine and higher, the chances
4 are extremely good, they are not degrading, that's why
5 they are found in of the places they are being found.

6 Q. Well, 1242 has the five chlorine also?

7 A. It does.

8 Q. Prior to Jensen's work, I guess, in '66,
9 what did Monsanto think was happening to all of the PCBs
10 that it was making up in its sales?

11 A. Well, he had many many types of thoughts
12 involved here. There were many, of course, electrical
13 use still in service today.

14 Q. Still there?

15 A. Right. 50 years or more.

16 Q. Let's stay to the hydraulic fluids just --
17 the rest of our interest and we may need to get to them,
18 but for the hydraulic fluid that was sold as make up
19 fluid, prior to Jensen's work, what did Monsanto think
20 was happening to that fluid?

21 A. Monsanto --

22 MR. RUNNING: I object. The questions
23 ambiguous. He's told you what happened, and I think you
24 should be specific whether you are talking about a
25 landfill or something else.

1 MR. CARLSON: No, I mean after they are
2 there. I mean once the things are out there, what did
3 you think happened to them?

4 A. Once they are out there, Monsanto with its
5 understanding of the type of material the PCBs were with
6 respect to exposure to sunlight or exposure to other
7 chemicals, to most anything it was exposed to, it was so
8 stable, it was perceived just be present?

9 Q. (By Mr. Carlson) Like pebbles on the beach.

10 A. Well, I have used that expression. I don't
11 know if it's a good one. It's there, and we should be
12 surprised in spots that are highly concentrated, but from
13 its nature, as understood at the time, it was not
14 believed to do anything.

15 Q. Okay. But it was understood to be present?

16 A. Yes.

17 Q. Okay. Knowing that it was stable, being
18 prior to Jensen's work, knowing that it was stable, did
19 Monsanto accept the fact that even if you have small
20 concentrations of PCBs at one point, if you continue to
21 deposit small amounts in an area that there would be a
22 continued build up?

23 A. I think normal logic would lead you to that
24 conclusion, yes.

25 Q. And did Monsanto have some understanding as

1 to what levels of build up prior to 1966, could cause,
2 for example, chloragni (phonetic).

3 MR. RUNNING: Don, are you talking build up
4 in the environment or build up in organisms?

5 MR. CARLSON: Build up in the environment.
6 That's a fair comment.

7 A. The chloragni symptom was, of course,
8 associated with human beings exposed to the material.

9 Q. Right.

10 A. The fact that the high concentration of PCBs
11 exist in a spot dose not relate to direct human exposure.
12 You can have an open drum of PCBs in the corner of a work
13 area, and as long as it's not heated to create some fumes
14 or as long as the individual doesn't put his hands in it,
15 chloragni will never occur.

16 Q. I understand. I'm not a scientist, but from
17 what I read, I understand that. What I'm looking at is
18 if you have small amounts of PCBs being discharged into a
19 waterway, okay, amounts that Monsanto, prior to 1965,
20 would have said, that's fine, we don't see any problems
21 with that, they are like pebbles on the beach. Over a
22 period of time, as I understand it, PCBs will continue to
23 build up?

24 MR. RUNNING: Well, I object the
25 characterization that Monsanto thought it was fine to

1 release PCBs into the waterways. There is not evidence
2 of that. I object to that.

3 MR. CARLSON: Okay.

4 Q. (By Mr. Carlson) Is it your belief that
5 prior to 1966, Monsanto believed that it was not
6 appropriate to release PCBs in any concentrations of
7 water into the waterways?

8 A. That's right.

9 Q. None at all?

10 A. Well, none means --

11 Q. Zero.

12 A. -- not one molecule --

13 Q. That's right.

14 A. -- and that's not very practical, but just
15 the release of an industrial chemical of which PCBs were
16 considered --

17 Q. Okay.

18 A. -- that's the kind of material it is, it's
19 just not good industrial responsible practice to release
20 it into the environment knowingly.

21 Q. Okay. But Monsanto knew that some PCBs were
22 being released into the environment as a part of
23 housekeeping in industry such as washing the floors in a
24 die cast company?

25 MR. RUNNING: Well, are you talking about

1 the sewers or directed to waterways --

2 MR. CARLSON: No, to waterways.

3 MR. RUNNING: -- or to landfills? To
4 waterways.

5 MR. CARLSON: That's right,

6 MR. RUNNING: I object to waterways.

7 A. I cannot speak to that. I do not have any
8 evidence that tells me that a Monsanto representative saw
9 an incident of that type and didn't comment on it and
10 discouraged it. I just do not know it.

11 Q. (By Mr. Carlson) Did you believe that it
12 would be inappropriate for water use to wash down the
13 floors, etcetera, that were contaminated with PCBs from
14 leaky hydraulic systems to go into the sewer system?

15 MR. RUNNING: Municipal sewer?

16 MR. CARLSON: Yes.

17 A. That was not appropriate.

18 Q. (By Mr. Carlson) Do you remember giving a
19 program that's presented for the ANCE (phonetic)
20 committee, C17 on September 14, 1971?

21 A. C107?

22 Q. Yes, 107.

23 A. Yes.

24 Q. And do you recall as part that have
25 presentation telling the committee that it was conceivable

1 that many of the PCB hydraulic fluids ended up in the
2 sewer.

3 A. Yes.

4 Q. And do you recall telling them that it ws
5 not your intention to criticize your customers or your
6 products for that practice because at that time, from the
7 knowledge you had, that wasn't acceptable practice?

8 A. It was not intended to imply that this was
9 a -- I'm look for the right word -- a continuing practice
10 for disposing of pools of liquid that end up on the
11 floor. This was referring to the stain on the floor very
12 much like the oil under your car on your garage floor,
13 it's a stain there difficult to remove except to hose
14 down with a little detergent. That small amount, on
15 occasion, it's acceptable, based on what was understood
16 about PCBs at that point in time.

17 Q. In your presentation to the ANCE committee,
18 you did not make the same distinction that you just made
19 for me; isn't that true? You didn't say that it was
20 inappropriate to wash down pools of PCB fluid into the
21 sewer system, did you?

22 MR. RUNNING: I object to that question.
23 You ought to show him the document, and if you've got
24 some impeachment point, make it, but the questions
25 objectionable.

1 Q. (By Mr. Carlson) Go ahead.

2 A. I did not make it because the audience was
3 electrical customers. It would have been irrelevant to
4 them really, and to the point I was trying to make there
5 is that there was a possible source from this application
6 based on the knowledge that everyone had about PCBs in
7 prior years. That's what I was attempting to share with
8 that particular audience.

9 Q. Prior years being what years?

10 A. From '69, back to the '50s, for those
11 fluids.

12 Q. Okay. How did you tell your customer then
13 what size pools or concentrations of the leaked hydraulic
14 fluid from the die cast machine which you understood
15 occurred would be appropriate for them to put down the
16 sewers and whether or not it be inappropriate?

17 MR. RUNNING: I object to the
18 characterization. He wasn't talking about any pools
19 being inappropriate to be flushed down the sewer. He was
20 talking about stains on the floor.

21 MR. CARLSON: Okay.

22 Q. (By Mr. Carlson) When did you make that
23 differentiation in anything that you told you customers
24 prior to 1970?

25 A. There was no attempt made to describe the

1 source of the PCB prior to entering any sewer system.
2 The attempt to control was based on the ability of an
3 analytical laboratory to analyze the amount that
4 eventually gets away from the site, if there is an amount
5 that does, and this is where that ten part per billion
6 number came that was helpful.

7 Q. That was developed in 1970?

8 A. In 1970, Yes. Prior to that, there was no
9 method available that would help us.

10 Q. Prior to 1970, did you ever tell in either
11 mailings, product brochure, or labels, customers of
12 either the F-9 or the 312 hydraulic fluids, that it was
13 inappropriate for those fluids to be placed into a sewage
14 system that would lead to a municipal sewer?

15 A. Not in those exact words, no.

16 Q. In any words?

17 A. I'm trying to remember the words used
18 about --

19 MR. RUNNING: You can ask to see the label
20 and he'll show them to you.

21 Q. (By Mr. Carlson) Go ahead.

22 A. There isn't -- to my knowledge, there is no
23 label that addresses that.

24 Q. That's right. And it's not addressed in the
25 product brochures either, is it?

1 A. The product brochures, I can't remember
2 clearly, that's why I'm hesitating. There was a
3 reference to the desirability of avoiding this kind of
4 situation, but I don't recall the year in which that
5 bulletin was prepared or the exact words or the context.

6 MR. RUNNING: We are about 20 minutes our
7 agreed lunch time.

8 MR. CARLSON: Oh, okay. You got -- my watch
9 stopped, so anytime you want to stop, that's fine.

10 MR. RUNNING: No, I'm not doing that --

11 Q. (By Mr. Carlson) Mr. Papageorge, do you
12 recall either directly participating in or reading about
13 a Aroclor wildlife project and a review of wildlife
14 accusations that were made back in March of 1969?

15 A. Mr. Carlson, I've read many articles on that
16 subject.

17 Q. Okay.

18 A. Some dated in 1969 and subsequent years,
19 yes.

20 (Plaintiff's Deposition Exhibit Three was marked)

21 Q. (By Mr. Carlson) Let me just show you, and
22 this isn't a memory contest, I didn't mean it to be. I'm
23 just trying to set the stage. Would you take a look at
24 Plaintiff's Exhibit Number Three just to familiarize
25 yourself with the document if you would, sir.

1 MR. RUNNING: John, do you have a copy?

2 MR. PENDERGAST: I don't. Don does.

3 MR. RUNNING: Thanks.

4 (The witness is reading the document.)

5 A. I have finished reading it.

6 Q. (By Mr. Carlson) Have you had an
7 opportunity now to review the document?

8 A. I have.

9 Q. And it's a document entitled Aroclor
10 Wildlife Accusations dated March 6 of 1969?

11 A. Yes.

12 Q. And it's addressed to E. Wheeler; is it not?

13 A. Yes.

14 Q. Who is Mr. Wheeler?

15 A. Mr. Wheeler was a Monsanto employee with a
16 title Manager, Environmental Health, and was a member of
17 Monsanto's corporate medical department.

18 Q. And it shows that this was drafted by a W.
19 R. Richard?

20 A. It does.

21 Q. And who is Mr. Richard?

22 A. Dr. Richard was the research group director
23 responsible for research that included studies on PCBs
24 and its products.

25 Q. Is the information that is contained on this

1 exhibit the kind of information that Dr. Wheeler would be
2 expected to address in the course of his work at
3 Monsanto?

4 A. Dr. Wheeler would be expected to address
5 those points raised in this document that relate to
6 animal testing and effects on test animals.

7 Q. Okay. There is a number of people, and I
8 don't think it's necessary to read the list, who received
9 copies of this memo. Do you know, are the people that
10 received copies of this memo on a particular committee or
11 do they all have isolated functions?

12 A. Well, included in that list are members of a
13 group that met occasionally to review the recent
14 information on PCBs. Included also in that group are the
15 supervisors of those individuals.

16 Q. Have you seen this document before?

17 A. Yes, I have.

18 Q. This is a kind of document that Dr. Richard
19 would have prepared in the ordinary course of his work at
20 Monsanto?

21 A. Yes, he would.

22 Q. If you would turn to page 2 for me. There's
23 a paragraph just a little bit lower than mid level which
24 begins, "We can take steps --". Do you see where I'm
25 making reference to?

1 A. I believe I do, yes.

2 Q. And I'm going to read it, but if I misread
3 something, jump in and stop me, okay? "We can take steps
4 to minimize pollution from our own chlorinated biphenyl
5 plants." In that sentence, we being Monsanto?

6 A. Yes.

7 Q. Was there pollution from your own
8 chlorinated biphenyl plants taking place at that time?

9 A. There was some discharge, yes.

10 Q. "We can work with our larger customers to
11 minimize pollution" Did I correctly read that?

12 A. Yes.

13 Q. Can you identify for me some of the larger
14 customers that he was making reference to?

15 MR. RUNNING: I'll object to lack of
16 foundation. Unless you can show that he discussed this
17 document with Mr. Wheeler, there is not basis to give an
18 opinion on that.

19 Q. (By Mr. Carlson) You can answer the
20 question.

21 A. As I understood it in discussion with both
22 Dr. Richard and Mr. Wheeler early in 1970, they had in
23 mind primarily the electrical equipment customers and the
24 big automotive customers, the people who had systems or
25 operations that used great quantities of material and

1 could have been the principle source. We didn't know, we
2 just thought that could be possible.

3 Q. Are the big automotive companies using
4 hydraulic fluids in their die cast operation?

5 A. Well, that's one of the uses. They had
6 other uses for PCBs also.

7 Q. And then it goes on. "We can continue to
8 set up disposal and reclaim operations. I correctly read
9 that?

10 A. Yes.

11 Q. Which the company did do?

12 A. Yes.

13 Q. And then, "We can work for minimum exposure
14 in manufacture and disposal of capacitors, transformers,
15 and heat transfer systems and minimize losses for large
16 hydraulic users." Did I correctly read that?

17 A. Yes.

18 Q. Large hydraulic users being something like
19 General Motors and Ford?

20 A. Those are good examples, yes.

21 Q. And then the next sentence begins, "But we
22 can't easily control hydraulic fluid losses in small
23 plants." Did I correctly read that?

24 A. You do.

25 Q. And did you discuss with Dr. Richard what he

1 meant or how he would categorize the small plant?

2 A. No, we just used the word small with no
3 attempt to define it in terms of numbers of machines or
4 pounds of material purchased, no.

5 Q. And when he says we can't easily control
6 hydraulic fluid losses in small plants, what specific
7 kinds of losses was he making reference to?

8 A. The losses associated with leaks in systems
9 primarily.

10 Q. Those were losses that -- of fluid that were
11 getting into the environment?

12 A. We don't know that. All we know is that
13 they are losing and buying material to replace it.

14 Q. Did Monsanto ever do any work to determine
15 where those losses for the small customers was ending up?

16 A. Yes, they did do some work on a case-by-case
17 basis as reported by the fuel representatives.

18 Q. But again, that is on a plant-by-plant
19 basis?

20 A. Yes.

21 Q. Not an overall industry problem in a small
22 die cast house?

23 A. No, it's on an as-need basis.

24 Q. Okay. Then if we go down to the second to
25 the last paragraph starting with Risebrough, do you see

1 where I'm making reference to?

2 A. I do see it.

3 Q. The paragraph begins, "Risebrough has taken
4 known Aroclor samples and claims to have evidence of
5 enzyme and hormone change." Did I correctly read that?

6 A. Yes.

7 Q. "Here there is no question of
8 identification." And I correctly read that?

9 A. Yes.

10 Q. And says, "Either his position is attacked
11 and discounted or we will eventually have to withdraw
12 product from end uses which have exposure problems." Do
13 I correctly read that?

14 A. Yes.

15 Q. And what did occur is you did withdraw the
16 product from end uses which had exposure problems, did
17 you not?

18 A. That is correct.

19 MR. CARLSON: At the time of trial, we will
20 enter or offer as evidence Plaintiff's Exhibit Number
21 Three.

22 MR. RUNNING: My position is the same as
23 always.

24 MR. CARLSON: Sure.

25 (Plaintiff's Deposition Exhibit Four was marked)

1 Q. (By Mr. Carlson) Mr. Papageorge, I've had
2 marked as Plaintiff's Exhibit Number Four, a photocopy of
3 a label. Again, please, feel free to make sure that it
4 is what it appears to be.

5 A. It appears to be a copy of a label used on
6 Pydraul F-9 in the 1950s.

7 MR. RUNNING: Do you have a copy of the
8 label?

9 MR. PENDERGAST: I don't.

10 MR. RUNNING: Let me see it.

11 MR. PENDERGAST: Sure.

12 Q. (By Mr. Carlson) During your review of
13 literature and studies regarding PCB issues, have you had
14 a chance to review an article entitled Observations on
15 the Toxic Effects Resulting from Exposure to Chlorinated
16 Naphthalene and Chlorinated Phenyls with Suggestions for
17 Prevention that was published in The Rubber Age in August
18 of 1943?

19 A. That sounds familiar. I'd like to know the
20 authors, that would help.

21 Q. Yes. I'm sorry. It's Von Wedel, Holla and
22 Denton.

23 A. Denton, yes, I remember that.

24 (Plaintiff's Deposition Exhibit Five was marked)

25 Q. (By Mr. Carlson) Would you be kind enough

1 to review Plaintiff's Exhibit Number Five and see if the
2 article that I've referenced here is the article you
3 recall seeing.

4 MR. RUNNING: You don't have a copy of that
5 one either?

6 MR. CARLSON: I don't have a copy of that
7 one.

8 (The witness was reading the document.)

9 (Plaintiff's Deposition Exhibit Six was marked)

10 A. I have read the article.

11 Q. (By Mr. Carlson) While you were reading the
12 article, I also had marked as an exhibit, Plaintiff's
13 Exhibit Number Six, if you could identify that for me.

14 A. This is a copy of a Monsanto label for its
15 product Pydraul F-9. This type of label would have been
16 in use in the '60s, 1960s.

17 (Plaintiff's Deposition Exhibit Seven was marked)

18 Q. (By Mr. Carlson) And Plaintiff's Exhibit
19 Number Seven, if you could identify that for me, sir.

20 A. This is a copy of Monsanto's label for its
21 product Pydraul 312, and it was also the type of label
22 that was used in the 1960s on up until the point where
23 312 was reformulated.

24 (Plaintiff's Deposition Exhibit Eight was marked)

25 Q. (By Mr. Carlson) And Plaintiff's Exhibit

1 Number Eight, if you could identify that for us.

2 A. This is a copy of a Monsanto label for its
3 product 312a, which was placed in use and used on
4 products that had been reformulated. That would be about
5 1970 - 1971.

6 Q. Now, if we could refer you back to
7 Plaintiffs Exhibit Number Five, the article in Rubber Age
8 in 1943. Specifically, if you would turn to page 422.
9 My copy is cut off there, but it's the page before this.

10 A. I don't see a number. Is this the page?

11 Q. That's the page. Thank you. On the
12 right-hand side, there is a section entitled Methods
13 Recommended to Safeguard Workers Exposed to Chlorinated
14 Naphthalenes and Diphenyls. Do you see that?

15 A. I do.

16 Q. And back in the '40s, diphenyls was the word
17 to use for two phenyls rather than biphenyls?

18 A. Correct.

19 Q. In the second paragraph it references,
20 "Protection must consist of prevention from inhjilation,
21 ingestion, and skin absorption of these chemicals," does
22 it not?

23 A. It does.

24 Q. "Skin absorption, while long recognized as
25 causing acne-form eruptions, has not, in our opinion,

received proper consideration from the standpoint of systemic effects." Does it read that?

A. Yes, it does.

Q. It goes on to say that, "Toxic effects from inhalation are without question the most important because of the speed of absorption and the probable high dosage of toxic substances absorbed," correct?

A. That is correct.

Q. And, "Therefore, adequate ventilation is the primary consideration in any mill. The mill rooms and mixing house should be ventilated by intake and exhaust fans of sufficient volume and velocity to remove the majority of the fumes," correct?

A. Yes.

Q. And did this particular article appearing in The Rubber Age was aimed at companies that were manufacturing molded rubber products?

MR. RUNNING: If you know.

Q. (By Mr. Carlson) If you know.

A. I was under an impression this had to do with coating.

Q. Okay. The toxic effects of the diphenyls which are referenced in this article would not -- strike that. Let me just for a second jump two pages to page 424, but I think it's going to be cut off on the bottom

1 again, and if you look on the left side, second
2 paragraph -- third paragraph from the bottom that begins,
3 "After the above recommendations have been followed --"

4 A. I see that.

5 Q. Okay. There is some other -- there is some
6 recommendations that are given for workers that are
7 working in areas where diphenyls are present?

8 A. Well, diphenyls as well as the other
9 chemicals in this article?

10 Q. Yes.

11 A. Yes.

12 Q. Including, "Clean working clothes consisting
13 of long-sleeved overalls fastened at the neck and wrists
14 should be provided."

15 A. That's correct.

16 Q. "These closed should be laundered
17 frequently, daily if possible."

18 A. Correct.

19 Q. "All eating of lunches, etcetera, should be
20 forbidden in the workrooms."

21 A. Yes.

22 Q. "Candy, cigarettes, chewing gum, and other
23 vending machines of such nature should be placed in
24 recreation rooms that should be provided for the
25 workers."

1 A. Yes.

2 Q. Monsanto for its workers was doing these
3 kinds of things based on what you've been able to read
4 back in the '40s, weren't they?

5 A. Oh, yes.

6 Q. And it indicates that new workers should be
7 examined by physicians to check for a history of previous
8 jaundice, liver disease, or skin diseases?

9 A. Will you help me find that?

10 Q. Sure. The right-hand column beginning with
11 the first full paragraph.

12 A. I see it.

13 Q. And people with a history of jaundice, liver
14 disease, or skin diseases should be rejected or placed in
15 departments where the substance -- toxic substances are
16 not handled?

17 A. That's what it says.

18 Q. And that was your own implant
19 recommendations as well, wasn't it?

20 A. Yes.

21 Q. And then, "All workers in the mills where
22 cable saturated with chlorinated naphthalenes and
23 phenyls, whether wet or dry, are handled, should be
24 periodically examined for skin lesions and systemic
25 effects," correct?

1 A. Yes.

2 Q. And then, "No women who are pregnant should
3 be allowed to work in these rooms as they are notably
4 very susceptible to liver toxemia."

5 A. Correct.

6 Q. And then it goes on to talk about some
7 specific tests that are going to be administered to check
8 for systemic effects.

9 A. I see that.

10 Q. In the die cast industry, when people are
11 working on hydraulic systems in die cast companies, do
12 they get saturated with these PCBs?

13 A. Not to my knowledge, no.

14 Q. You haven't heard of people ending up being
15 totally covered with PCBs from working under pressurized
16 die cast systems?

17 A. I haven't, no.

18 Q. None of the information that is provided
19 with regards to the practices for handling PCBs in the
20 workplace in this article appear on any of your labels,
21 dose it?

22 MR. RUNNING: Well, I think that's a
23 compound question. It's also a mischaracterization of
24 the lable.

25 MR. CARLSON: Yeah, and I'll withdraw the

1 question.

2 Q. (By Mr. Carlson) Your labels do not make
3 any reference to potential systemic effects that could be
4 caused by exposure to the PCBs; is that true?

5 A. That is true, but they do caution against
6 exposure.

7 Q. Well, it says, don't have prolonged
8 breathing of the vapors?

9 A. Correct.

10 Q. What does prolong mean in that sentence?

11 A. Well, that calls for a judgment on the part
12 of the supervisors in the operation to determine how
13 often his employees are exposed and for how long a period
14 of time and does this happen every shift or is it an
15 occasional, an infrequent kind of situation, so there is
16 no hard definition to describe prolong as being so many
17 hours at a certain concentration because it will vary.
18 The higher the concentration, the shorter the time.

19 Q. Did Monsanto have certain in-house standards
20 as to concentrations that were permissible in the
21 workplace for its workers over a specific period of time?

22 A. Yes, we use the ACGIH standards for the 42
23 percent and the 54 percent type of PCB.

24 Q. And did you advise your customers of those
25 products -- strike that. Did you advise customers of the

1 Pydrauls using the 1242 that this particular standard
2 should be adhered to?

3 A. Well, the discussion was held regarding
4 people exposure. That came up, and we were in a position
5 to sending them copies of the ACGIH brochure.

6 Q. Is that brochure referenced on any of your
7 product brochures or labels?

8 A. It's not on the label and it is in some of
9 the brochures.

10 Q. It's not for the Pydraul 312, is it?

11 A. I don't remember.

12 Q. And it's not in the Pydraul F-9 brochure?

13 A. I just don't remember. I don't know.

14 Q. Okay. When you said that the shift
15 supervisor would have to make this judgment, what
16 criteria did Monsanto expect the shift supervisor to use
17 when making a judgment as to what prolonged exposure to
18 vapors is?

19 A. You are asking for a definite number in
20 terms of a level of concentration and a time period. It
21 has to be this ACGIH standard. He's got to meet that.

22 Q. ACGIH standing for what?

23 A. It's the American Congress of Governmental
24 Industrial Hygienists.

25 Q. Did your standards -- were your standards

1 the same as those standards back in the '40s?

2 A. Yes. In fact, Monsanto helped in gathering
3 the information from which the standards were developed.

4 Q. Are you familiar with or have you -- strike
5 that. Have you talked to any of the people that helped
6 draft the language of these labels?

7 A. Certainly.

8 Q. Have you asked them, why didn't you simply
9 reference this standard rather than telling them to avoid
10 prolonged breathing?

11 A. I don't remember that point coming up in our
12 discussion.

13 Q. Did Monsanto in the 1960s, accept the
14 proposition that prolonged contact with the skin could
15 cause liver disorders?

16 A. Yes.

17 Q. Did Monsanto in either product labeling of
18 312 or F-9 or in the product brochures reference the
19 potential liver damage that could be caused by prolonged
20 exposure to the product?

21 A. I recall some Monsanto brochures referring
22 to that. I do not, at the moment, recall the specific
23 brochure and the time period in which is included in the
24 brochure.

25 Q. You have no recollection of a specific

1 brochure for Pydraul F-9 or 312 that references that to?

2 A. No, I do not.

3 Q. Did Monsanto in the 1960s, accept the
4 proposition that it was inadvisable for pregnant women to
5 work in areas where there could be exposure to PCBs?

6 A. That's my understanding, yes.

7 Q. And is that information contained on either
8 the if F-9 or the 312 product labels or product
9 brochures?

10 A. I don't remember. I'd have to see the
11 brochures.

12 Q. We know it's not on the labels?

13 A. That's correct.

14 Q. Did Monsanto in the 1960s, accept the
15 proposition that it was inadvisable to eat in areas where
16 PCBs were present?

17 A. Certainly, yes.

18 Q. And was that information conveyed to
19 customers of Pydraul 312 or F-9 on its labels?

20 A. Not on the label, no.

21 Q. And was it in the brochures?

22 A. I'd have to see copies of the brochures. I
23 don't remember the details.

24 (Plaintiff's Deposition Exhibit Nine was marked)

25 Q. (By Mr. Carlson) Mr. Papageorge, I'd like

1 for you to review for me Plaintiff's Exhibit Number Nine,
2 and my expectation is we can shut the tape down while you
3 are reading it over.

4 (The witness was reading the document.)

5 A. I have read it.

6 Q. (By Mr. Carlson) Exhibit Number Nine is
7 what, sir?

8 A. This is a copy of a brochure issued by
9 Monsanto. The topic is Pydraul fire resistant hydraulic
10 fluid, and it pertains to some of Monsanto's hydraulic
11 fluids sold as Pydraul.

12 Q. Okay. And from the document, can you tell
13 the effective date?

14 A. I believe I can. '68.

15 Q. Do you have some recollection of the last
16 revision prior to this document?

17 A. There were some Pydraul versions covering
18 the different types that I, at the moment, don't remember
19 clearly the various versions and the dates of their
20 publication.

21 Q. I don't want to limit you, but I think if
22 you turn to page 12, and you can certainly refer me to
23 any other page that you see that you think is
24 appropriate, that there is a statement with regards to
25 some precautions to follow when handling the fluid.

1 A. I see that, yes.

2 Q. Is there any other safety information
3 contained in the product document other than what is
4 contained on page 12?

5 A. No.

6 Q. And on page 12, is any reference made to it
7 being inadvisable for pregnant women to be exposed to the
8 hydraulic fluid?

9 A. There is no such statement.

10 Q. And is there any statement that it is
11 inadvisable for people with liver disease to be exposed
12 to the product?

13 A. There is no such statement.

14 Q. Is there any statement on page 12 that the
15 product could cause liver injury if there was prolonged
16 exposure?

17 A. No.

18 Q. Thank you, sir.

19 MR. CARLSON: At the time of the trial,
20 going back, I will be offering into evidence Exhibits
21 Four through Nine inclusive.

22 Q. (By Mr. Carlson) Is it fair to say that in
23 the 1960s, reference was not made in either of the labels
24 or the product brochure to potential systemic effects
25 that could occur from exposure to the Pydraul PCB fluids

1 because there was a perception that it could jeopardize
2 sales?

3 A. I'm not aware of such a rational being used
4 at all here.

5 Q. Okay. There were other hydraulic fluids on
6 the market in the 1950s, were there not?

7 A. Yes, there were.

8 Q. And were there other hydraulic fluids on the
9 market in the 1960s?

10 A. Yes, there were, all of them with their
11 problems.

12 MR. CARLSON: Move to strike the voluntary
13 comment of the witness.

14 MR. RUNNING: I take it you don't want any
15 involuntary comments, Mr. Carlson?

16 MR. CARLSON: Only the comments that I see to
17 it.

18 MR. RUNNING: Get out the rubber hose.

19 MR. CARLSON: I am sure that you will have
20 ample opportunity to explain anything that you wish to
21 say.

22 Q. (By Mr. Carlson) What is a GLC?

23 A. That describes an analytical instrument, gas
24 liquid chromatographs.

25 Q. What do you use that kind of an instrument

1 for?

2 A. It's used to test for the presence and
3 amount of chemicals in a sample that respond to a
4 radiation source which results in a graph being printed
5 by the machine, and the chemist, by looking at this
6 graph, can then determine what material was spotted and
7 how much of it.

8 Q. Did you have a gas liquid chromatographs in
9 the Anniston plant when you were there?

10 A. No.

11 Q. Do you know when they first had one at that
12 plant?

13 A. As best I recall, they finally got one at
14 about 19 -- they got a unit, but it was after the PCB
15 operation was terminated there, after the phase out
16 program, so it was '71, as best I recall.

17 Q. Do you have some recollection of having a
18 gas liquid chromatograph present on site for quality
19 control testing in the early '60s?

20 A. Yes, there was -- I'm sorry. There was a
21 unit that was being used, but it was not of the
22 sophistication that was needed for PCB analysis.

23 Q. Prior to 1969, am I correct in saying that
24 Monsanto was not aware of the dangers to the environment
25 posed by PCBs?

1 A. Well, I would suggest that the word is
2 potential harm to the environment was not known to
3 Monsanto or anyone else prior to '60 -- late '60s.

4 Q. Would '69 be a fair time period there?

5 A. Yes, that's a good time period.

6 Q. You are familiar with Jensen's work that
7 was -- strike that. Withdraw that. You did not expect
8 the die cast companies to have any more knowledge about
9 the potential effects of PCBs on the environment than
10 Monsanto did, did you?

11 A. That is correct.

12 Q. You are obviously familiar with Jensen's
13 work, I believe, that was published in '66, although I
14 stand to be corrected?

15 A. The initial work I'm aware of was the 1966
16 report. He had other reports later that followed that.

17 Q. Right. And he began his work in 1964?

18 A. Yes.

19 Q. What kind of equipment did he use to analyze
20 for the presence of PCBs?

21 A. He had a GLC. I do not know what specific
22 piece of equipment he had.

23 Q. Did you personally talk to him?

24 A. Not to Mr. Jensen.

25 Q. Mr. Jensen was a Swedish scientist?

1 A. Yes.

2 Q. He found PCBs present in the environment?

3 A. Yes.

4 Q. You've read his work?

5 A. I've read some articles --

6 Q. Some of his work.

7 A. I don't know if it's all of the articles he

8 printed.

9 Q. Okay. And you've talked to some Monsanto

10 people that have talked to him?

11 A. Yes, and I've also talked to his --

12 Q. Supervisor.

13 A. -- supervisor.

14 Q. What was -- I don't think -- he didn't have

15 a doctorate when he was doing this work, did he?

16 A. As I understood, he was a graduate student

17 working for his doctorate under Professor Widmark.

18 Q. What was he looking for at the time he

19 identified PCBs?

20 A. He was working for DDT or the chemicals that

21 result from DDT degrading, DDE being support.

22 Q. And I think we better tell the Jury what DDT

23 stands for.

24 A. I wish I remembered that. I've used the

25 expression DDT so often. It's the commonly known

1 pesticide that was widely used from World War II on to
2 1968 or so, '69.

3 Q. And when he was doing this work looking for
4 DDT or DDE, did he find an interfering peak in his graph;
5 is that what occurred?

6 A. He found several interfering peaks. He had
7 difficulty identifying them. He admittedly speculated
8 that they might be -- they appear to be to him
9 chlorinated biphenyls, and he was asking other
10 laboratories to help him prove or disprove his suspicion.

11 Q. But he didn't start out looking for
12 chlorinated biphenyls as the object of his work, did he?

13 A. No.

14 Q. How many analytical chemists, if you know,
15 or give me an approximate number, did Monsanto have back
16 in 1964 and 1965?

17 A. Gosh, I have no idea. Hundreds.

18 Q. Scattered all over the world?

19 A. Yes.

20 Q. With equipment at least as good as Mr.
21 Jensen's?

22 A. Oh, no.

23 Q. No?

24 A. No, no. Mr. Jensen was the forefront with
25 his instrument.

1 Q. How did he happen to get this equipment?

2 A. I have no idea.

3 Q. He didn't design it himself, did he?

4 A. No.

5 Q. It was on the market?

6 A. It was, as I understood it, an instrument
7 that was developed, made, manufactured, and sold in
8 Europe.

9 MR. RUNNING: Mr. Papageorge, you shouldn't
10 speculate about the exact instrument he's using if you
11 don't know.

12 A. No. I gave him my understanding of where he
13 got that instrument.

14 MR. RUNNING: You're assuming, for example,
15 just one. I mean don't assume, just answer questions
16 based on your knowledge.

17 A. Thank you.

18 Q. (By Mr. Carlson) Okay. Is there any --
19 strike that. Have you talked to analytical chemists at
20 Monsanto who have, since Mr. Jensen did his work, have
21 attempted to duplicate that work?

22 A. Certainly.

23 Q. And when did the attempts to duplicate Mr.
24 Jensen's work begin at Monsanto?

25 A. Shortly after Monsanto received a

1 translation of the report, which was dated 1966, and got
2 a copy of Dr. Whitmark and Mr. Jensen's methodology, they
3 started the work. That would have to be late '66, early
4 '67.

5 Q. And did Monsanto go out into the environment
6 to see if PCBs were present in fish or birds, that kind
7 of thing?

8 A. Eventually.

9 Q. When did they do that?

10 A. I believe some of that started about 1968.

11 Q. If the Monsanto chemist as a project were
12 asked in 1964, to determine if PCBs were in tissue of
13 wildlife, based on the information that's available to
14 you, you would have expected them to be able to make that
15 determination, wouldn't you?

16 A. I would not.

17 Q. You would not. You had -- were some of the
18 analytical chemists at Monsanto Phd?

19 A. Yes.

20 Q. Okay. Did Monsanto have access to
21 universities and professors?

22 A. Certainly.

23 Q. Does Monsanto gives grants to universities?

24 A. On occasion, yes.

25 Q. But it is your understanding that prior to

1 1964, if asked, Monsanto could not have detected PCBs in
2 the tissue of animals?

3 A. That is correct.

4 Q. That's because it hadn't been or that
5 protocol hadn't been worked out yet by Mr. Jensen?

6 A. By anyone.

7 Q. It just seems to me that -- strike that.
8 How did Monsanto become aware of Jensen's work?

9 A. Our representatives in Europe, while in
10 Sweden, learned of a report that was made by Jensen and
11 Whitmark, and the reference was made to chlorinated
12 diphenyls or diphenyls. They were not certain. One of
13 the representatives then made it a point to get a copy of
14 that paper and he had it translated into English and
15 shared that copy with chemists in Monsanto who were
16 involved with PCBs.

17 (Plaintiff's Deposition Exhibits Ten and Eleven
18 were marked)

19 Q. (By Mr. Carlson) I've had marked as
20 Plaintiffs Exhibit Number Ten a document dated December
21 1st of 1966. I'd like to have you read that over in
22 conjunction with Plaintiff's Exhibit Number 11, which is
23 a document dated November 28, 1966.

24 (The witness is reading the documents)

25 A. I have finished reading.

1 Q. (By Mr. Carlson) Mr. Papageorge, would you
2 be kind enough to explain for us what Plaintiff's Exhibit
3 Number Ten is?

4 A. It's a copy of a memorandum, Monsanto
5 memorandum, authored by a Monsanto employee, David Wood,
6 to another Monsanto employee, George Buchanan, in which
7 he transmits a copy of a letter he had received from
8 Monsanto's representative in Stockholm, Sweden.

9 Q. And would you be kind enough to tell us what
10 Exhibit Number 11 is?

11 A. Number 11 is a copy of a letter addressed to
12 Monsanto Europe and to a Dear David. I don't know which
13 David that is.

14 Q. Could that be the attention of David Woods,
15 David Wood?

16 A. I would say yes, but I'm guessing.

17 Q. Okay. Was D. Wood --

18 A. I'm sorry. It does say Attention D. Wood.
19 Yes, I missed that.

20 Q. Okay.

21 A. Yeah. Written by a Mr. Strand. I don't
22 know who he is.

23 Q. On Exhibit Number Ten, the third full
24 paragraph it begins, "In relation to the specific
25 problem --"

1 A. I see it.

2 Q. Okay. Please, tell me if I read it
3 inappropriately. "In relation to the specific problem
4 mentioned of disposal of used materials, we would be
5 interested to learn how this problem is handled in
6 America." Did I correctly read that?

7 A. That is correct.

8 Q. "In the U.K. many companies have burying
9 material in drums, material in the drums having been
10 absorbed into vermiculite or some similar porous
11 material," correct?

12 A. That is correct.

13 Q. All right. "Has any entirely safe method
14 been developed for the disposal of waste Aroclor?" Did I
15 correctly read that?

16 A. Yes.

17 Q. Did David Wood respond to this inquiry?

18 A. This inquiry was made by David Wood.

19 Q. I'm sorry. You are right. Did George
20 Buchanan respond to this inquiry?

21 A. I don't know.

22 Q. You've seen the telex and the letter before,
23 haven't you?

24 A. No, I haven't.

25 Q. You haven't.

1 A. This is my first time -- the first time I've
2 seen it.

3 Q. Have you talked to David Wood about the
4 subjects which are appearing in these documents?

5 A. Oh, yes.

6 Q. Okay. With regard to the question of has
7 any entirely safe method been developed for disposal of
8 waste Aroclor. As of the date of this letter which is
9 December 1st of 1966, do you know what George's response
10 would have been?

11 A. Are you asking me to speculate what Mr.
12 Buchanan --

13 Q. No, no, I'm not asking you to speculate,
14 only if you had any conversations or reviewed any
15 documents that would allow you to answer that question.

16 A. I just have no idea what a response would
17 have been.

18 Q. On Plaintiff's Exhibit Number 11, towards
19 the end of the first full paragraph beginning
20 polychlorinated biphenyls, do you see where I'm making
21 reference to? It's actually the fifth line down of the
22 first full paragraph.

23 A. Oh, I see it.

24 Q. Please, tell me if I read incorrectly.
25 "Polychlorinated biphenols -- with an o-l-s -- PCB for

1 short - accumulated in certain organs of animals. They
2 are said to be related to DDT and equally poisonous."

3 Did I correctly read that?

4 A. Yes, did you.

5 Q. And then it references in the next
6 paragraph, "The findings were discussed at a meeting of
7 scientists at the Wenner-Gren Centre in Stockholm on
8 November 22, " correct?

9 A. That is correct.

10 Q. And if I can skip down a little bit and the
11 section which begins in quotation marks, it reads, "It is
12 found in Salmon and in pike. It is found in sea eagle
13 living on fish. It is found on the surface of the
14 needles of the fur trees that is in the air. It was
15 found in the hair of five months baby." Did I correctly
16 read that?

17 A. That is correct.

18 Q. Going down in the next paragraph beginning
19 with the fourth line from the bottom, starting, "It has
20 been found -- " Do you see where I'm referencing?

21 A. I see it.

22 Q. "It has been found that they consist of a
23 group of poisons, polychlorinated biphenyls (for short
24 PCB), which are closely related to and equally poisonous
25 as DDT." Did I correctly read that?

1 A. That is correct.

2 MR. RUNNING: Let me -- allow me to a
3 continuing objection of reading from documents and just
4 asking this witness if you've read from the correctly.
5 That's not a proper use of the document. It's not
6 admissible.

7 Q. (By Mr. Carlson) And the next paragraph
8 which says, "PCB is broken down considerably slower than
9 DDT and gives rise to damage of liver and skin." Did I
10 correctly read that?

11 A. Yes.

12 Q. And is that consistent with Monsanto's
13 knowledge of PCBs as of November of 1966?

14 A. Well, the statement is so broad, it does not
15 refer to the type of damage and the amount of PCB
16 required to cause that damage. The reference to broken
17 down as compared to DDT, I personally do not know of any
18 studies conducted in this country at least by anyone
19 comparing the two chemicals and their rate of
20 degradation.

21 Q. Okay. Certainly Monsanto accepted the fact
22 that PCBs at some levels could cause liver damage?

23 A. Yes.

24 Q. And skin damage?

25 A. That's old news.

1 Q. Okay. Have you read any studies which have
2 concluded that the material reported by Jensen in his
3 work was, in fact, not PCBs?

4 A. There's no such report to my knowledge.

5 Q. It was reported to your company -- actually,
6 it's the third full paragraph on page 2 where it says,
7 "PCB is found in water and in air --" Do you see where
8 I'm making reference to?

9 A. I see it.

10 Q. Okay. It was reported to your company by
11 one of your own representatives in 19 -- in November of
12 1966, that PCBs were being found in water and in air,
13 correct?

14 A. I don't understand your reference -- to what
15 company?

16 Q. Monsanto. It's being reported to Monsanto
17 that PCBs are being found in the water and in the air.

18 A. It's being reported by this individual who I
19 don't know his connection to Monsanto.

20 Q. Okay. Did Monsanto market Aroclors in
21 Europe prior to 1966?

22 A. Yes.

23 Q. Did Monsanto market Aroclors in Sweden prior
24 to 1966?

25 A. Yes.

1 Q. Did Monsanto market PCB hydraulic fluid in
2 Sweden prior to 1966?

3 A. I don't know.

4 Q. Did Monsanto market PCB hydraulic fluid in
5 Europe prior to 1966?

6 A. Yes.

7 Q. The last page, it's really the second to the
8 last paragraph which says, "I suppose there is no
9 doubt --" Do you see where I'm making reference to?

10 A. I do.

11 Q. I guess for lack of a better way of
12 approaching this I'm going read it. "I suppose there is
13 no doubt that what had been termed polychlorinated
14 biphenyls is equal to Aroclor." Did I read that?

15 A. That is correct.

16 Q. Is that a correct statement?

17 A. Correct in what way?

18 Q. That what was being termed polychlorinated
19 biphenyls in that sentence is equal to Aroclor.

20 A. Well, it did exist among many responsible
21 scientists as of 1966, when this document was prepared.
22 It was later that the doubt was removed and the PCBs were
23 equivalent to some of the Monsanto products.

24 Q. Okay. Just about, I guess, the lower third
25 of the same paragraph it reads, "The problem in some

1 case, of course, may be the disposal of used material."

2 Do you see where I'm making reference to?

3 A. I do.

4 Q. What particular problem, if you know, is he
5 making reference to?

6 A. I can, again, only assume what this author
7 had in mind. I don't know --

8 Q. Okay.

9 A. -- what he was thinking of.

10 Q. Thank you.

11 MR. CARLSON: And we'll offer Exhibits 10
12 and 11.

13 MR. RUNNING: Do you want to take a break?

14 MR. CARLSON: Okay.

15 (At this time, there was a ten minute break in the
16 deposition.)

17 Q. (By Mr. Carlson) At a point in time
18 Monsanto commissioned some studies to be done by an
19 independent laboratory to see what the effects of PCBs
20 were on certain animals and birds?

21 A. Yes.

22 Q. And the company doing that work was known as
23 IBT?

24 A. Yes.

25 Q. What does IBT stand for?

1 A. Industrial Bio-Test Laboratories.

2 A. And had Monsanto worked with IBT and
3 projects prior to the PCB project?

4 A. Yes.

5 Q. And the initial project consisted of looking
6 at, what, do you look at some rats that were fed PCBs
7 along with other things?

8 A. Help me with the initial -- how far back?

9 Q. When was the first PCB worked done by
10 Industrial Bio-Test?

11 A. Industrial Bio-Test.

12 MR. RUNNING: Are you talking about the
13 toxicity screening done --

14 MR. CARLSON: Yes.

15 MR. RUNNING: -- before the product was
16 marketed?

17 MR. CARLSON: No, we are talking about the
18 tests that were run, I believe, starting -- it might have
19 started running about 1968.

20 A. Industrial Bio-Test was the laboratory that
21 started the -- I'm going to call preliminary test with
22 PCBs with rats to establish the level, the highest level
23 of which long term studies would be later conducted.

24 Q. And when did that work begin?

25 A. 1968.

1 Q. There was some work that was published by
2 Risebrough in 1968?

3 A. Yes.

4 Q. And was the Risebrough work the work with
5 the perigan (phonetic) falcon?

6 A. No, he -- Dr. Risebrough was interested in
7 the effect of chemicals on birds, but I associate him
8 personally with the brown pelican off of Southern
9 California.

10 Q. Do you remember when in 1968 his work was
11 published?

12 A. Not exactly, really, about mid-year.

13 Q. And do you remember when in the year your
14 rat studies -- the original rat study was started in
15 1968?

16 A. About that time.

17 Q. It was Risebrough's work that prompted
18 Monsanto to go ahead and have the work started at IBT?

19 A. I don't know that -- no, Dr. Risebrough's
20 work was considered, of course, and then since we knew
21 about it, the need to start further studies with test
22 animals was being discussed with Monsanto long before
23 that as witnessed by some of the exhibit we've seen here,
24 Dr. Richard referred to that need and also -- it just was
25 almost coincidental that Dr. Risebrough -- and other

1 studies were beginning to be published then.

2 Q. And additional studies then were
3 commissioned after the original rat studies, then the
4 long term studies were commissioned?

5 A. Yes.

6 Q. Were there some studies that were originally
7 planned with IBT, for example, looking at the effects of
8 PCBs on fish that would cancel them?

9 A. Yes.

10 Q. With regards to birds, what particular bird
11 or birds were looked at by IBT?

12 A. The Leghorn chicken.

13 Q. And when did that work begin?

14 A. About 1969, is the best I recall.

15 MR. CARLSON: Off the record a second.

16 (Off-the-record discussion.)

17 Q. (By Mr. Carlson) I'm sorry for the
18 interruption. The results of the IBT work on the Leghorn
19 chicken were reported back to Monsanto?

20 A. Periodically, yes.

21 Q. And did IBT also look at the effect of
22 certain Aroclors on beagles or some sort of a dog?

23 A. Yes, beagles.

24 Q. And do you recall generally what the results
25 were with regards to the effect of the Aroclors on the

1 Leghorn chickens?

2 A. Yes, I do.

3 Q. Will you tell me what those were?

4 A. Those studies showed that at ten parts per
5 million in their daily diet, the chickens were affected
6 in that their egg shells of the eggs they laid were
7 thinner than expected than they should have been and that
8 there were some hatchability problems associated with
9 those eggs. And that, as I said, was with Aroclor 1242,
10 which is the lower chlorinated type.

11 Q. With regards to the beagles, what were the
12 findings there?

13 A. There -- the beagles, as I recall, were
14 affected by the higher chlorinated, not the lower
15 chlorinated, at the very high does, the 100 parts per
16 million in their daily diet for the two year period that
17 they were exposed. And, as I recall, they exhibited some
18 difference in weight gain. They were not as heavy as the
19 controls and they had some gastric problems.

20 Q. Was it determined as to which of the kinds
21 of PCBs -- strike that. The dog studies which resulted
22 in the gastric problems, for example, was that an
23 Aroclor -- which Aroclor that was?

24 A. That was the Aroclor 1254 and 1260.

25 Q. With regards to those findings, was a

1 determination made as to which kind of PCB -- as which of
2 the chlorinated PCBs were causing these problems with the
3 dogs?

4 A. I don't know that I understand your
5 question.

6 Q. Well, in the Aroclor 1254 and the Aroclor
7 1260, there is a variety of the kind of PCBs that we
8 talked about earlier this morning. There is some with
9 seven chlorine, some with eight chlorines, etcetera. Was
10 there any work done that would identify the particular
11 number of chlorines on the byphenyl, you know, which kind
12 of PCB it was that was causing these problems with the
13 dogs?

14 A. There was no such work.

15 Q. Was there any such work done with regards to
16 the Leghorn chickens?

17 A. No.

18 Q. Were you present for the entire proceeding
19 in the City of Bloomington litigation and trial?

20 A. Yes.

21 (Plaintiff's Deposition Exhibit 12 was marked)

22 Q. (By Mr. Carlson) I want to ask you to take
23 a look at Plaintiff's Exhibit Number 12, if you would.

24 (Witness took a moment to read the document)

25 A. I have read it.

1 Q. (By Mr. Carlson) All set. You've had an
2 taunt to read the document?

3 A. Yes.

4 Q. Do you remember this document being made
5 reference to in the City of Bloomington proceeding?

6 A. I do.

7 Q. And who was Don, that letter addressed is
8 to?

9 A. That's Don Gordan, Dr. Gordan.

10 Q. And who is Otis that signed the letter?

11 A. That's Dr. Otis Fancher.

12 Q. Have you discussed the contents of this
13 letter with either of those gentlemen?

14 A. No, sir,

15 Q. Have you discussed with anyone from
16 Industrial Bio-Test a comment in this letter that is his
17 notion, and I'm just referencing the first paragraph
18 about the midpoint through, that much of the data are
19 either fudged or collected with carelessness or
20 incompetence, particularly that date for the
21 supplementary study with 1242. Have you discussed that
22 particular comment of the author with anybody?

23 A. No, sir. The first time I saw this document
24 was at the trial in Bloomington. I reported that I had
25 never seen it before and that's the last I saw of it

1 until now.

2 Q. There was a problem with Industrial Bio-Test
3 later on, wasn't there, with regards to some -- I don't
4 know if there's one or more that will be indicted?

5 A. Well, I read in the popular press of the
6 trial it's a place, and it did involve some Monsanto
7 products, not PCBs, and that's all I really know about
8 it.

9 Q. You understand that there was a
10 conviction for fraud by Industrial Bio-Test people with
11 regards to those particular Monsanto products?

12 MR. RUNNING: Are you referring to those
13 particular Monsanto products?

14 MR. CARLSON: The products that were being
15 tested Industrial Bio-Test.

16 MR. RUNNING: Other than PCBs?

17 MR. CARLSON: Yes.

18 A. Well, it was not only Monsanto products but
19 other companies were involved --

20 Q. (By Mr. Carlson) I see.

21 A. -- yes, I understood that there was a
22 sentencing of that sort.

23 Q. Who is Paul Wright?

24 A. Paul Wright is a toxicologist.

25 Q. Was he an Industrial Bio-Test employee at

1 that time?

2 A. Yes.

3 Q. And later an Monsanto employee?

4 A. Yes.

5 Q. Did Monsanto use any other companies besides
6 Industrial Bio-Test to do its toxicology studies on PCBs?

7 A. At what point in time?

8 A. In the 1970s.

9 A. No.

10 Q. From --

11 A. I should make a clarification.

12 Q. Sure.

13 A. There were some fish studies placed with a
14 laboratory in the northeast after Industrial Bio-Test
15 told us that they just did not have that expertise.
16 Other than that, there were no other studies.

17 Q. Exhibit Number 12 is a copy of the same
18 document that you had an opportunity to review in the
19 City of Bloomington?

20 A. It appears to be, yes.

21 Q. Is there any question in your mind about
22 this being an authentic copy?

23 MR. RUNNING: Well, how could he have a
24 question or an answer if he hadn't seen it before?

25 Q. (By Mr. Carlson) You saw it in the City of

1 Bloomington at the case, did you not?

2 A. I saw --

3 MR. RUNNING: Unless he recognizes the
4 handwriting, I don't see how he can give you any
5 testimony.

6 A. As best as I can recall, this looks very
7 much like the document I saw then.

8 Q. (By Mr. Carlson) And the contents are the
9 same contents that you recall being in that document?

10 A. Yes. It refers to the same topics.

11 MR. RUNNING: Well, I object to asking him
12 if he had seen the document in another trial. That's not
13 an authentication source, and I move to strike the
14 question and answer.

15 Q. (By Mr. Carlson) Do you recall this exhibit
16 being introduced as evidence in the Monsanto trial
17 involved in the City of Bloomington?

18 MR. RUNNING: Objection. It's not
19 appropriate of anything.

20 A. Well, I don't know if it was introduced. It
21 was handed to me as an exhibit. I have no other way of
22 determining what you are asking.

23 Q. (By Mr. Carlson) Okay. That's all. Thank
24 you.

25 MR. CARLSON: I will offer Exhibit Number

1 12.

2 (Plaintiff's Deposition Exhibit 13 was marked)

3 Q. (By Mr. Carlson) Mr. Papageorge, I've had
4 marked as Plaintiff's Exhibit Number 13, a document dated
5 December 30, 1968. Would you be kind enough to review
6 this so that you feel comfortable that you know its
7 contents.

8 (Witness took a moment to read the document)

9 A. I have finished reading it.

10 Q. (By Mr. Carlson) Is of the exhibit a
11 December 30, 1968 memo to W. A. Kuhn from W. R. Richard?

12 A. Yes.

13 Q. And can you be kind enough to identify for
14 me who W. A. Kuhn was or is?

15 A. Mr. Kuhn at the time was manager of
16 manufacturing, responsible among other units for those
17 that produced PCBs at the Anniston and the Illinois
18 plant.

19 Q. And can you tell me generally the
20 circumstances that came rise to this memo -- let me
21 strike that. Have you seen the memo before?

22 A. Yes, I have.

23 Q. And you've talked to Mr. Richard about his
24 involvement with the particular aspect of the project?

25 A. Yes, sir.

1 Q. And can you tell me generally what the
2 purpose of this memo was?

3 A. It's two-fold. One is to inform Mr. Kuhn of
4 the status regarding PCBs and the environment as Dr.
5 Richard knew them. Dr. Richard being the director of
6 research for PCBs, and it was also an attempt on Dr.
7 Richard's part to inform Mr. Kuhn of the steps that Dr.
8 Richard thought were important in addressing, and he's
9 asking for Mr. Kuhn's support in this approach.

10 Q. In the memo, there is a reference on the
11 second page, third to the bottom paragraph in which Dr.
12 Richard's comment, "I believe we should help our
13 customers dispose of off-grade or non-reworkable Aroclor
14 either by incinerating or by toxic dump." Did I
15 correctly read that, first of all?

16 A. Yes, you did.

17 Q. Am I correct in saying that prior to
18 December 30 of 1968, Monsanto was not helping its
19 customers dispose of off-grade or non-reworkable Aroclor?

20 A. No, that's not quite correct.

21 Q. Okay. I guess -- and I don't mean to argue
22 with you at all. I guess what comes to mind is if Dr.
23 Richard says we should start helping, we should help our
24 customers dispose of the off-grade and non-reworkable
25 Aroclor?

1 A. Yes.

2 Q. Was it your understanding from your
3 discussions with him that Dr. Richard wanted to see more
4 work done in that regard?

5 A. Yes, particularly in the area of
6 incineration which was a new concept. The use of toxic
7 dumps under the proper conditions was not a new thought.

8 Q. Okay. Dumps that are -- strike that. Dumps
9 that are appropriate for different kinds of substances
10 have different requirements, I suspect, based on your
11 understanding?

12 A. Certainly.

13 Q. Okay. Currently are there toxic dump sites
14 that are appropriate and legal for handling of PCBs?

15 A. Yes, there are sites, regulated by the
16 Environmental Protection Agency in terms of conditions
17 that are suitable for the disposal of PCBs that are
18 non-liquid solids, rags, dirt, that kind of thing.

19 Q. What about waste water that has PCBs in it?

20 A. To my knowledge, there's no dump, so to
21 speak, authorized to accept water contaminated with PCBs.

22 Q. How -- based on everything you've read, you
23 understand that PCBs are still in machines out in the die
24 cast industry, correct?

25 A. Yes.

1 Q. How do companies now get rid of their PCBs?

2 A. Incineration is the approved method and
3 there are commercial units proved by EPA to do this.

4 MR. RUNNING: Well, I object. There's
5 confusion in the questions over the standards. You are
6 referring to incineration and you are also referring to
7 PCBs still being in die cast machines and you know the
8 standard. You were talking about apples and oranges.

9 Q. (By Mr. Carlson) At the time Monsanto sold
10 PCB -- strike that. At the time Monsanto sold PCB
11 hydraulic fluid, did Monsanto expect that its customers
12 would have to incinerate its PCB waste fluids?

13 A. Will you help me with the time period again?

14 Q. Sure. During the time period that Monsanto
15 sold F-9 and 312, okay, those two hydraulic fluids, did
16 Monsanto expect that its customers would have to
17 incinerate its PCB fluid, its waste fluid?

18 A. That's why I asked for the time.

19 Q. Right.

20 A. The technology for incinerating PCBs
21 properly was not developed until 1970, '71. Prior to
22 that, no one, including Monsanto, was in any position to
23 suggest incineration. The only suggestion available then
24 was to dispose of it in a properly authorized chemical
25 landfill.

1 Q. Until 1968, properly authorized chemical
2 landfills could receive PCBs material but today those
3 landfills would have to be dug up?

4 MR. RUNNING: Objection unless you specify
5 the concentration.

6 Q. (By Mr. Carlson) Go ahead.

7 A. Well, I suspect if a problem is detected
8 that is related to the contents of that landfill and is
9 presumed by the regulators to be due to PCBs, then
10 someone in authority will make a decision regarding what
11 corrective action to take, whether it be digging up or
12 reinforcing the surrounding area with the proper
13 impermeable materials and so on.

14 Q. On the December 30th of '68 memo, the last
15 paragraph, he references that, "We -- I presume we being
16 Monsanto --

17 A. Yes.

18 Q. -- "probably have six months to one year
19 while they fight out the DDT case. I want to use this
20 time to minimize our exposure. We will need your help in
21 setting TSD targets." First of all, did I correctly read
22 that?

23 A. Yes.

24 Q. And from working with Dr. Richard when he
25 said that we probably have six months to one year while

1 they fight out the DDT case, what was he making reference
2 to?

3 A. He was referring to the conditions that
4 existed at the time regarding the emphasis by many groups
5 to see to it that regulations were passed to ban the use
6 of DDT, and Dr. Richard was well aware of all of that and
7 was associating that activity with possible impact on the
8 PCB chemicals.

9 Q. And then when he says I want to use this
10 time to minimize our exposure, what exposure was he
11 talking about?

12 A. Well, again, I have a hard time putting
13 myself in Dr. Richard's shoes.

14 Q. Well, I understand, but you have talked
15 about this subject to him.

16 A. Well, what he's talking about is Monsanto is
17 a producer of PCBs, would be exposed to the same
18 accusations that the DDT manufacturers were exposed to at
19 the time, and Dr. Richard's hope is that he could get
20 enough good scientific data to help him and others make
21 decisions regarding continued use versus discontinued use
22 so that he can minimize the impact on PCBs and their
23 continued use for those purposes that were deemed to be
24 necessary and responsible.

25 Q. From the discussion with him, was he also

1 talking about minimizing Monsanto's financial exposure
2 for marketing of PCBs?

3 A. Well, that's certainly part of it. That's
4 always in the picture.

5 Q. Then when he says, "We will need your help
6 in setting TSD targets." What are TSD targets?

7 A. TSD refers to Monsanto's designation of
8 their plant engineering departments. That stands for
9 Technical Services Department.

10 Q. And did Monsanto expect to have a Technical
11 Service Department target for permissible levels in waste
12 water for customers such as die cast companies, is that
13 the kind of targets we are talking about?

14 A. No, no. These are Monsanto plant groups
15 working on Monsanto plant problems.

16 MR. CARLSON: The record should reflect that
17 we will offer Plaintiff's Exhibit 13 into evidence.

18 Q. (By Mr. Carlson) At a point in time did
19 Monsanto make a decision to stop manufacturing hydraulic
20 fluid for die cast companies which utilized PCBs?

21 A. Yes.

22 Q. And when was that decision made?

23 A. 1970, they began the program.

24 Q. Earlier today, we had talked about some
25 other products which Monsanto discontinued manufacturing

1 using PCBs. I guess one product I'd like to talk to you
2 about for a moment is Therminol. What is Therminol?

3 A. Therminol is Monsanto's trademark for fluids
4 that it sells to be used as a medium for transferring
5 heat from one source to another.

6 Q. And did Monsanto also decide to stop
7 manufacturing and selling Therminol?

8 A. No. The trademark Therminol is still in
9 use.

10 Q. Okay. PCB Therminol?

11 A. PCB Therminols, yes.

12 Q. When was that decision?

13 A. It was after 1971. The decision was made
14 late in 1971.

15 Q. The decision to stop manufacturing PCB-base
16 Therminol was because of the potential of the Therminol
17 to contaminate foods?

18 A. That was the principle reason, yes.

19 Q. And at the time that decision was made --
20 strike that. At the time that you did discontinue
21 manufacturing the Therminols and then selling them,
22 Monsanto advised its customers that it should drain the
23 machines that had Therminols in them?

24 A. Yes.

25 Q. And you provided actually kind of a little

1 manual on how to do that properly?

2 A. There was a manual with suggestions. It was
3 not a set of specific instructions because they had to --
4 suggestions had to be adapted to the specific
5 installation.

6 Q. And you had your customers actually sign for
7 letters showing that they received this information?

8 A. I don't remember that step. Its been a
9 while.

10 Q. All right. Based on Monsanto's
11 understanding of the die cast industry in 1971, it was
12 understood that some PCBs would get into water that would
13 contaminate fish?

14 MR. RUNNING: Could you read that question
15 back?

16 (Reporter read back last question.)

17 MR. RUNNING: Objection. The questions
18 ambiguous and misstates prior testimony.

19 Q. (By Mr. Carlson) Is that a fair statement?

20 A. Well, it's almost so. There was some
21 understanding that on occasion, in spite of the good
22 intentions of the user, that material could end up in a
23 situation where eventually it would end up in the
24 environment, yes.

25 Q. And it was understood that that could get

1 into a food chain which ultimately could result in human
2 consumption?

3 A. It could, but the intent was to keep the
4 quantity so low that eventually it would degrade, or if
5 parts of the food chain that consumed it, that the amount
6 present would be low enough such that the lifetime of the
7 creature would be such that not enough material would
8 accumulate to create problems.

9 Q. That was the expectation?

10 A. That was an expectation, yes.

11 Q. And did Monsanto internally discuss the
12 concept of biomagnification and biocumulation when
13 looking at the potential of these PCBs getting into the
14 food chaining?

15 A. Certainly.

16 Q. And he -- I don't want to misphrase what you
17 said, but would I be correct in saying that Monsanto's
18 expectation in 1971, was that even if some of the
19 hydraulic fluids were being handled properly, they still
20 could escape and some PCBs could get into the food chain.
21 Would that be a fair statement?

22 A. When we talk of possibilities, we have to
23 follow the premise that anything is possible, and in
24 order to manage this issue responsibly, you got to think
25 of the worse case scenario and work to avoid that

1 scenario.

2 Q. And when Monsanto developed a replacement
3 for the PCB hydraulic fluids, is the next fluid that was
4 used the terphenyl?

5 A. It had terphenyls as the fire retardant
6 ingredient.

7 Q. Was the -- there was Pydraul 312a?

8 A. Yes.

9 Q. When was the first time the Pydraul 312a was
10 tested for the presence of PCBs?

11 A. I have a hard time remembering the date,
12 about 1972 --

13 Q. Okay.

14 A. -- is the best of my memory.

15 Q. How long after terphenyls were used as the
16 fire retardant fluid in the Pydraul 312a was it when they
17 were first found to have the PCBs?

18 A. About a year, as best I can tell.

19 Q. Therminol also used the terpheynls?

20 A. No.

21 Q. Okay. How did it happen that Monsanto found
22 that the terphenyls or the hydraulic fluid of the
23 terphenyls also had biphenyls?

24 A. As best I recall, there were studies being
25 made to determine the presence of contaminant chemicals

1 in these products, and in that study, the analyst noticed
2 the PCB peaks on his chart.

3 Q. Where were the terphenyls made?

4 A. Anniston, Alabama.

5 Q. In the same equipment that was used to make
6 biphenyls?

7 A. Yes.

8 Q. Was there any problem not having the
9 equipment necessary to look for in the PCB contaminant in
10 the terphenyls in 1971?

11 A. No, no. It was just the thought never
12 occurred to those close to the manufacture of the
13 material that such a contamination was occurring.

14 Q. Your company did represent to the public
15 that the Pydraul 312a did not contain biphenyls, didn't
16 they?

17 A. Yes, that was to indicate it was biphenyls
18 were not added as a known component, so many pounds for
19 every barrel.

20 Q. Well, you didn't tell them that it could be
21 contaminated with biphenyls either, did you?

22 A. No, because we didn't know it. How could we
23 tell them something we didn't know?

24 Q. What other contaminants were they looking
25 for when they found the biphenyls?

1 A. Well, at that time we had an ongoing program
2 from early 1970, to look for chlorinated dibenzodioxins
3 and chlorinated dibenzofurans. That was the program that
4 led to this other discovery.

5 Q. Why was your company looking for furans in
6 the terphenyls?

7 A. Well, we had reports from the group in the
8 Netherlands about furans in PCBs by the European
9 producers, and that stimulated studies on Monsanto's part
10 looking for it in Monsanto's PCBs an extension of that
11 since the chlorine, the hydrogen, and the carbon, and the
12 Oxygen were all present in the terphenyls. The
13 scients -- the chemist looked at the terphenyls to see if
14 any dioxins and furans might be present.

15 Q. If I recall correctly, the wildlife project
16 at Monsanto began in 1968; is that correct?

17 A. I don't know that it was called the wildlife
18 project. This led to the animal studies we talked about.

19 Q. Your review of Aroclors in wildlife began in
20 Monsanto in '68?

21 A. I would suggest it started before that, and
22 Dr. Richard in '68, was summarizing what he knew as of
23 that point in time.

24 Q. Was there an Ad Hoc PCB committee in
25 existence at Monsanto in the 1960s?

1 A. Yes.

2 Q. And when that was committee formed for the
3 first time that you recall?

4 A. I don't know that I ever asked that
5 question. When I was assigned the manager in
6 environmental control, the committee was in existence and
7 I became its chairman, so I do not know when it started
8 meeting as a group.

9 Q. What was the purpose?

10 A. The purpose was to exchange information
11 gathered by the individuals in the group as it related to
12 their different functions, whether it was an analytical
13 chemist or research chemist or manufacturing manager or
14 marketing person, really it's a case of letting the right
15 hand know what the left hand is doing or hearing.

16 Q. Do you remember who the chairman of the
17 committee was in September of 1969?

18 A. I don't believe there was a person
19 designated as chairman. The group was called for a
20 session whenever someone in that group felt he had
21 something important to share, then he would serve sort of
22 as the organizer of that particular session.

23 Q. Bear with me a second.

24 A. Okay.

25 (Plaintiff's Deposition Exhibit 14 was marked)

1 Q. (By Mr. Carlson) I've had marked as
2 Plaintiff's Exhibit Number 14, a document, the first page
3 of which appears, I believe, to be authored by Elmer
4 Wheeler.

5 A. Yes.

6 Q. And addressed to P. B. Hodges with carbons
7 to some other folks?

8 A. Yes.

9 Q. You've seen the copy of the -- well, first
10 of all, read it over so that you are comfortable that you
11 know what it is.

12 (Witness took a moment to read the document)

13 A. I've read it.

14 Q. (By Mr. Carlson) You've had an opportunity
15 to review Plaintiff's Exhibit Number 14?

16 A. I have.

17 Q. And it is a document that is entitled
18 Minutes of Aroclor Ad Hoc Committee, First Meeting?

19 A. It is.

20 Q. And its dated September 5, 1969?

21 A. Yes.

22 Q. This particular Ad Hock Committee met for
23 the first time about nine months after Dr. Richard
24 reported on the wildlife situation?

25 A. Yes.

1 Q. And about almost three years after your
2 company was apprised of the PCBs that were found in the
3 environment by Mr. Jensen?

4 A. Yes, sir.

5 Q. And your company set up some some -- or
6 strike that. Your committee set up some objectives, did
7 it not?

8 A. Yes. I, at this point, would like to
9 clarify a point.

10 Q. Sure.

11 A. The Ad Hock Committee I had in mind earlier
12 was a larger group and consisted not only of these
13 individuals but many many more, marketing people, public
14 relations people. I forget the whole mixture. This
15 particular group was appointed by that larger group to
16 sit down and draft a document that attempts to summarize
17 what was known at the point in time and attempts also to
18 summarize what kinds of actions should Monsanto be
19 considering. This then represents the thinking of these
20 few individuals which was passed on to the bigger group
21 which addressed these points and then developed a program
22 which was slightly instituted, so there are two Ad Hock
23 committees that I, in my own mind, confused.

24 Q. Are there documents, minutes of the larger
25 Ad Hock Committee meetings that are called Ad Hock

1 Committee meetings?

2 A. There are references to that committee that
3 I personally have made, and starting in 1970, I issued
4 monthly reports on status. Those reports were prepared
5 by the committee by the individuals in the committee.
6 They do not include in their title the referenced Ad Hoc
7 Committee, it's just an environmental -- PCB
8 environmental summary, monthly summary of some such
9 comment, such title.

10 Q. The only committee carrying the name Ad Hock
11 that you are aware of is the committee with the first
12 minutes -- or the first meeting minutes are incorporated
13 in Plaintiff's Exhibit 14?

14 A. (Witness didn't respond to the question.)

15 Q. There may be something else --

16 A. There is -- there are some --

17 A. I don't remember seeing another document
18 other than this group calling themselves an Ad Hoc
19 Committee. If there are, I'm certainly willing to be
20 corrected.

21 A. I recall that I personally had referred to
22 the group that worked with me as the PCB Ad Hock
23 Committee, but I do not -- I did not use that as a title
24 for the summary reports I put out.

25 Q. This particular Ad Hock committee does have

1 a chairman?

2 A. Yes, it does, that's why this is a different
3 group.

4 Q. That's Mr. Wheeler?

5 A. Mr. Wheeler was asked to chair this small
6 sub-group.

7 Q. And this sub-group agreed on some
8 objectives?

9 A. That is true.

10 Q. One of the objectives was to permit
11 continued sales and profits of Aroclors and terphenyls,
12 correct?

13 A. Yes.

14 Q. That's announced objective of the committee
15 that was making a recommendation to the company?

16 A. Yes.

17 Q. Okay. And the second objective was to
18 permit continued development in uses and sales, I
19 presume, of PCBs and Aroclors; is that correct?

20 A. Yes.

21 Q. And the third was to protect the image of
22 organic division and of the corporation, correct?

23 A. Correct.

24 Q. I don't find as a part of this committees
25 objectives reference to finding out whether or not the

1 PCBs or Aroclors in the environment are causing harm and
2 their uses should be discontinued, that wasn't an
3 objective in this committee, was it?

4 A. Well, it isn't stated om so many words, but
5 it's reflected in number three, and you can't have number
6 one without number three.

7 Q. Number three, you mean the third objective?

8 A. Yes.

9 Q. Protect the image of the organic division?

10 A. And of the corporation.

11 Q. How does one protect the image of a
12 division?

13 A. By acting responsibly.

14 Q. How about with public relations?

15 A. I don't understand that question.

16 Q. In protecting an image of a corporation, one
17 of the things that you company has is a public relation
18 department, right?

19 A. Yes, sir.

20 Q. And that public relations department takes
21 out ads on occasion when it deems appropriate to help
22 protect a company's image?

23 A. On occasion, yes.

24 Q. As a matter of fact the company is involved
25 in doing that right now with regards to the bovine growth

1 hormone?

2 MR. RUNNING: I object. This isn't a
3 digression for that purpose.

4 MR. CARLSON: They tie up very carefully.

5 MR. RUNNING: And I also challenge you to
6 identify any ads that were ran on PCBs during the
7 relevant time period, so it's a mischaracterization of
8 the record.

9 Q. (By Mr. Carlson) Are you aware of the work
10 that your public relations department is doing on bovine
11 growth?

12 A. I have read some of it just like you have in
13 the public press.

14 Q. And your public relations department
15 develops press releases?

16 A. Certainly. But a press release has to be
17 based on good information, otherwise, it reflects
18 negatively.

19 Q. In the minutes of that meeting, the
20 background discussion of the problems, under number one
21 there's a reference that they should concentrate on the
22 1254 and the 1260, is there not?

23 A. Yes, it is.

24 Q. And that's -- or there's reference made that
25 the 1242 as of that date had not been incriminated,

1 right?

2 A. Well, that's paraphrasing what's here --

3 Q. Right.

4 A. Yes.

5 Q. And then it goes to show the possible
6 reasons that it perhaps hasn't been incriminated?

7 A. Um-hum (affirmative), yes.

8 Q. And there are three that are listed there,
9 a, b, and c, correct?

10 A. That's correct.

11 Q. The last being that, "Unless analytical
12 techniques are performed carefully, the 1242 can be
13 destroyed by oxidation during the analyses." That's one
14 of the things that your committee was aware of?

15 A. True, but that statement applies to the
16 other Aroclors as well. It's not unique to 1242, so the
17 analyses must be performed carefully.

18 Q. Is it your comment then that item (c) should
19 not have been a reason that it's possible that the Arclor
20 1242s had not been incriminated?

21 A. That is my opinion, yes.

22 Q. And with regards to the comments that it may
23 degrade biologically, is it your opinion that, in fact,
24 1242 was degrading biologically so that it wasn't being
25 detected in the environment at that time?

1 A. That was a considered scientific opinion
2 which was later demonstrated in the laboratory, yes.

3 Q. Which of the different chlorinated biphenyls
4 were degrading out of the 1242?

5 A. Some of the four chlorines and virtually all
6 of the three, two, and one chlorines.

7 Q. The five, six, seven and, I think, there's
8 eight chlorines remained present, were not biodegrading?

9 A. Most them. Some of them did degrade, but
10 not all of them.

11 Q. And those particular -- I don't want to
12 refer to them as higher chlorinated biphenyls -- would be
13 the same higher chlorinated biphenyls found in the the
14 1254 and 1260?

15 A. It would be the same types but in different
16 proportions.

17 Q. Right. And there's reference to the nature
18 in uses of the 1242 minimizing environmental
19 contamination. Was that your impression of why the
20 Aroclor 1242 had not been incriminated as of September 5
21 of 1969?

22 A. That was one of the factors considered.

23 Q. In reviewing the document -- and you've seen
24 this document before, haven't you?

25 A. Yes, I have.

1 Q. Is there any information that is contained
2 in the document that you think is erroneous? That's
3 probably the easiest way of saying it or asking it.

4 MR. RUNNING: Other than item (c)?

5 MR. CARLSON: Other than item (c) appearing
6 in number one.

7 A. Erroneous at that point in time or in
8 hindsight?

9 Q. (By Mr. Carlson) Well, let's do it
10 erroneous at that point in time.

11 A. At that point in time.

12 Q. Sure.

13 A. As I read the document looking for possible
14 erroneous statements in addition to the one I've already
15 indicated, I don't see anything in here that does not fit
16 well into the understanding that existed at that time.

17 Q. Okay.

18 MR. CARLSON: And we will offer Exhibit
19 Number 14, and I think we want to take a little break
20 right now.

21 (At this time, there was a ten minute break in the
22 deposition.)

23 Q. (By Mr. Carlson) Before we took our break,
24 we were talking about the first meeting of the Ad Hoc
25 Committee, and what I'm wondering is, what steps did the

1 committee take to achieve the objective to permit
2 continued sales and profits of Aroclors and terphenyls?

3 A. The steps really were many and included such
4 things as establishing which of the PCBs degrade or don't
5 degrade; are there ways to properly prevent the escape to
6 the environment and continue the uses; establishing
7 whether or not the PCBs are harmful even though they are
8 present, do they or do they not cause harm; and this
9 objective was further met by finding different materials
10 that could be used in place of the PCBs and still
11 maintain the sales and profits of that group.

12 Q. I know, but it doesn't say that. It says
13 sales and profits of Aroclors and terphenyls?

14 A. True.

15 Q. Aroclors are PCBs -- are fluids that have
16 PCBs in them?

17 A. Yes, but you've got to recognize, within
18 Monsanto, that gives a special message that says this
19 business group that has these materials will have its
20 sales and profits. That's what it really means.

21 Q. So it doesn't mean what it says there. It
22 means that they want to continue the sale and profits of
23 that division of Monsanto?

24 A. That's true. That's really the intent of
25 that objective.

1 Q. Okay. When did you first see a copy of this
2 particular committee meeting minutes?

3 A. In January of 1970, when I sat down with Mr.
4 Wheeler and had my tutorial, and he presented me with a
5 file of documents and this was one of them.

6 Q. The minutes are of the Aroclor Ad Hoc
7 Committee. Was the Aroclor work in a particular division
8 of Monsanto?

9 A. Yes.

10 Q. What division was that?

11 A. It was at that time called the organic
12 chemicals division.

13 Q. If we assume that one of the objectives was,
14 in fact, to permit the continued sales and profits of PCB
15 Aroclors, would you agree with me that at least for the
16 years 1969, the rest of 1969 and 1970, the objectives of
17 that particular committee were met?

18 A. In 1969, it was certainly met.

19 Q. How about 1970?

20 A. But 1970, it was not met.

21 Q. Did you sell -- that is, did the company
22 sell more Aroclors in 1970 than did you in 1969?

23 A. No. In fact, they discontinued sales
24 starting in August of 1970.

25 Q. Were gross sales as Aroclors higher still in

1 1970 than they were in 1969?

2 A. I'd be very -- I don't remember the numbers.
3 I'd have to see the charts. They are in this one
4 exhibit.

5 Q. Yes, we'll get to that later.

6 A. Okay.

7 Q. On objective number two, "Permit continued
8 development of uses in sales." That's uses in sales of
9 what?

10 A. Of chemicals that would serve the markets
11 that that particular group was assigned.

12 Q. So that it's not to permit the continued
13 development of uses and sales of Aroclors per se?

14 A. Not necessarily.

15 Q. Were you aware of a study either done by or
16 commissioned by one of Monsanto's competitors, Houden, on
17 the effects of PCBs on bluegills?

18 A. I don't associate Houden with PCB studies.
19 I don't know. I'm not aware of it.

20 Q. Are you aware of potent chemical advising
21 customers that you and Houden were buying for in the
22 hydraulic business that at 1.67 parts per million
23 concentrations in water over four days, 100 percent of
24 the bluegills in the study were killed. Do you remember
25 Houden making those kinds of statements about your

1 products?

2 A. I don't remember that, but that six or seven
3 parts per million in water not possible.

4 Q. No, no, 1.67.

5 A. 1.67 parts per million.

6 Q. Right.

7 A. That's still not possible.

8 Q. Okay.

9 A. Unless they stirred it like hell.

10 Q. Or if it was bound to dirt in the water?

11 A. Dirt, particles, yes.

12 Q. You've been a spokesman for Monsanto in the
13 press about PCBs, haven't you?

14 A. At times.

15 Q. And on television?

16 A. A few times.

17 Q. Congressional committees?

18 A. Yes, sir.

19 Q. From your own perspective and hindsight, is
20 it your perception that you were asked to take over this
21 function, that is to address the public for Monsanto on
22 PCBs because of actions such as that which appear in the
23 objectives of the Ad Hoc Committee?

24 A. I'm not aware that my participation in that
25 kind of activity stems from anything the Ad Hoc Committee

1 might have suggested. It was a natural development of my
2 job in that I became the person in Monsanto that had
3 enough of the broad picture where I could respond to
4 questions that others put together. We didn't design the
5 question, remember, and I was the one that was perceived
6 by Monsanto as being in the best position to be able to
7 respond to questions that could come from many
8 directions. On the other hand, if it were say a very
9 specific area like medicine, Dr. Kelley would do that, or
10 research chemistry, well, Dr. Richard would do that, and
11 so on. But in the general arena, I was the person that
12 was asked to do that.

13 Q. In part in hindsight, is it your
14 understanding that you were selected for that position
15 because of your skills and communication?

16 A. I don't know that I had any particular
17 skills or training.

18 Q. Well, but the image that you projected.

19 A. That I am in no position to judge. I don't
20 know.

21 Q. Okay. Other than testifying for Monsanto
22 and review Monsanto litigation and PCBs, do you do
23 anything for Monsanto now?

24 A. No.

25 MR. RUNNING: Well, he's retired.

1 MR. CARLSON: Yeah, I understand.

2 Q. (By Mr. Carlson) But you are being paid by
3 Monsanto to do this work?

4 A. Right. Matters of this nature, yes.

5 Q. Did your company in 1969, conduct an
6 economic analysis of the effect of the loss of PCB
7 business on Monsanto?

8 A. In 1969?

9 Q. Yes.

10 A. Well, yes. Those estimates were typical of
11 the kinds of estimates made for virtually every business
12 group in Monsanto whenever a situation is undergoing some
13 change, so, yes, there were some estimates in 1969 and
14 subsequent to that. It was a continual review of where
15 the product lines stood.

16 (Plaintiff's Deposition Exhibit 15 was marked)

17 Q. (By Mr. Carlson) I've provided you with
18 Plaintiff's Exhibit Number 15, and would you be kind
19 enough to review that document for us?

20 (Witness took a moment to read the document)

21 A. I've finished reading it.

22 Q. (By Mr. Carlson) Would you be kind enough
23 to tell us what Plaintiff's Exhibit Number 15 is?

24 A. This is a summary prepared for a
25 presentation to a top Monsanto committee consisting of

1 the top officials of Monsanto, and there's a summary of
2 the information regarding PCBs in the environment known
3 to Monsanto as of the date, October '69, and ends up with
4 some thoughts regarding what actions should be considered
5 to address this problem.

6 Q. The problem is stated to be contamination of
7 ecosystem with polychlorinated biphenyls or PCBs?

8 A. That's correct.

9 Q. And under the problem, definition, and
10 timing, the last sentence of that paragraph references
11 Monsanto confirming PCBs in mid-1969. I presume that's
12 confirming PCBs that were present in the environment?

13 A. That's part of it, yes, confirming PCBs
14 present in samples, some of them coming from the
15 environment.

16 Q. And who at Monsanto did that work?

17 A. That was done in Dr. Robert Keller's
18 laboratory, supervised primarily by Dr. Scott Tucker.

19 Q. Did your chemists go over to Sweden and
20 actually work with either Dr. Whitmark or Mr. Jensen?

21 A. They did not actually work with them, they
22 discussed procedures with them.

23 Q. And the problem in the summary is stated to
24 be a world wide ecological problem?

25 A. Yes.

1 Q. And based on your understanding as of what
2 was occurring at that time, it was a world wide
3 ecological problem, correct?

4 A. Yes.

5 Q. On the second page there is a heading Effect
6 on Monsanto.

7 A. I see that.

8 Q. And under number one, the subject looked at
9 is the business potential at stake on a world-wide basis?

10 A. Yes.

11 Q. And apparently this was looked at in two
12 areas, in fluids and plasticizers, correct?

13 A. Corrects.

14 Q. Fluids consisted of, amongst other things,
15 the hydraulic fluids 312 and F-9?

16 A. Yes.

17 Q. And at that time -- I guess I need some help
18 in understanding this -- were you manufacturing 70
19 million pounds a year of fluids, is that how that reads?

20 A. Well, we were manufacturing 70 million
21 pounds of fluids, but some of those pounds were not PCBs,
22 they were blends, if you remember, it was like in
23 Pydraul.

24 Q. Okay. And gross sales of fluids were 16
25 million?

1 A. Yes.

2 Q. And is that in one year?

3 A. Yes.

4 Q. With a gross profit in one year of six to
5 eight million?

6 A. That is correct.

7 Q. I'm not too sure we've really defined what
8 plasticizers are very well for the folks that may have
9 the opportunity to view this deposition. What are
10 plasticizers?

11 A. Chemically, plasticizers are materials that
12 are added to plastics to make them flexible, pliable, so
13 they are not brittle, like the oldtime phonograph
14 records. In Monsanto, the PCB use described as
15 plasticizer use, in my opinion, is easier to understand
16 if you call it the miscellaneous use other than the
17 industrial fluids uses.

18 Q. I don't want to go back to it unless we have
19 to, but in one of the previous documents we looked at, I
20 think you may recall that there is reference to a million
21 pounds of PCBs in highway paint that was being abraded
22 into the environment; do you remember that?

23 A. I recall that, yes.

24 Q. Would those be PCBs that were in the
25 plasticizer group?

1 A. Yes.

2 Q. Is the molecular structure the same -- PCB?

3 A. Same PCB mixtures, yes.

4 Q. And then on the Effect of Monsanto and item
5 number two, it references legal responsibility; do you
6 see that?

7 A. I see that.

8 Q. What does that make reference to?

9 A. The potential for some legal action on
10 somebody's part regarding the use of PCBs and
11 consequences of that use.

12 Q. And then there is reference to the public
13 image?

14 A. Yes.

15 Q. And the last is the effect on other product
16 areas. Can you tell me what was meant by that?

17 A. In a company like Monsanto, which has
18 thousands of products to sell, its customers, in most
19 cases, buy more than one product. So if there is
20 dissatisfaction with Monsanto regarding one product, it
21 could reflect in the purchase of additional products, or
22 many times the arrangements are combined -- let's call it
23 package -- so many pounds of this and so many pounds of
24 that, and if PCBs are part of that package, it could
25 impact the other products.

1 Q. From that standpoint, was it important to
2 Monsanto to have an orderly transition from PCB products
3 to non-PCB -- I'm talking about hydraulic fluids -- from
4 PCB hydraulic fluids to non-PCB hydraulic fluids so that
5 these other products wouldn't be affected?

6 A. Well, that's one consideration.

7 Q. And on the third page, there is a heading
8 Main Sources of Pollution, correct?

9 A. I see that.

10 Q. And about the middle of the third sentence
11 reference is made to industrial fluids, correct?

12 A. There is that reference, but it refers to
13 the use of Aroclor 1254 and 60 in fluids.

14 Q. The reference to 1254 and 1260 was because
15 of the -- strike that. Let's go back and talk a little
16 bit about finding 1254 and 1260 in the environment. When
17 that analysis was performed by Monsanto looking for PCBs
18 in the environment, did they look for, for example, 1254?

19 Q. No, they were looking for PCBs depending on
20 the chart that was printed by the instrument, they would
21 then sit down and identify which of the commercial
22 mixtures is this more closely resemble, and that's when
23 the chemist arrives at the decision this looks like
24 Aroclor 1254. It might have been Kanechlor 500, but it
25 looks like Aroclor 1254.

1 MR. RUNNING: Make sure to explain what
2 Kanechlor 500 is.

3 A. Oh, I'm sorry.

4 Q. (By Mr. Carlson) Go ahead.

5 A. Kanechlor 500 is a trademark of the Japanese
6 maker of PCBs.

7 Q. Okay. Did they manufacture pursuant to
8 Monsanto license at some point?

9 A. No.

10 Q. As you understand the analytical techniques
11 that were in use at that time, if 1242 is present in the
12 environment but the lower chlorinated biphenyls have
13 degraded leaving higher chlorinated ones present, is that
14 going to be detected when a PCB analysis is made?

15 A. Will what be detected, the degradation be
16 detected?

17 Q. No, the higher chlorinated biphenyls are
18 residual from 1242.

19 A. If they are present, they will be detected,
20 yes.

21 Q. Will that detection look just like a 1260 or
22 a 1254?

23 A. Not just like, it will more closely resemble
24 a 1254 than it does a 1242.

25 Q. Okay.

1 A. Its loss that 1242 image, it's shifted.

2 Q. So when in analyzing for PCBs and if the
3 peek looks like 1254, it could be, in some instances,
4 that it is residual of partially degraded 1242; would
5 that be a fair statement?

6 A. It could be.

7 Q. And then under Possible Control of
8 Contamination, it references again, amongst other things,
9 industrial fluids, does it not?

10 A. Yes, it does.

11 Q. And I guess in all fairness I should read
12 the entire sentence. "Industrial fluids, plastics,
13 coatings, and adhesives are very difficult, if not
14 impossible to control. Substitute products needed." Did
15 I fairly read that sentence?

16 A. You read that correctly.

17 Q. And the particular Executive Summary
18 references industrial fluids are very difficult, if not
19 impossible to control. Does that include hydraulic
20 fluids in die cast companies?

21 A. That's one of the industrial fluids, yes.
22 But you notice the spread of degree of ability to control
23 from the difficult to the impossible in that particular
24 grouping.

25 Q. I understand. Very difficult if not

1 impossible?

2 A. Exactly. It's a mixture of degrees of
3 difficulty and control.

4 Q. Where would you put it on the continuum,
5 would you put hydraulic fluids at the very difficult or
6 if the not impossible.

7 A. Oh, I would call it -- I wouldn't even use
8 very. I would say it's difficult but achievable.

9 Q. Using special techniques?

10 A. Not special techniques. It's really a
11 matter of the boss putting emphasis and getting support
12 from his bosses to get people and money to do what is
13 necessary. You don't need new technology or new
14 techniques. It's all available.

15 Q. Yes. I guess that's a fair statement. If
16 he was perceived to take these additional steps to
17 control the PCBs, technology was there to do it?

18 A. Certainly.

19 Q. Okay. For example, you had discussed
20 earlier the closed loop system that you had referenced in
21 one of your memorandum, do you remember that?

22 A. Yes.

23 Q. That would be one of the ways that could be
24 done?

25 A. Well, we would have to agree on the

1 definition of close loop, the expression close loop. As
2 we use it for this particular program was to define the
3 whole process of the creation of the PCB, the shipment of
4 it, the use by the customer, the eventual use by the
5 final consumer and the control throughout all of this to
6 keep it from getting away into the environment, knowing
7 that once in a while it's going happen, but keep that to
8 a minimum as much as you can, and if there is anything
9 that can't be used any longer, dispose of it properly.
10 That's what we meant by closing the loop from beginning
11 to end.

12 Q. Disposing of it properly has shifted
13 meanings over the years if we look back from 1968 to
14 1988, hasn't it?

15 A. Certainly it has brought about by a better
16 understanding and by new technology. Like incineration,
17 new technology wasn't available before.

18 Q. I'd like to discuss with you just a
19 second -- I'm going to shift gears and go back to
20 manufacturing of PCBs in Anniston.

21 MR. RUNNING: Don, we are right at 5:00. I
22 don't want to go much after 5:00.

23 MR. CARLSON: Okay. Let me just get this
24 and then we'll be all right.

25 MR. RUNNING: Okay.

1 Q. (By Mr. Carlson) That manufacturing process
2 was in an outdoor facility, wasn't it?

3 A. Yes.

4 Q. And if there were leaks in the system of
5 PCBs, it would get on to the ground?

6 A. Well, not always.

7 Q. But it could?

8 A. Let me describe. The bottom level was a
9 concrete floor.

10 Q. Okay.

11 A. The areas surrounding that concrete floor
12 was crushed rock.

13 Q. All right.

14 A. And, of course, the road beds and all around
15 it were asphalt covered, and it gives you an idea of what
16 it looked like. The structure is steel.

17 Q. Right.

18 A. And the only facility in that total
19 structure that was covered was the control room which was
20 about the size of this room here.

21 Q. 15 by 20 or so?

22 A. Roughly. So enough to have some instruments
23 and a table, a bench, and chairs in the middle.

24 MR. RUNNING: Mr. Papageorge, when you said
25 covered, do you meaning enclosed?

1 A. It was a building, a little building with a
2 roof over it, and it had some windows and a door and an
3 air conditioner to ventilate, yes. It was the only
4 closed structure, but there were no PCBs in that
5 structure.

6 Q. (By Mr. Carlson) No. But when you did have
7 leaks in your system, PCBs would get onto your own
8 facility onto the crushed rock and under the asphalt?

9 A. Eventually it would fall on the grating and
10 run down the steel columns sometime if they ever did it
11 or on to the concrete floor, and if it wasn't cleaned up
12 quickly, it would work its way over into the crushed
13 rock.

14 Q. And on occasions, the rain water might carry
15 the PCBs a little bit?

16 A. That was a possibility that always existed.

17 Q. But back in the '60s, Monsanto didn't
18 believe that you were damaging the environment by
19 handling PCBs in that way, would you?

20 A. No, but I don't want to give you the
21 impression there was a lot of this oil around. It's very
22 similar, like I said earlier, the oil spot underneath
23 your car, if your cars are like mine.

24 Q. What did you do with the larger spills,
25 because you did have larger spills, didn't you?

1 A. Yes. Oh, we take quick action then. We
2 sawdust or something or sand or something to absorb it,
3 rags if possible, whatever was handy to keep it from
4 getting too far.

5 Q. What did you do with those rags?

6 A. Put them in Monsanto's landfill.

7 Q. What ever happened to that landfill?

8 A. still there.

9 Q. Is it covered over?

10 A. Well, the old parts are, of course, covered.
11 But there is still an active part that's still -- they
12 are still putting material in it.

13 Q. What are they putting in there now?

14 A. What ever waste the Anniston plant is still
15 producing.

16 Q. They are not putting any PCBs in there
17 anymore, are they?

18 A. No to my knowledge, no.

19 Q. They've covered over the PCBs, haven't they?

20 A. Yes.

21 MR. CARLSON: Okay. We'll start again
22 tomorrow.

23 (The deposition will continue tomorrow)

24

25

CONTINUATION OF DIRECT EXAMINATION

QUESTIONS BY MR. CARLSON:

Q. Good morning, sir.

A. Good morning.

Q. You had a good night sleep?

A. Oh, yes.

Q. Before we went on the record this morning, you had an opportunity to review some of the exhibits that I'd like to talk to you about, did you not?

A. I did.

(Plaintiff's Deposition Exhibit 16 was marked.)

Q. (By Mr. Carlson) And if you would be kind enough to turn to Exhibit 16, and identify that for me.

A. This is a copy of a Monsanto memorandum addressed to W. R. Richard and prepared by Cumming Paton, and it's dated June 18, 1968.

Q. Have you seen this document before?

A. I don't recall ever seeing this.

MR. RUNNING: Mr. Papageorge, just so you know, when he asks you to identify a document, you shouldn't just read off the document. He's asking if you know what the document is from personal knowledge.

A. Oh, I didn't understand the question.

Q. (By Mr. Carlson) No, you understood it

1 right the first time. that's what I meant to do the
2 first time and now I'm going to ask you just general
3 questions about it, but that's fine.

4 MR. RUNNING: Well, I object to
5 identification if it just means reading as we go into
6 that, but go ahead.

7 MR. CARLSON: Somebody's got to do it.

8 Q. (By Mr. Carlson) In any event, it is a
9 document of June 18, 1968, is it not?

10 A. Yes.

11 Q. And this concerns some work that was being
12 done by the U.S. Bureau of Commercial Fisheries?

13 MR. RUNNING: Again, foundation objection.
14 You haven't established that he had reviewed this
15 document while he worked at Monsanto or used it.

16 Q. (By Mr. Carlson) Is that true?

17 A. It refers to a study underway.

18 Q. During the course of your work with PCBs,
19 did you find that this work was being done by the U.S.
20 Bureau of Commercial Fisheries?

21 A. Yes.

22 Q. And the work was going on about that time in
23 June of 1968?

24 A. Yes.

25 Q. Did you talk with any of the folks at the

1 U.S. Bureau of Commercial Fisheries that were doing the
2 work?

3 A. Not at this particular laboratory, no.

4 Q. Okay. But it is under your understanding
5 that the Bureau of Commercial Fisheries in 1968, was
6 looking for PCBs in Lake Michigan?

7 A. Yes.

8 Q. Did they find it?

9 A. Yes.

10 MR. CARLSON: We'll offer Exhibit Number 16.

11 MR. RUNNING: My position remains unchanged,
12 Don.

13 Q. (By Mr. Carlson) Well, why don't we back up
14 again. Take a look at Number 16 again. This particular
15 document was authored by who?

16 A. Cumming Paton, P-a-t-o-n.

17 Q. And who is Cumming Paton?

18 A. At that time, Dr. Paton was the technical
19 individual located in a marketing department that sold
20 plasticizers.

21 Q. Okay. And we previously identified Dr.
22 Richard, did we not?

23 A. Yes, we did.

24 Q. And is this the kind of memo that you would
25 expect Cumming Paton to send to Dr. Richard concerning

1 PCB activity?

2 MR. RUNNING: Don, just to cut this short,
3 we won't object to this document. My only objection is
4 that you not ask the witness not to identify the document
5 just by reading it when he didn't have any involvement
6 with it other than just --

7 MR. CARLSON: Okay.

8 MR. RUNNING: -- looking at it today. but
9 we don't object to this document.

10 MR. RUNNING: I didn't think you did.

11 (Plaintiff's Deposition Exhibit 17 was marked)

12 Q. (By Mr. Carlson) If you would also be kind
13 enough to look at Exhibit 17.

14 A. I have it.

15 Q. And this is a memo from yourself?

16 A. Yes.

17 Q. And the memo is directed to Mr. Bergen, and
18 I'm not sure -- is it Mr. or Mrs. Springgate?

19 MR. RUNNING: Again, Don, I think you should
20 ask if he's ever seen it before today.

21 MR. CARLSON: I hope he's seen it, he wrote
22 it.

23 MR. RUNNING: I'm sorry, but I do think you
24 need to lay the foundation. His name is typed on it and
25 I'm 99.99 percent sure that you are right and he wrote

1 it, but lay the proper foundation question before, has
2 he seen it before, has he authored it.

3 MR. CARLSON: I did ask him if he authored
4 it.

5 MR. RUNNING: Oh, I'm sorry.

6 Q. (By Mr. Carlson) I think I asked you if you
7 authored that.

8 A. I don't recall that, but I did author it.

9 Q. Okay. And what I was trying to find out is
10 who is J. E. Springgate.

11 A. Mr. Springgate at that time was the business
12 director of the Plasticizer Business Group.

13 Q. And what position did H. S. Bergen hold at
14 that time?

15 A. Mr. Bergen was the business director of the
16 functional Fluids' Business Group.

17 Q. And the -- if you'd take a look at the last
18 point on the first page, there was reference to a
19 Congressman Ryan, is there not?

20 A. Yes, there is.

21 Q. Did you personally talk to Congressman Ryan
22 about PCB problems in the environment?

23 A. No, I did not.

24 Q. Did you ever review any requests by
25 Congressman Ryan for Monsanto customer lists of PCB

1 products.

2 A. I saw copies of correspondence from
3 Congressman Ryan's office to Monsanto representatives in
4 which that request was included.

5 Q. Did Monsanto ever provide Congressman Ryan
6 with PCB customer lists?

7 A. No.

8 MR. CARLSON: We'll offer Exhibit Number 17.

9 (Plaintiff's Deposition Exhibit 18 was marked)

10 Q. (By Mr. Carlson) Would you then turn to
11 Exhibit 18, which, I believe, you have in front of you?

12 A. I have it.

13 Q. And this is a memo dated July 15 of 1977?

14 A. That's what it says.

15 Q. And at least on the document it indicates it
16 was authored by Paul Wright?

17 MR. RUNNING: Objection, lack of foundation.

18 Q. (By Mr. Carlson) Go ahead.

19 A. Yes.

20 Q. Have you seen this particular document
21 before?

22 A. This is the first time I've seen this.

23 Q. Have you talked to Paul Wright about his
24 observations of the way IBT did its work when he was with
25 that company?

1 A. I did not.

2 Q. To your knowledge, did anyone in your
3 company talk to Paul Wright about that particular
4 subject?

5 A. I do not know.

6 Q. Were you ever aware that Mr. Wright was of
7 the opinion that management practices at IBT were not the
8 type that he approved of?

9 A. I was not aware of that.

10 Q. And were you ever aware that, in his
11 opinion, that the animal care and record keeping
12 practices were minimal at IBT?

13 A. I was never aware of that.

14 (Plaintiff's Deposition Exhibit 19 was marked)

15 Q. (By Mr. Carlson) Okay. If you would then
16 turn to Exhibit Number 19. And this document -- first of
17 all, it's on a Monsanto sales call report form?

18 A. Yes.

19 Q. Have you seen this particular document
20 before?

21 A. Never.

22 Q. Directing your attention to the bottom
23 portion, Attention Jerry Davidson, do you see the area?

24 A. I see that.

25 Q. And you've had a chance to read this over?

1 A. Yes.

2 Q. And there's an inquiry being made about the
3 possibility of reclaiming Pydraul fluids as Prestolite?

4 A. That's what's indicated, yes.

5 Q. And then on the bottom of the memo there is
6 a handwritten note apparently signed by Jerry?

7 A. Yes.

8 Q. Who was Jerry Davidson?

9 A. At that time, he was the technical
10 representative in the marketing department located in St.
11 Louis for the group that was responsible for the
12 marketing of Pydrauls.

13 Q. In the question to Jerry Davidson, there was
14 an indication that Prestolite was using about a drum a
15 week of their Pydraul?

16 A. Yes.

17 Q. And Jerry Davidson replied that that's a
18 rather small usage to consider for reclamation?

19 Q. That's what he indicates, yes.

20 Q. And in your opinion, was a drum a week a
21 rather small amount to consider for a reclamation
22 project?

23 MR. RUNNING: I object to that unless you
24 read the rest of the handwritten comment. There is a
25 comment, unless there is a pollution probably. I don't

1 think you are reading it in context.

2 Q. (By Mr. Carlson) Go ahead.

3 A. The amount that is reasonable for
4 reclamation depends really on the purpose for
5 reclamation. The degree of contamination and the
6 availability of techniques for reclaiming which go back
7 to the type of contamination that's present in that
8 material.

9 Q. How would you define a die cast company
10 pollution problem in 1972, the date of this particular
11 document, I guess, so do it as of May of 1972.

12 A. 1972.

13 MR. RUNNING: How he would define a die cast
14 company pollution problem?

15 MR. CARLSON: That's right.

16 MR. RUNNING: Objection. The questions
17 ambiguous, I mean, what problem, what plant?

18 MR. CARLSON: Well, Mr. Davidson indicated
19 that unless there was a pollution problem. I'd like to
20 know what Monsanto considered a pollution problem to be.

21 MR. RUNNING: He says unless they have a
22 pollution problem.

23 MR. CARLSON: That's right. I want to know
24 what a pollution problem is according to Monsanto.

25 Q. (By Mr. Carlson) Go ahead.

1 A. Well, an obvious one, of course, is
2 knowledge by Monsanto representatives, that the customer
3 having this material on hand is dumping it down the
4 sewer, that kind of problem. It's a straight discharge,
5 or it's choosing to ignore the release to the sewer
6 without taking steps to contain it, that sort of thing,
7 so if that kind of problem exists, yes, let's try to
8 reclaim the material rather than dump it down the sewer.

9 Q. With regards to material that may go down
10 the sewer along with other material, in what
11 concentrations would you consider to be a pollution
12 problem back in May of '72?

13 MR. RUNNING: Objection, its been asked and
14 answered.

15 A. In May of '72, there was no number that we
16 could give anyone including Monsanto other than the ten
17 parts per billion that we talked about yesterday in the
18 waste waters leaving the plant. The advice and strong
19 advice at that that we gave our customers don't knowingly
20 release it into the environment which includes a sewer.

21 Q. (By Mr. Carlson) And you would then go back
22 to your ten part per billion standard?

23 A. Yes.

24 Q. In reviewing some of your company's
25 documents, I found some material, for example, answers

1 that salespeople can give to PCB questions if customers
2 raise them. Do you remember seeing documents of that
3 kind?

4 A. Yes, I do.

5 Q. I don't recall ever seeing any information
6 regarding the ten part with per billion standard in any
7 Monsanto directive salespeople. Do you ever recall
8 seeing any such information in a sales director to the
9 sales force?

10 A. I know that that information was passed on
11 to them during their training sessions and during their
12 frequent visits back to the home office to touch base
13 with those of us involved with this problem, so it was
14 done person to person. I don't -- it was certainly
15 available in print, but at the moment, I don't recall any
16 specific piece of paper that was passed onto a marketing
17 person. That doesn't mean it doesn't exist. I just
18 don't remember it.

19 MR. CARLSON: Is that the last one you have
20 that's been numbered?

21 MR. RUNNING: No, we've got 20 and 21 still.

22 MR. CARLSON: Okay.

23 (Plaintiff's Deposition Exhibit 20 was marked)

24 Q. (By Mr. Carlson) Would you be kind enough
25 to take a look at Exhibit 20 for me?

1 A. I have reviewed it.

2 Q. And Exhibit 20 -- have you seen this
3 particular document before?

4 A. I have not.

5 Q. The face page or the cover page is
6 apparently from an A. J. Koenig?

7 A. Yes.

8 Q. And who is A. J. Koenig?

9 A. Mr. Koenig was an accountant that worked
10 with the function of Fluids' Business Group.

11 Q. And it was directed to a W. R. Corey?

12 A. Yes.

13 Q. And who was W. R. Corey?

14 A. At that time, Mr. Corey was responsible for
15 administrative activities associated with several
16 business groups, one of them being the function of
17 Fluids' Group.

18 Q. If you would turn to Schedule A, that's
19 entitled Specialty Products Group, World-Wide Summary -
20 PCB/PCP Sales and Gross Profit, 1970 and 1971 actual?

21 A. I see that, yes.

22 Q. And for PCBs, there is a listing for
23 industrial fluids?

24 A. Yes.

25 Q. And can you tell me in sales dollars of

1 industrial fluids what the sales were in 1970, for PCB
2 industrial fluids?

3 A. It's not a very clear print, but it appears
4 to be --

5 Q. No, neither is mine.

6 A. -- a 216, and I don't know if those are 88s
7 or 99s or 00s.

8 Q. What are you reading?

9 MR. RUNNING: He's looking at the pounds
10 column.

11 MR. CARLSON: Okay.

12 A. I'm sorry.

13 Q. (By Mr. Carlson) Take a look at the next
14 column over.

15 A. I'm sorry. It looks like 39, and the title
16 of the top of that column has an M without a bar over it
17 which tells me that's in thousands.

18 Q. So you believe that the total PCB sales of
19 your company in 1970 were \$390,000?

20 A. No, it looks like a 5390.

21 Q. Okay. So it would be \$5,390,000.

22 A. Yes.

23 Q. And then the dollar sales of the PCB
24 industrial fluids in 1971 was how much?

25 A. It's \$2,076,000.

1 Q. Okay. Thank you.

2 MR. CARLSON: We'll be offering Exhibit 20.
3 We can go on to the next one.

4 (Plaintiff's Deposition Exhibit 21 was marked)

5 Q. (By Mr. Carlson) And if you would be kind
6 enough to take a look at Exhibit 21 for me. It appears
7 to be a memo from yourself dated May 27, 1970; is that
8 correct?

9 A. That is correct.

10 Q. Did you write the memo?

11 A. Yes.

12 Q. The memo again was to Bergen and Springgate
13 who we previously identified?

14 A. Yes.

15 Q. And was it your impression in May of 1970,
16 that in all probability in the Netherlands and Sweden,
17 PCBs would be banned?

18 A. Well, it's banned or regulated.

19 Q. Okay. And was that your impression then?

20 A. Yes.

21 Q. And then on the bottom, you indicate that
22 Pydraul labels will not be changed since the product
23 would be reformulated?

24 A. Yes, just like we discussed yesterday.

25 Q. Right. Who drafted the Pydraul sticker that

1 was used in -- sometime, apparently, in 1970, for 312 and
2 F-9 fluids?

3 MR. RUNNING: Environmentally?

4 MR. CARLSON: Yes.

5 A. Just the environmental statement?

6 Q. (By Mr. Carlson) Yes.

7 A. I was the originator of the draft statement
8 and it was reviewed by all of the members of the Ad Hoc
9 Committee that I had referred to earlier, and with their
10 inputs I revised it and ended up with the final paragraph
11 that was used.

12 (Plaintiff's Deposition Exhibit 22 was marked)

13 Q. (By Mr. Carlson) And I'd like to have you
14 review Plaintiff's exhibit 22, if you would, and
15 familiarize yourself with it.

16 A. I'm ready.

17 Q. Mr. Papageorge, you've he had an opportunity
18 to review Plaintiff's Exhibit 23, have you not?

19 MR. RUNNING: 22?

20 A. 22.

21 Q. (By Mr. Carlson) 22, I'm sorry.

22 A. Yes, I have.

23 Q. I got ahead of myself. And it is a document
24 dated December 8, 1981 (sic 1971)?

25 MR. RUNNING: Objection, lack of foundation.

1 You haven't established that he reviewed this document at
2 the time he was employed by Monsanto.

3 Q. (By Mr. Carlson) Is that true?

4 A. It includes a memorandum dated December 8,
5 but there are two more documents in that --

6 Q. Attachments to it.

7 A. -- attached. Well, one doesn't appear to me
8 to even be related, but --

9 Q. Which one?

10 A. It's the one dated December 22, 1971, the
11 last page in the exhibit.

12 MR. RUNNING: There are several documents in
13 this exhibit.

14 MR. CARLSON: Yes. I understand that. And
15 I think maybe for the purposes, then, of indentifying
16 them, on the bottom right of each of each of the pages,
17 there is an STR number, is there not?

18 A. I see that, yes.

19 Q. And do those numbers or would you confirm
20 that those numbers rung consecutively from 001816 through
21 001834?

22 MR. RUNNING: The fact that they are
23 consecutive doesn't mean they are the same documents.

24 MR. CARLSON: No, I understand that. I
25 just -- because they've all been put together and

1 presented to us in a package.

2 A. Well, those SIR numbers do run
3 consecutively as you mentioned.

4 Q. (By Mr. Carlson) Okay. Who was T. L.
5 Gossage?

6 A. Mr. Gossage was the marketing director for
7 the business group that marketed industrial hydraulic
8 fluids.

9 Q. Have you seen this document before?

10 A. No, sir.

11 Q. On the second page, would you be kind enough
12 to refer to the section relating to General Motors?

13 A. I see it.

14 Q. And it is indicated in the document that
15 General Motors was going to drain and flush all the PCB
16 containing fluids from their machines and refill with new
17 product, does it not?

18 A. That's what it indicates.

19 MR. RUNNING: I'll object to asking him just
20 to read the document particularly since he hasn't seen it
21 before.

22 Q. (By Mr. Carlson) And were you aware at any
23 time during the course of your work t Monsanto that that
24 is what General Motors was going to do?

25 A. Eventually I was made aware of it, yes.

1 Q. And according to this particular memorandum,
2 your company was aware of this back in December of 1971?

3 A. Apparently so.

4 MR. RUNNING: And stipulate that's what the
5 document says.

6 Q. (By Mr. Carlson) And in your personal
7 opinion, when General Motors made that decision or when
8 you found out about it, did you think that was the right
9 decision?

10 A. I don't know if it's a matter of right or
11 wrong. It's a way to approach a problem and the
12 management at Chevrolet chose that route.

13 Q. And at some time during the course of your
14 work at Monsanto did you become aware of the fact that
15 your company was considering offering to incinerate
16 General Motors PCB Pydraul hydraulic fluid free of
17 charge?

18 A. I personally have never heard that
19 expression, free of charge.

20 Q. What was your understanding of the
21 conditions offered to General Motors for incineration of
22 its PCB fluids?

23 A. I was not aware of any special condition
24 offered to anybody including General Motors.

25 Q. Do you know if general motors had to pay for

1 incineration of PCB fluids?

2 A. I do not.

3 Q. And the document also references Johnson
4 Motors as the second item on the second page, does it
5 not?

6 A. I see that, yes.

7 Q. And at some time during the course of your
8 work at Monsanto, were you aware that Johnson motors was
9 experiencing a PCB problem?

10 A. No. This refers to a phosphate problem.

11 Q. Well, if you look -- no, if you look in the
12 middle --

13 A. A phenolic problem.

14 Q. No. If you look in the center it says, "We
15 have gone to them and suggested they move to our straight
16 phosphate ester to avoid PCB problems."

17 A. To avoid.

18 Q. Right.

19 A. That doesn't mean they had them.

20 Q. I see. What kind of problems did your
21 company think they may have been having?

22 MR. RUNNING: Objection, lack of foundation.
23 You haven't established that he knew what was being
24 referenced here or that he was involved in any such
25 discussions. You are asking him to speculate about a

1 document he hasn't seen before today.

2 Q. (By Mr. Carlson) Go ahead.

3 A. The intent was to follow-up on our warning
4 letters and our discussions with Johnson motors and to
5 frankly offer them an alternate way to still use safe
6 hydraulic fluids and not have to cope with a PCB
7 potential problem.

8 Q. Were you aware that Monsanto had calculated
9 different gross profits to Monsanto for sales of
10 hydraulic fluids under the three conditions referenced on
11 Appendix D starting STR document 001822 and running
12 through 1824?

13 A. I'm not aware of the specific activity. I'm
14 aware that that's a typical study that's made from all
15 products in Monsanto and all conditions and the various
16 cases were reviewed and management makes its decisions
17 that way.

18 Q. And for hydraulic fluids, did that include
19 calculating cost to Monsanto of taking back the fluid
20 free of charge from the customer?

21 A. Well, that's a condition that should be
22 considered. Not being involved, I can only go by what I
23 read here.

24 Q. Okay.

25 MR. CARLSON: We'll be offering Exhibit 22.

1 (Plaintiff's Deposition Exhibit 23 was marked)

2 (Witness took a moment to read the document)

3 A. I have finished reading it.

4 Q. (By Mr. Carlson) You have had an
5 opportunity to review Plaintiff's Exhibit 23, have you?

6 A. Yes, I have.

7 Q. Have you seen this document before?

8 A. No, sir,

9 Q. Were you aware that Westinghouse was
10 preparing an Inerteen and Environmental Contamination
11 Statement in September of 1968?

12 A. No, I was not.

13 Q. In this particular document, there is a
14 reference to Monsanto having arranged for return of
15 Inerteen about in the center of the page, is there not?

16 A. Yes.

17 Q. And you were aware of that practice?

18 A. Yes.

19 MR. RUNNING: Describe Inerteen.

20 Q. (By Mr. Carlson) That's right. You were.

21 A. Yes.

22 Q. And that was worked out with Westinghouse
23 Electric?

24 A. And others, yes.

25 Q. And then September of 1968, what was

1 Monsanto doing with the scrap Inerteen?

2 A. They were treating it to make it useful in
3 other PCB uses other than the dielectric use which is the
4 most demanding in terms of superior quality.

5 Q. On the bottom of the first paragraph, there
6 is reference to, tight control on the usage and disposal
7 of Inerteen must be exercised. As you and I are talking
8 here today, you tell me as of September of 1968, what
9 tight control of disposal of Inerteen would mean.

10 A. That would include disposal in authorized
11 landfills at that time.

12 Q. Were there landfills, to your knowledge,
13 that were specifically authorized to accept PCBs?

14 A. PCBs as an industrial chemical, yes, but not
15 as specifically PCBs.

16 Q. In September of 1968, was it your
17 understanding that a landfill that could accept
18 industrial chemicals could accept PCBs?

19 A. Yes.

20 Q. Assuming that the label -- strike that.
21 Assuming that the Inerteen Contamination Statement was
22 published by Westinghouse in September of 1968, would you
23 agree with Westinghouse's decision to do so at that time?

24 MR. RUNNING: Assuming it was published to
25 whom?

1 MR. CARLSON: To its customers.

2 A. Well, sir, I don't know that this went to
3 the customers, but it might have been an in-house
4 document.

5 Q. (By Mr. Carlson) Okay. How would the
6 customers then know to send scrap to the Monsanto
7 Company?

8 A. Well, the individuals within Westinghouse
9 would see this and then relay that.

10 Q. Would you agree even as an in-house
11 memorandum that this type of information should have been
12 made known?

13 A. Well, this is a -- yes, this is a good
14 document.

15 Q. And is it the kind of information that you
16 believe Inerteen customers -- or strike that. That
17 companies that had products that contained Inerteen
18 should be aware of as of September of '68?

19 A. Well, this is only added really to the
20 higher chlorinated biphenyls. Some of the Inerteen
21 products contain such PCBs, and although in 1968, the
22 information was very sketchy, it appears to me that
23 Westinghouse chose to proceed as though it was not
24 questionable. In other words, the worse case situation,
25 so they chose to communicate in this fashion. As to

whether all Inerteen customers should get it, that's really a Westinghouse decision. I can't speak for them in their products and their customers.

Q. Under what circumstances do you believe that a Westinghouse customer should not receive that information in September of '68?

A. Well, I do not know personally everything involved with the use of Inerteen and transformers, but I can visualize a situation where a Westinghouse transformer is manufactured by Westinghouse, filled with a PCB fluid, shipped to the customer, and Westinghouse service organization is the one that services that unit when it needs anything. This places all of the activity involved with that unit virtually in Westinghouse's area of responsibility and they were capable of coping with it. So that's one case where the customer would probably be told call us and we'll take care of things.

Q. In the situation you gave me, the PCBs would be in a sealed container?

A. Oh, yes. These are all sealed steel containers.

Q. Which is somewhat different than hydraulic fluid that can leak through gaskets and pumps, correct?

A. Yes.

Q. Any other circumstances in which you think a

1 Westinghouse customer shouldn't -- it wouldn't be
2 appropriate to give a Westinghouse customer the
3 information obtained on Exhibit 23?

4 MR. RUNNING: I object. He's already
5 answered your question and he's referred to the fact that
6 the information on higher chlorinated Aroclors was
7 partially in '68.

8 Q. (By Mr. Carlson) We were talking about --
9 do you remember the question?

10 A. I'm confused right now.

11 Q. Okay. You just gave me one example of a
12 situation in which it may not be appropriate for a
13 Westinghouse customer to receive the Inerteen
14 environmental contamination statement. What I'm trying
15 to find out is, are there any other types of circumstance
16 where you think it would be inappropriate for a
17 Westinghouse customer to receive this information?

18 MR. RUNNING: Same objection. I think he's
19 already answered your question.

20 A. I don't know. You use the word
21 inappropriate. I would suggest that it would not
22 necessarily be helpful to say, a manager of a Holiday Inn
23 who has an electrical transformer on his parking lot to
24 be swamped with technical detail when he can call the
25 service companies to manage his problem, and they are the

1 ones that need this type of information. That's the kind
2 of example that comes to mind.

3 Q. What PCB components are in Inerteen, for the
4 Inerteen products?

5 A. It depends on the particular Inerteen.

6 Q. And which ones would we find?

7 A. Some of them had Aroclor 1242, some of them
8 had Aroclor 1248, and Aroclor 1254, and as I remember,
9 there were also some 1260 involved.

10 Q. Okay. Pydraul F-9 was at a component of
11 Pydraul 1248?

12 A. Yes, sir.

13 MR. RUNNING: Aroclor.

14 Q. (By Mr. Carlson) Aroclor..

15 A. Aroclor, yes.

16 Q. Did Monsanto convey to Westinghouse its
17 knowledge about the effects of PCBs on the wildlife as of
18 September of 1968?

19 A. Monsanto had conveyed what little
20 information it had such as Jensen, Widmark work, and the
21 work out off the California -- southern coast of
22 California. Mr. Carlson, I question whether that date
23 applies to this document or applies to the original
24 document of which this is a supplement.

25 Q. Okay. What is the original document? Have

1 you seen the original document?

2 A. No, I haven't, but the information included
3 here does not fit that date. It wasn't available. I
4 personally question that that '68 date applies to this
5 document.

6 MR. RUNNING: It does say supplement to I.B.
7 45-063-998, September 1968.

8 MR. CARLSON: Okay.

9 MR. RUNNING: Do you have the other pages of
10 this?

11 MR. CARLSON: No, this is --

12 MR. RUNNING: It looks like it was turned
13 offer.

14 MR. CARLSON: What you see is what I got.

15 Q. (By Mr. Carlson) Let me just go through
16 that now. That's an interesting comment. In the third
17 line, there is a sentence that reads, "The resulting
18 polychlorinated biphenyls are relatively insoluble in
19 water but soluble in fat --" Was that known in 1968?

20 A. Yes.

21 Q. "-- and are extremely persistent to the
22 environment."

23 A. That was not known.

24 Q. Well, if you believe Jensen, it was known.

25 A. But when you use the word extremely -- all

1 we can believe from Mr. -- Dr. Jensen's work was it's
2 being found in the environment. You cannot jump in the
3 conclusion that, yes, they are extremely persistent. Not
4 from Jensen's work.

5 MR. RUNNING: Don, I think the next sentence
6 answers your question.

7 A. Yes, and that -- when it says, several
8 laboratories, I would personally believe that that took
9 much more time than the period up to 1968.

10 Q. Was any of the work done by the Bureau of
11 Commercial Fisheries completed in 1968?

12 A. No way. They didn't even have the standard
13 samples to work with. We were asking for them at the
14 time.

15 Q. Okay. When -- strike that.

16 A. Another reason I suspect the date, sir. The
17 reference to the Crummart Plan of Monsanto, any specific
18 reference to department 246, that was not made known to
19 customers or anybody outside of Monsanto until we were
20 ready with our incinerator program, and that would have
21 been early part of 1970. That specific reference to that
22 part of Monsanto.

23 MR. RUNNING: Don, we've produced documents
24 pertaining to scrap Inerteen.

25 MR. CARLSON: Yeah.

1 Q. (By Mr. Carlson) All right.

2 (Plaintiff's Deposition Exhibit 24 was marked)

3 (At this time, there was a short break while the
4 witness read the document)

5 A. I've read it.

6 Q. (By Mr. Carlson) We've had a short break
7 and you've had an opportunity to review Plaintiff's
8 Exhibit 24?

9 A. I have.

10 Q. Have you seen this document before?

11 A. Yes, sir.

12 Q. And can you tell me what it is?

13 A. This is a rough draft outline for a proposed
14 pollution abatement plan regarding PCBs.

15 Q. And there are 15 separate sections to the
16 outline, some with sub-parts?

17 A. Yes.

18 Q. And it's indicated that on October 15, I
19 presume this was of 1969, that the Ad Hoc Committee on
20 PCBs had been created?

21 A. Yes, that's the committee we spoke of
22 yesterday.

23 Q. And this particular outline, the rough draft
24 was dated November 10, 1969?

25 A. Yes.

1 Q. On page 2, actually the third page, but page
2 2 of the outline, there is reference to the size of the
3 Aroclor market world-wide referenced, I think, \$200
4 million, \$170 to \$200 million.

5 A. I have to assume that's in dollars. This
6 doesn't indicate so.

7 Q. Okay.

8 A. Yes.

9 MR. RUNNING: I'm sorry, though there is a
10 handwritten comment, lbs. between world-wide and 200
11 million. I don't think you should be asking the witness
12 to assume.

13 MR. CARLSON: Okay.

14 MR. RUNNING: And I'll object to lack of
15 foundation. I don't think he know if that refers to
16 pounds or dollars or ounces.

17 Q. (By Mr. Carlson) Do you know in general
18 terms what the world-wide production of PCBs were in
19 terms of pounds back in 1969?

20 A. It's close to this magnitude of number.
21 They consider the European, the U.S., and the Japanese.

22 Q. If we could turn to page 3 under Section II,
23 there is a stated problem, is there not?

24 A. Yes, there is.

25 Q. And the problem is stated to be, "Damage to

1 the ecological system by contaminations from
2 polychlorinated biphenyl or (PCB)." Is that correct?

3 A. That is correct.

4 Q. And was that, in your opinion, a problem as
5 of November 10th of 1969?

6 A. Yes.

7 Q. And under Section III, the extensiveness of
8 the problem was referenced?

9 A. Yes.

10 Q. And from your readings, the problem did
11 involved involve the United States, Canada, and sections
12 of Europe, especially the United Kingdom and Sweden. Is
13 that a fair statement?

14 A. Yes.

15 Q. Did other areas of Europe, Asia, and Latin
16 America become involved later?

17 A. Well, certainly other areas in Europe did.
18 Japan is an example of an Asian company that did get
19 involved. I have no information regarding Latin America.

20 Q. Okay. And it's indicated that the
21 involvement could and most likely will follow the DDT
22 investigations. Can you tell me what is meant by that as
23 you understand the sentence?

24 A. At that time, there was considerable
25 interest in DDT and its impact on the environmental

1 wildlife. This problem was being investigated by
2 laboratories throughout the world, and in studying the
3 DDT situation, laboratories at this point in time could
4 very easily detect the presence of PCBs, so this is what
5 was meant by the involvement with DDT and the knowledge
6 gained by laboratories throughout the world regarding
7 PCBs.

8 Q. And then the nature of the problem is
9 outlined in Section IV?

10 A. Yes.

11 Q. And that references, amongst other things,
12 the original work by Widmark and Jensen?

13 A. Yes.

14 Q. And then the February '69, Risebrough's
15 publication of his article?

16 A. Yes.

17 Q. And there's a statement there that at the
18 end of the paragraph that, "truly, that PCBs are a
19 world-wide ecological problem." And you incur with that
20 statement?

21 A. Yes.

22 Q. And we go on to the next page, the
23 seriousness of the problem is spelled out, isn't it?

24 A. Yes.

25 Q. And, for example, the outline discusses the

effects on fish?

A. Yes.

Q. And birds?

Q. Yes. And there's reference to the no harmful effect known to man or other mammals after 40 years of production, right?

A. That is true.

Q. I'd like to just talk to you for a second about that. It says that there is no harmful effects known to man. How does that coincide with Monsanto's plant practices that you don't have people with liver problems work in the production area, that type of thing?

A. I'm not aware that Monsanto had that liver problems bit.

Q. Okay.

A. We operated in a process in such a way that the worker was not exposed to these materials to the extent where his liver would be affected. That was the objective of the whole approach.

Q. Would it be more correct to say that there were no harmful effects known to man and the levels of the PCBs expected in the environment as of that time?

A. That would be a refinement of this statement, but what this really referring to is that there is no human being out there known to Monsanto and

1 others who was harmed by the exposure to PCBs.

2 Q. From environmental exposure?

3 A. Yes. This all has to do with the
4 environment, not industrial.

5 Q. Right. And that's different than the
6 workplace?

7 A. Yes, but the intent is still the same.

8 Q. Okay. And if we could go on to Section or,
9 I'm sorry, page 5 of the outline, in Section V, there is
10 reference to the effect on Monsanto of this world-wide
11 psychological properly?

12 A. Yes.

13 Q. And in subsection (a), there is reference to
14 legal liability?

15 A. Yes.

16 Q. And in the second sentence, I'm sorry,
17 second line of the paragraph in section (a), it reads,
18 "All customers using these products have not been
19 officially notified about known effects nor do our labels
20 carry this information." Did I correctly read that?

21 A. Yes, you did.

22 Q. And from what you understood as of November
23 10th of 1969, was that statement true?

24 A. Yes. This has to do with environmental
25 considerations.

1 Q. Okay. On section (b) or subsection (b), the
2 second paragraph, it is noted that, "The evidence proving
3 the persistence of those compounds and their universal
4 presence of residues in the environment is beyond
5 questioning." Did I correctly read that?

6 A. Yes.

7 Q. And you would agree with that statement?

8 A. Yes.

9 Q. And then if we could go on to page 6, VII,
10 there's a heading, Involvement with Other Producers?

11 A. I see that, yes.

12 Q. And the beginning sentence reads, "Although
13 Monsanto was most probably responsible for the U.S.
14 contamination and jointly responsible for the MCL for the
15 United Kingdom problem, we can not accept responsibility
16 for the world." Did I correctly read that?

17 A. Yes, you did.

18 Q. Who or what is MCL?

19 A. That's Monsanto Chemicals Limited, which is
20 a unit of Monsanto Company, the European unit.

21 Q. And if we can go to page 7, VIII, there is a
22 heading, Sources of Contamination?

23 A. Yes.

24 Q. And under subsection (a), there is open
25 pollution and this references the Monsanto manufacturing

1 facilities?

2 MR. RUNNING: The whole section?

3 MR. CARLSON: I'm sorry.

4 Q. (By Mr. Carlson) It reads, "Open
5 Pollution - Our manufacturing facilities sewered a
6 sizable quantity of PCBs in a years' time." Did I
7 correctly read that?

8 A. Yes, you did.

9 Q. Was that an intentional sewerage of PCBs as
10 you understood it or accidental?

11 A. Well, there was some, of course, accidental,
12 and then there was, of course, the hosing down we spoke
13 about earlier.

14 Q. When we are talking about sizable
15 quantities, what kind of quantities are we talking about?

16 A. That's a subjective kind of thing, and
17 depending on the author, I think that is how detectable
18 with new methodology became sizable.

19 Q. For example, in Anniston, at one point you
20 were losing 500 pounds a day of PCBs, weren't you?

21 MR. RUNNING: 500 pounds of PCB? I'm going
22 to object to the characterization.

23 A. I don't think it was quite that high. It
24 was in pounds. It would be in certain pounds per day. I
25 don't know the exact number.

1 Q. (By Mr. Carlson) Do you know what
2 proportion of pounds per day were being lost to the sewer
3 as opposed to lost somewhere else?

4 A. I don't know where else it would be lost.

5 Q. And under subsection 4 of (a), there is
6 reference to industrial?

7 A. Yes.

8 Q. And there the author notes that, "These
9 fluids have generally been sprayed into drains, washed
10 down sewers, and generally regarded as very harmless."
11 Did I correctly read that?

12 A. Yes, you did.

13 Q. And was that an accurate statement at that
14 time about what had happened in the past?

15 A. Well, I personally question the use of the
16 word generally. I'm not saying that it didn't happen,
17 but I don't know of anything that tells me that it was
18 generally done.

19 Q. Do you know anything that tells you that in,
20 for example, the die cast business it was not generally
21 done?

22 MR. RUNNING: Washed down sewers?

23 MR. CARLSON: Yes.

24 A. Well, all I have is information and
25 understanding that on occasion this was practice by some

1 operators of die casting equipment.

2 Q. (By Mr. Carlson) Well, are there any
3 operators of die casting equipment that you can identify
4 for me particularly or specifically that did not engage
5 in that practice as of November of 1969?

6 A. Certainly the Stroh company didn't. They
7 didn't have any sewers.

8 Q. Anybody else?

9 A. I wish I could remember more. There were
10 hundreds. I honestly don't remember names.

11 Q. Okay. Did Monsanto in 1969, believe that
12 municipal sewage systems were somehow degrading PCBs?

13 A. The research chemists, the scientists had a
14 professional opinion that this was a very good likelihood
15 that it was happening, but they did not have any what
16 they refer to as hard data, no scientific studies had
17 been conducted.

18 Q. To your knowledge, have such studies been
19 done as of today?

20 A. Yes, Monsanto did some.

21 Q. And for the higher chlorinated PCBs, were
22 they being degraded in municipal sewages?

23 MR. RUNNING: Higher chlorinated being five
24 or higher?

25 MR. CARLSON: Yes.

1 A. The higher chlorinated did not degrade
2 rapidly, no.

3 Q. (By Mr. Carlson) How about for the four
4 chlorine PCBs?

5 A. Four, I don't remember just which, but some
6 did degrade and some were more resistant.

7 Q. Okay. The author references that or uses
8 the phrase -- not to be repetitious, but I don't know any
9 other way to get into it, "Generally regarded as very
10 harmless." Was that your perception of what Monsanto's
11 customers believed about Pydraul with PCBs as of November
12 of 1969?

13 A. I can't speak for what the customers
14 believed. I can only speak for Monsanto, and it was
15 regarded as a chemical, like many industrial chemicals
16 should not be irresponsibly handled but at the same time,
17 if some did get away, it was well known information to
18 indicate that it would cause harm.

19 Q. Was PCB fluid being used for dust control on
20 dirt roads prior to November of '69, to your knowledge?

21 MR. RUNNING: With permission of Monsanto?

22 MR. CARLSON: No, just was it being done.

23 A. It was inadvertently used because in many
24 cases, it was mixed with mineral oil, petroleum type
25 oils, and the -- that mixture in some cases would end up

1 being used to control dust on roads.

2 Q. (By Mr. Carlson) Prior to November of '69,
3 was that a prohibited practice in any of the states?

4 A. I'm not aware of any regulation that
5 prohibited it.

6 Q. If we could then move toward to page 10, X,
7 Courses of Action, do you see where I've gotten to?

8 A. Yes.

9 Q. And there are three courses of action that
10 are postulated by the author (a) is "Doing Nothing?"

11 A. Yes.

12 Q. (b) is "Discontinue Manufacture of All
13 Polychlorinated Biphenyls."

14 A. Yes.

15 Q. And (c) is "Respond Responsibly, Admitting
16 that there is a growing evidence of environmental
17 contamination by the higher chlorinated biphenyls and
18 take action as new data is generated to correct the
19 problem." Did I correctly read that?

20 A. Yes.

21 Q. And under the Do Nothing section, third to
22 the last line, it is noted by the author that, "The only
23 advantage to this technique -- strike that. "That the
24 only advantage to this technique offers is it reduces the
25 cost but this too must be weighed against potential loss

1 of business." First of all, did I correctly read that?

2 A. Yes.

3 Q. And was that the perception that the only
4 advantage to Monsanto was as stated there?

5 A. Yes.

6 Q. And certainly the drawbacks far outweigh the
7 advantage of doing nothing?

8 A. Yes.

9 Q. And then the second section where it
10 references, "Discontinue Manufacturer of All
11 Polychlorinated Biphenyls." It's referenced on the
12 fourth line -- well, let me start with the third line.
13 First of all, the author notes, "Assuming we did stop
14 manufacturer immediately, the pollutants are present in
15 the environment, the liability is present and possibly by
16 the shifting to the lower chlorinated materials and the
17 recovery techniques the contamination may already be
18 reduced to an acceptable level." First of all, did I
19 correctly read that?

20 A. Yes, you did.

21 Q. And was that the perception of the company
22 at that that if manufacturing was discontinued
23 immediately, that the contamination may already be
24 reduced to an acceptable level?

25 A. Yes.

1 Q. And what level was that, sir?

2 A. It was undefined at the time. It was
3 acceptable to the regulatory agencies and the general
4 public --

5 Q. Whether --

6 A. What ever the outcome might become.

7 Q. Well, there were no regulations regarding
8 the permissible amounts of PCBs at that time, were they?

9 A. That's correct.

10 Q. So the acceptable level wasn't in terms of
11 the regulatory sense, was it?

12 A. There was no -- that's true, there was no
13 regulation, therefore it was not defined by that.

14 Q. So an acceptable level then was the level
15 acceptable to Monsanto?

16 MR. RUNNING: Well, I object. You are
17 mischaracterizing his testimony. Just because there
18 wasn't a regulation out doesn't mean that they aren't
19 regulated for consideration. I think he's answered your
20 question.

21 MR. CARLSON: I'm just trying to find out
22 what an acceptable level is.

23 A. An acceptable level referenced here was
24 based on an anticipated level being established in the
25 near future, whether it be arbitrary by Monsanto itself

1 or by the Congress or regulatory agency or just public
2 opinion. There are many factors at play here that would
3 have influenced what would become acceptable, and that's
4 why the word may already be reduced. It's not knowing
5 the exact number. It could be positive that it had
6 already.

7 Q. (By Mr. Carlson) Well, I understand. But
8 it seems to me that the terms acceptable level is stated
9 as an absolute. May already be reduced to a level which
10 is acceptable. What I'm trying to find out is what level
11 is that?

12 A. There was no level established at that time.

13 Q. Okay. The author continues in that section
14 and notes that there would be a loss of business without
15 any or very few substitutes offered through Monsanto.

16 A. I am having difficulty finding that.

17 Q. Okay. I'm just paraphrasing it. After it
18 says acceptable level, it says next, "Obviously the
19 entire business would be lost without any or very few
20 substitutes to be offered." Is that what it says?

21 A. That is true.

22 Q. And as we discussed yesterday, if you lost
23 Pydraul business, you could lose other business that was
24 tied to Pydraul lines or Aroclor lines?

25 A. That was a possibility, yes.

1 Q. Then there's a notation, "Financial loss
2 could be considered due to raw material contracts --" I
3 presumed the contracts were to purchase materials to make
4 these products?

5 A. Certainly.

6 Q. And if you stop manufacturing the products,
7 you still had contractual obligations to buy the raw
8 materials that you were going to use to make them up?

9 A. Yes, or pay a penalty for not buying.

10 Q. Okay. In the way that Monsanto developed
11 the Terphenyls, do you know, did they ever have to pay a
12 penalty for cancelling the many raw material contracts or
13 components of either PCBs or PCTs?

14 A. I do not know.

15 Q. There is reference to financial loss due to
16 customer contracts. Can you tell me what that makes
17 reference to?

18 A. Well, to me, it seems obvious that there
19 were contract arrangements with customers to purchase
20 products from Monsanto containing PCBs. At certain
21 quantities, certain time periods, for certain -- at a
22 certain price, if Monsanto couldn't meet any of those
23 conditions with the contracts, then it became quite
24 vulnerable here in terms of suffering financial losses.

25 Q. Then it references financial loss and it

1 says, and royalty, and then it's hyphenated secrecy
2 contracts. What does that make reference to?

3 A. I'm not privy to all of those arrangements,
4 to any of them frankly, so I cannot give you a specific
5 example.

6 Q. And then there is reference or notation,
7 "Competition would take advantage on all fronts." I
8 presume that has to do with -- that means they would go
9 in and start selling competing fluids?

10 A. Yes.

11 Q. And then there's -- the author notes that,
12 "We would be admitting guilt by our actions." What guilt
13 was that?

14 A. Well, guilty of having produced and sold
15 PCBs.

16 Q. And then there was -- you'd have a loss of
17 capital investment in the plant, I presume, if you had a
18 fair amount of money tied up in the manufacturing
19 facilities?

20 A. Certainly.

21 Q. And then at the end of this section, the
22 author does note that, "We would possibly gain a little
23 public image on this action." Would you concur with
24 that?

25 A. Yes.

1 Q. Subsection (c), which references responding
2 responsibly, which I previously read.

3 MR. RUNNING: Well, you read the first
4 sentence of that.

5 MR. CARLSON: Yeah, I'm sorry, I didn't mean
6 to state that I read the whole thing.

7 Q. (By Mr. Carlson) It goes on to note on page
8 11 that, "This approach would enable us to phase out the
9 higher chlorinated materials in many applications where
10 they are no longer necessary or really desired."
11 Correct?

12 A. That is correct.

13 Q. Are these the higher chlorinated materials
14 that were causing damage to the wildlife that were being
15 phased out?

16 A. Certainly.

17 Q. And it indicates that, "We could maximize
18 the corporate image by publicizing this act." Correct?

19 A. It does say that.

20 Q. In your perception, was a corporate image
21 maximized by phasing out the higher chlorinated materials
22 or stopping manufacturing the products containing the
23 higher chlorinated materials immediately?

24 A. You are calling for a subjective opinion and
25 it's difficult to measure.

1 MR. RUNNING: Well, I also object to the
2 question because this is a draft outline of proposed
3 actions and now you are shifting it to a question about
4 what happened, and you are assuming proposals exactly
5 what was done the next year and now its not.

6 MR. CARLSON: Counsel, I may shift back and
7 forth all the time, but the question is very
8 straightforward.

9 MR. RUNNING: Well, the question doesn't
10 make any sense. It's a compound question because there's
11 more than one products involved, but you know very well
12 that for the product in question, it wasn't just to phase
13 out the higher chlorinated materials, it was to phase out
14 PCBs, so I object to the question. It's counterfactual
15 and it's assuming facts not in evidence.

16 Q. (By Mr. Carlson) Do you remember the
17 question?

18 A. I believe I do.

19 Q. Okay.

20 A. If I understood your question, what you are
21 asking is by publicizing the fact that Monsanto was
22 phasing out of the hirher chlorinated biphenyls, would
23 that maximize a corporate image as compared to getting
24 out of all PCBs. That's what I understood you to ask.

25 Q. Yes.

1 A. And you are asking for my personal opinion
2 on a subjective question. I would suggest that the
3 considered partial withdraw of the products that were
4 known to be causing problems would be perceived as being
5 the better approach, therefore, I believe personally that
6 would maximize the image of the company.

7 Q. Okay. In November of 1969, it was known
8 that the Aroclor 1242 did contain some of the higher
9 chlorinated PCBs, correct?

10 A. That's correct.

11 Q. In that section, it also indicates that, "We
12 would reduce a known pollutant." Do I correctly read
13 that particular notation?

14 A. Yes, you did.

15 Q. That doesn't reduce the known pollutant as
16 much as stopping manufacturing the higher chlorinated
17 products immediately, does is?

18 A. If I understood your question, you are
19 talking about -- you said you are referring to higher
20 chlorinated and using the word immediately.

21 Q. That's right. It seems to me that if you
22 stop manufacturing the higher chlorinated products
23 immediately versus phasing them out, you are going to
24 stop further pollution or potential pollution as opposed
25 to reducing?

1 A. That's true. It's a matter of months.

2 Q. Okay. How does that convert to a number of
3 pounds? I don't know if we can do that. That maybe
4 unfair to ask you to do that, but if you can.

5 A. Well, there's information available. I
6 don't have any personally, but there is information in
7 terms of pounds per year, and I suppose one could divide
8 by 12 and get pounds per month and get an approximation,
9 but you use the word immediate. At no time was
10 discontinuing immediately ever considered because that
11 would have been irresponsible.

12 Q. Well, it was considered because it says,
13 "Assuming we did stop manufacture immediately, the
14 pollutants are present in the environment," under section
15 (b), so it certainly was considered?

16 A. Correct.

17 MR. RUNNING: Well, you are arguing over the
18 reading of the paragraph and you and I can debate that as
19 well as Mr. Papageorge.

20 MR. CARLSON: Well, I'm saying the company
21 did --

22 MR. RUNNING: The options title discontinued
23 manufacture. It doesn't say when.

24 MR. CARLSON: Well, we can read it again.
25 "Assuming we did stop manufacture immediately, the

1 pollutants are present in the environment." And that is
2 a consideration that Monsanto looked as of November 1969.

3 MR. RUNNING: Well, I object to that
4 characterization. You are misreading the paragraph.

5 MR. CARLSON: He can answer the question.
6 If he doesn't agree with it, then he can say no.

7 MR. RUNNNG: Well, he's already answered the
8 question. He's already told you that he doesn't consider
9 it as an option.

10 A. I'm certain it was not considered as an
11 option. The athor here was using the word immediate and
12 point out that if it stopped this moment --

13 Q. (By Mr. Carlson) Correct.

14 A. -- that had no impact on the pollution that
15 is already evident out there in the environment. That's
16 the point he's trying to make rather than pointing out
17 that we are considering stopping suddenly.

18 Q. Under XII, there is an implementation of
19 recommended course of action?

20 A. Yes, there is.

21 Q. And under subsection (b), "Interim (within 3
22 months)." There is a number of items that are referenced?

23 A. Yes.

24 Q. And fluids referenced is, "Protect other PCB
25 chlorinated Terphenyls." Do I correctly note that?

1 A. Yes.

2 Q. Which other PCB materials were to be
3 protected?

4 A. Those that were not being found by the
5 laboratories as being present in the environment.

6 Q. Now, again, in actuality, the laboratories
7 were finding the higher chlorinated substances, the
8 higher chlorinated molecules, right? They weren't
9 finding 1254, they were finding the higher chlorinated
10 PCBs in 1254, for example?

11 A. Yes, that's one way to describe that.

12 Q. And the company knew that there were higher
13 chlorinated PCBs in the 1242 as well, just not as many?

14 A. That's right. They are very small, a
15 respectable amount less.

16 Q. But none the less present?

17 A. Yes.

18 Q. Then under Section 4, "Announce plans to
19 reformulate certain Therminols and Pydraul were control
20 of the product as difficult." Does that include
21 reformulation of Pydraul for die cast companies?

22 A. If they use the Pydrauls that had the higher
23 chlorinated PCBs as an ingredient.

24 Q. Okay. The 1242s did have higher PCBs as an
25 ingredient, didn't they?

1 A. Not in the way it was discussed at that
2 point in time. When we talked of containing PCBs as an
3 ingredient, we are talking about containing the
4 commercial mixture known as Aroclor 1242 as the
5 component. So when we talk about discontinuing PCB, they
6 are talking about discontinuing certain groups of PCBs as
7 defined by the trademarks Aroclor 1254 and 60.

8 Q. It was perceived in November 1969, that the
9 damage to the environment was being caused by the higher
10 chlorinated PCBs?

11 A. That is right.

12 Q. And the damage to the environment -- strike
13 that. The higher chlorinated PCBs from 1242 eventually
14 could build up to a level that causes damage to the
15 environment?

16 A. If it's mishandled and disposed of
17 improperly. The program for control applied to all the
18 PCBs. The program for discontinuing applied -- the
19 thinking was oriented to the higher chlorinated PCB
20 types.

21 Q. What was inappropriate handling in 1969, to
22 1242 in a die cast company?

23 A. Well, just obvious abuse, taking a dump of
24 material and dumping it into a river or stream or the
25 back yard, that certainly is obvious. Deliberately

1 putting an industrial chemical like a PCB in with some
2 used motor oil and getting rid of it as a motor oil, it
3 is the person that picks it up, and no telling him that
4 there is some other material also.

5 Q. What was wrong with doing that in 1969?

6 A. You don't put industrial chemicals into
7 materials that we know are going to be recycled like
8 motor oils. You use motor oils.

9 Q. But PCBs were thought to be harmless at that
10 time?

11 A. But it's still an industrial chemical, and,
12 by harmless, that doesn't mean it's harmless relatively
13 speaking. It's not a cyanide or battery acid, but in the
14 wrong situations, it can cause harm, and that's the
15 intent of controlling the industrial chemicals.

16 Q. Harm for the environment as of 1969, did the
17 customers know it was causing the environment.

18 MR. RUNNING: Was or could cause if misused?

19 MR. CARLSON: Was causing. The harm to the
20 environment is the same regardless of how it gets there.

21 A. Well, it's not only getting there, but the
22 creature that's exposed must get to it, must be available
23 to the fish or the bird before the harm can be noticed.

24 Q. (By Mr. Carlson) If PCBs were mixed with
25 motor oil or motor oil reclamation, I mean, what would be

1 the problem with that, what -- would that damage the
2 motor oil?

3 A. I have to confess, I am not a motor oil or
4 lubricant expert, so I don't know what difficulty with
5 the recycling process would find in trying to reach the
6 conditions that discussed all the other things that the
7 motor oil must pass to be reusable.

8 Q. In 312 hydraulic fluid were there some
9 petroleum fluids present?

10 A. Yes.

11 Q. On section (c) on page 13, subsection (c) on
12 page 13, under the comprehensive program, item number two
13 is identified as marketing?

14 A. Yes.

15 Q. And the second paragraph refers to the -- or
16 I'm just going to read it. "Work with customers to clean
17 up plants on other Aroclors." Did I correctly read that?

18 A. Yes.

19 Q. Did Monsanto work with customers to clean up
20 plants on the Aroclor 1242?

21 A. Certainly.

22 Q. And how did they do that?

23 A. By -- primarily by informing them with a
24 need to prevent entry into the environment and trying to
25 get that message across, and, in turn, when the customers

1 needed specific help, we would offer to try to help by
2 consulting with our own Monsanto engineers, chemists,
3 whoever could assist.

4 Q. And then it references, "Report the habitual
5 violators or "do nothings" in the product group." Did I
6 correctly read that?

7 A. Yes, you did.

8 Q. Have you looked at the sales call reports on
9 Stroh?

10 A. I looked at call reports. I don't recall
11 any specific for Stroh. I don't believe I've seen any.

12 Q. Do you have any information which would
13 allow you to conclude that Stroh would be categorized as
14 a potential violator as used in that statement?

15 MR. RUNNING: Based on the evidence we have
16 now or the evidence that was known to Monsanto in 1970?

17 MR. CARLSON: Based on the evidence he has.

18 MR. RUNNING: That was based on the Dorene
19 (phonetic) video deposition that he's seen?

20 MR. CARLSON: Based on anything he has.

21 MR. RUNNING: The question is based on the
22 Dorene video deposition.

23 MR. CARLSON: No, that's based on
24 everything. Now, you listen to the question too. It was
25 based on everything he has, and you want to tell him to

1 refer to one particular thing by coaching your witness, I
2 supposed on a video deposition I can't stop you unless I
3 put a muzzle on you.

4 MR. RUNNING: Well, don't think about
5 putting a muzzle on me, Mr. Carlson. My question is, are
6 you asking based upon --

7 MR. CARLSON: I'm asking him based on
8 everything he knows.

9 MR. RUNNING: Today?

10 MR. CARLSON: Yes.

11 MR. RUNNING: Okay. That's fine.

12 A. What I know today having seen Mr. Dorene's
13 video deposition, I would suggest that the Stroh
14 operation could fit the category of habitual violator.

15 Q. (By Mr. Carlson) How would you define a
16 habitual violator?

17 A. Someone who performs an action contrary to
18 what is considered to be proper and does it as almost a
19 routine.

20 Q. I see. And is it your impression that Stroh
21 did this as a routine?

22 A. I have an impression that it was done
23 certainly more than once, and it was done to provide some
24 convenience for that operation.

25 Q. For the particular plant employee. It

1 wasn't done for the convenience of management. There's
2 no evidence that management knew about it, is there?

3 A. Oh, that I had no position --

4 MR. RUNNING: Well --

5 Q. (By Mr. Carlson) Go ahead.

6 A. I don't know. All I know is --

7 MR. RUNNING: Do you want to tell him about
8 the Meyer deposition?

9 MR. CARLSON: Do you want --

10 MR. RUNNING: He hasn't read those
11 depositions. We are not offering him as the substitute
12 for the Jury. You are asking him based on what he knows
13 today.

14 MR. CARLSON: Okay.

15 MR. RUNNING: And should Stroh be a habitual
16 violinist, he has not read the Meyer or the Sunday
17 depositions.

18 MR. CARLSON: Okay.

19 MR. RUNNING: He hasn't read the depositions
20 of any Stroh management, but he has seen the Dorene video
21 deposition and he has read the Damiani deposition, so you
22 can ask him about those two.

23 MR. CARLSON: All right. Let's go beyond
24 that now.

25 Q. (By Mr. Carlson) What other information

1 have you looked at in this case for purposes of
2 testifying in trial?

3 A. I certainly have looked at some of the
4 documents that were presented here as exhibits.

5 Q. Okay.

6 A. I don't remember any document that
7 specifically had the Stroh Die Casting Company listed on
8 it.

9 Q. Okay.

10 A. I don't know what else to add.

11 Q. What depositions have you read?

12 A. Mr. Damiani's, Mr. Dorene's, and, of course,
13 my own.

14 Q. Any others?

15 A. That's it.

16 Q. All right.

17 Q. On Section 3 of part C, it says,
18 "Production - Clean up plants and stop gross
19 contamination." Does that reference gross contamination
20 that's occurring in your customer's plants?

21 A. Well, this refers to Monsanto's plants.

22 MR. CARLSON: We'll be offering Exhibit 24.

23 (Plaintiff's Deposition Exhibit 25 was marked)

24 Q. Plaintiffs Exhibit 25, does that appear to
25 be a photocopy of the environmental sticker that you made

1 reference to in earlier testimony?

2 A. It does.

3 Q. And that's the only copy I have, so if you
4 will bear with me.

5 MR. RUNNING: Would you like me to get
6 another one?

7 MR. CARLSON: That's okay. It's not going
8 to take that long.

9 Q. (By Mr. Carlson) It indicates that, "This
10 product contains polychlorinated biphenyls, which some
11 studies have shown may be an environmental contaminant."
12 Did I correctly read that?

13 A. Yes, you did.

14 Q. It is true that at the time of that sticker
15 was used, Monsanto corporately was taking the position
16 that PCBs were an environmental contaminant; isn't that
17 true?

18 A. Yes.

19 Q. Why did you use the word may be rather than
20 telling the customer that it was an environmental
21 contaminant?

22 A. We felt that this wording correctly
23 described what these laboratories that were making
24 reports were saying in their summaries because there
25 were -- you will note that the word -- the wordage

1 implies some studies. There were many many studies that
2 did not confirm this, the fact that they were finding
3 PCBs. In fact, there were more studies that came up with
4 negative answers than with positive answers.

5 Q. Except that I think that you had agreed with
6 me a few minutes ago that Monsanto believed that PCBs
7 were a world-wide ecological problem, not may be a
8 problem, it was.

9 A. For its planning purposes, it took that --
10 it made that conclusion internally, but in order to be
11 correct as it could be, it used this statement to
12 describe the situation as understood.

13 Q. Monsanto as of November 1969, before this
14 particular lable was drafted --

15 A. Right.

16 Q. -- accepted the facts that in birds, PCBs
17 can effect the calcium metabolism leading to egg shell
18 imperfections which prevent proper hatch of the young,
19 true?

20 A. Yes.

21 Q. And by that time, that is by November of
22 '69, Monsanto had accepted the fact that more levels of
23 PCBs could cause death of small shrimp?

24 A. Yes, but that doesn't say that its an
25 environmental contaminant.

1 Q. By November of 1969, PCBs had been found in
2 the Great Lakes?

3 A. Yes.

4 Q. We know where Jensen and Witmark found them?

5 A. Yes.

6 Q. And we know where Risebrough found them?

7 A. Yes. That's why we say some studies have
8 showed them to be environmental contaminants.

9 Q. May. You didn't say are.

10 MR. RUNNING: I don't -- are you arguing
11 with him?

12 MR. CARLSON: No.

13 MR. RUNNING: He's explaining --

14 MR. CARLSON: I was explaining that there
15 were other studies that didn't find them.

16 Q. (By Mr. Carlson) Let me do it this way.
17 With regards to any studies that Monsanto may have been
18 aware of where PCBs were not found, the fact of the
19 matter is the company corporately accepted the fact that
20 PCBs were an environmental contaminant as of November of
21 1969; that is true, isn't it?

22 A. That is the basis in which they plan their
23 entire program, yes.

24 MR. CARLSON: Let's go off the record for a
25 second. I'm going switch some of this.

1 MR. RUNNING: Let me just state for the
2 record, I have an objection to the way the plaintiff is
3 packaged Papageorge Exhibit Number 27. The first two
4 pages do belong together, the December 11, '69 memorandum
5 from Mr. Olson to Bergen, but the following pages, and
6 I've reviewed them before, and I've never seen them
7 stapled to the 1969 memorandum. The second document
8 contains references that make it clear that it was not
9 prepared in 1969, and particularly references to the
10 polychlorinated Terphenyls being the Pydraul fluid
11 already. We know that was done in 1970 and '71, not in
12 '69. And the third document, the handwritten document to
13 Howard from apparently N.T.J., which maybe Mr. Johnson,
14 there's no date on it and there's no reason to believe
15 that it was attached to the December '69 memorandum, so I
16 think these should be marked separately and dealt with
17 separately.

18 MR. CARLSON: No problem with that. I
19 didn't think they belonged together either. I just take
20 them as they come.

21 (Off-the-record discussion.)

22 (Plaintiff's Deposition Exhibit 26 was marked)

23 Q. (By Mr. Carlson) While we were off the
24 record, you had an opportunity to review Plaintiff's
25 Exhibit Number 26, did you?

1 A. I did.

2 Q. And can you explain for us what this is?

3 A. This is a copy of the text used by Mr.
4 Wheeler at Monsanto in making a presentation to the top
5 executive committee in Monsanto in November of 1969.

6 Q. Have you seen this document before?

7 A. Yes, I have.

8 Q. And can you tell me what was the purpose of
9 this presentation?

10 A. To inform the top officials in Monsanto, the
11 president and his key vice-presidents, of the status of
12 the PCB environmental issue.

13 Q. Do you recall specifically when that
14 presentation was made?

15 A. November 7, 1969. I'm not certain of the 7,
16 but I know it's 1969.

17 MR. RUNNING: We produced you documents of
18 the exact date.

19 MR. CARLSON: Correct.

20 Q. (By Mr. Carlson) On page 4, there is
21 reference to sampling that was done in Lake Michigan and
22 most other places down in the third paragraph, well,
23 actually it's the fourth paragraph on page 4.

24 A. Oh, there.

25 Q. Did Monsanto itself do some sampling in Lake

1 Michigan?

2 A. No.

3 Q. Did Monsanto do any sampling in any of the
4 rivers or streams in Wisconsin, to your knowledge?

5 A. No, not to my knowledge.

6 MR. RUNNING: Do you mean directly or
7 through studies that it had helped it fund?

8 MR. CARLSON: No, directly.

9 MR. RUNNING: Okay.

10 MR. CARLSON: We'll be offering Exhibit 26.

11 (Plaintiff' Deposition Exhibit 27 was marked)

12 Q. (By Mr. Carlson) Exhibit 27 is a document
13 dated December 11 of 1969?

14 A. Yes, it is.

15 Q. And have you seen this before?

16 A. I have not.

17 Q. Have you had a chance to review it?

18 A. Yes.

19 Q. Who is D. A. Olson?

20 A. He was at that time the marketing director
21 for the business group responsible for the marketing of
22 Monsanto products containing PCBs that were used as
23 industrial fluids.

24 Q. Would this particular memo be the kind of
25 memo that one would expect him to send to Mr. Bergen?

1 A. Certainly.

2 MR. CARLSON: We'll offer Exhibit 27.

3 (Plaintiff's Deposition Exhibit 28 was marked)

4 Q. (By Mr. Carlson) Exhibit 28, can you
5 identify for me what this is?

6 A. This is the first time I've seen this
7 document.

8 Q. Okay.

9 A. Having just read it, I am under an
10 impression that it represents a text from which someone
11 made a presentation on the Pydraul fluids containing
12 PCBs.

13 MR. RUNNING: Well, if you weren't there at
14 that presentation and don't have another way of saying
15 that, don't speculate about what you read.

16 A. I don't know anything about it, really.

17 Q. (By Mr. Carlson) All right. But the
18 document does pertain to certain Monsanto Pydraul
19 products, does it not?

20 A. They are mentioned throughout the document,
21 yes.

22 Q. And on the first page, there is a reference
23 that the author has indicated that he has, tried to
24 analyze the possible effects on the Monsanto customers if
25 Monsanto decided to stop all production and distribution

1 of Pydraul fluids containing polychlorinated biphenyls.
2 Did I correctly read that?

3 A. That is correct.

4 Q. On the bottom of the second page, there is
5 reference to All Other Pydrauls, do you see that?

6 A. I do.

7 Q. Above that, the author had looked at the
8 Pydraul 625, AC, and AC Winter Grade as well as the
9 Turbinol 153?

10 A. Yes.

11 Q. The author of this document indicates that
12 the, "Pydraul F-9, Pydraul 150, Pydraul 135, Pydraul 230,
13 Pydraul 312, Pydraul 540, and Pydraul 320 can be
14 converted to a phosphate ester fluid." First of all, did
15 I correctly read that?

16 A. Yes, you did.

17 Q. And secondly, based on your knowledge of
18 those products, is that statement accurate?

19 A. Yes.

20 Q. Then he or she as the case maybe continues,
21 "However, the systems must be drained of Pydraul before
22 refilling with competitive phosphate ester." Did I
23 correctly read that?

24 A. You did.

25 Q. And based on the information that you were

1 aware of at the time the Pydraul 312 and F-9 was market
2 by Monsanto, was that statement true?

3 MR. RUNNING: In you know.

4 A. I don't really know.

5 Q. (By Mr. Carlson) Okay. Under that section
6 it goes on to note that the, "Pydraul F-9 and 150 contain
7 VI improvers which are not compatible with phosphate --

8 MR. RUNNING: I think it's VI, viscosity.

9 MR. CARLSON: I'm sorry. Okay. You are
10 right.

11 Q. (By Mr. Carlson) "-- viscosity improvers
12 which are not compatible with phosphate ester unless PCB
13 is present." First of all, did I correctly read that?

14 A. You did.

15 Q. Secondly, based on your knowledge of the
16 products, was that statement true?

17 A. At what point in time? I can only speak for
18 the product --

19 Q. At any point in time.

20 A. I can only speak for the product after it
21 was developed and determined not to have this particular
22 incompatibility.

23 MR. RUNNING: But, Mr. Papageorge, this is
24 referring to competitive phosphate ester, not Monsanto's.

25 Q. (By Mr. Carlson) This is with the

1 competitor.

2 MR. RUNNING: You shouldn't speculate.
3 Either you know or you don't know. Don't try to
4 speculate.

5 A. I don't see the reference to competitor,
6 gentlemen.

7 Q. (By Mr. Carlson) The top of the page -- the
8 top of the page it says, it reads, "However, the systems
9 must be drained of Pydraul before refilling with
10 competitive phosphate ester.

11 A. Oh, I see it. All right.

12 Q. Okay. And what I'm looking at is the
13 question of what it was about the Pydraul F-9 that made
14 it incompatible with a competitive phosphate ester?

15 A. I do not know.

16 Q. And whose competitive phosphate ester could
17 be referenced at the time Pydraul F-9 was still being
18 manufactured?

19 A. I don't really know. I can only guess.

20 Q. Don't guess. Then the statement is made
21 that, "The petroleum traction in Pydraul 135, 230, 312,
22 320, and 540 will separate as additional phosphate ester
23 is added. The fire resistance of the combined fluids is
24 seriously reduced and not safe for hazardous
25 application." First of all, did I correctly read that?

1 A. You did.

2 Q. Secondly, based on your knowledge of the
3 products, was that statement accurate?

4 A. Again, not knowing the competitive phosphate
5 esters employed and what products you are talking of, I
6 can not -- I do not know.

7 Q. Who at Monsanto can you identify for me that
8 would have responsibility for doing the kinds of work
9 referenced here, that is looking at the compatibility of
10 the Monsanto PCB hydraulic fluids and the competitive
11 phosphate ester hydraulic fluids?

12 MR. RUNNING: In 1970.

13 MR. CARLSON: Yes.

14 MR. RUNNING: Or whenever?

15 A. I don't know the specific. It's certainly
16 some chemist in Monsanto's research department.

17 Q. (By Mr. Carlson) Okay. When you were a
18 Monsanto PCB spokesman, did you talk to any research
19 chemists about the subject of compatibility of the
20 Pydraul F-9 and 312 with your competitors products.

21 MR. RUNNING: I object to the
22 characterization of being a spokesman. He did testify in
23 congressional hearings, but that wasn't his job title.
24 That wasn't his major responsibility.

25 Q. (By Mr. Carlson) If -- or the author notes

1 that, "If the customer decides to switch to a water
2 glycol fluid, he must drain, throughly clean out, and
3 refill. Without thorough cleaning a gel will form and
4 clog valve and cylinders in the system." From you
5 knowledge of the product, was that a problem if one
6 switched from a PCB fluid to a water glycol fluid?

7 A. I do not know.

8 Q. Then goes on to note that, "Our estimate is
9 that there is a minimum of 2 million gallons of our
10 Pydraul fluids of this type and systems domestically."
11 From your knowledge of the use of your company's
12 products, was that statement by the author accurate?

13 A. As best I recall, yes.

14 Q. And he goes on to note or she goes on to
15 note that the, "Average customer purchase price is
16 \$3.25/gallon at that time." Is that true?

17 A. That's what it states here.

18 Q. Does that help put us in a time frame?

19 A. Not for me. I did not keep track of prices.

20 Q. And then they simply did a certain simple
21 amount of arithmetic and multiply to get \$6.5 million of
22 fluid in hydraulic systems at the present time, the
23 Monsanto fluid. At least that's what this person
24 apparently attempted to do from the reading of it,
25 correct?

1 A. That's what it states.

2 Q. Then the author goes on and notes, this
3 fluid -- this fluid, I presume being the Pydraul
4 hydraulic fluid in use is all usable and if a customer is
5 told by us to take the fluid out and change to another FR
6 fluid, what is our financial obligation to credit the
7 customer for this fluid as a question to either himself
8 or whoever he's writing to. First of all, did I
9 correctly read that?

10 A. You did.

11 Q. FR stands for what in that context?

12 A. Fire resistant.

13 Q. And it goes on then and notes that, "There
14 is no law requiring him to stop using fluids containing
15 PCB." So that at least helps give us some time frame,
16 doesn't it?

17 MR. RUNNING: Well, I object to that. There
18 still isn't a law requiring people to stop using PCBs.
19 there's just the threshold.

20 MR. CARLSON: The threshold, I suppose if
21 you want -- nevermind, I don't want to get into a debate
22 about that.

23 Q. (By Mr. Carlson) And then there's a
24 question, "Are we obligated to compensate the customer
25 for his down time in changing over to another fluid."

1 That's another question this person had of either himself
2 or the company, right?

3 A. That's what it states.

4 Q. Okay. And then it says -- strike that.
5 Then if we could turn -- the easiest way is to look at
6 the bottom of the page, STR 002162. Do you see what I'm
7 referring to?

8 A. I have the page, yes.

9 Q. The second to the last paragraph begins,
10 "Since our customer would have to change out
11 immediately --" Do you see what I'm referencing?

12 A. I see that sentence, yes.

13 Q. It goes on or reads, "Since our customer
14 would have to change out immediately, there would be an
15 immediate demand for 2 million gallons -- 20 million
16 pounds of phosphate ester or water/glycol fluids to fill
17 systems." First of all, did I correctly read what he had
18 written?

19 A. Yes, you did.

20 Q. And he goes on to note, "It would probably
21 take six months to one year for our competition operating
22 at capacity to supply the initial demand of replacement
23 fluid, and is it possible that they have additional
24 capacity to supply" -- I'm sorry, I misread that -- "and
25 is it possible they have additional capacity to supply

1 system make-up requirements of 15 million pounds."

2 First of all, did I correctly read that?

3 A. Yes.

4 Q. To your knowledge, did Monsanto ever
5 approach its competitors to see if they could manufacture
6 enough hydraulic fluid to make up this 2 million gallons
7 that would be necessary?

8 A. I do not know.

9 Q. Do you know what efforts Monsanto took at
10 any point in time to see whether hydraulic fluids from
11 competitors could be used -- strike that. Do you know
12 what efforts Monsanto took at any time to see if
13 hydraulic fluids that would be available from competitors
14 would be insufficient quantities to satisfy the needs of
15 your customers in they had drained their machines?

16 A. I do not know.

17 (Plaintiff's Deposition Exhibit 29 was marked)

18 Q. (By Mr. Carlson) And when you turn to
19 Exhibit 29, which is a handwritten note at the top,
20 Howard, do you have some understanding of who Howard is
21 as you are referring to that?

22 A. Yes, sir.

23 Q. Who is that?

24 A. Howard Bergen.

25 Q. Have you seen this particular document

1 before?

2 A. No, I have not.

3 Q. Do you have any information that you could
4 provide to me as to who the author of this document is?

5 A. The initials shown are those of Norman
6 Johnson.

7 Q. And in the memo, one of the situations
8 looked at is what it would take to change a typical 400
9 ton die cast machine from whatever is in it to phosphate
10 ester, correct?

11 A. Well that's what I read here, yes.

12 Q. Do you have any personal knowledge about how
13 that work is done?

14 A. I do not.

15 Q. There's also a section in what has to be
16 done to change to the water/glycol, do you see that?

17 A. That's what it states.

18 Q. Do you have any personal knowledge of what
19 it takes to make that change?

20 A. I do not.

21 MR. CARLSON: We will be offering Exhibits
22 27, 28, and 29.

23 Q. (By Mr. Carlson) I'm a little bit curious
24 when did Monsanto first start looking at making hydraulic
25 fluid using phosphate ester to replace Pydraul 312?

1 MR. RUNNING: Replace 312a or 312?

2 MR. CARLSON: 312 or 312a. Replace
3 anything. It doesn't make that much difference to me.

4 A. As best I recall, the research directed at
5 finding a phosphate ester as a replacement was started in
6 late 1969.

7 Q. (By Mr. Carlson) Prior to that, did
8 Monsanto make a phosphate Ester hydraulic fluid for use
9 by the Navy?

10 A. I don't know.

11 Q. Do you know how long it took Monsanto to
12 develop the phosphate ester fluid that was intended to
13 replace the Pydraul 312 or 312a product?

14 A. Well, they finally achieved this as best I
15 recall in about mid-year of 1971 or 2, 1972, yes.

16 Q. So we are looking at a period of a little
17 over two years?

18 A. Yes.

19 Q. Was a principle amount of that time in
20 development of that product devoted to finding a way to
21 make the phosphate ester compatible with the PCB fluids
22 that were in the Monsanto customers hydraulic systems?

23 A. I have no way of determining the amount of
24 effort devoted to any consideration involved in
25 developing the product.

1 Q. Okay. From your reading in Monsanto
2 documents and talking to Monsanto people, it was
3 important to Monsanto that the phosphate ester product be
4 compatible with the prior 312 and 312a products; isn't
5 that true?

6 A. That was a major objective or part of the
7 total objective, yes.

8 Q. And one of the reasons that it was a major
9 objective was because Monsanto did not want to have to
10 take back the hydraulic fluids that were in those die
11 cast machines?

12 A. That is not -- you say one of the reasons?

13 Q. Yes.

14 A. I don't personally know that that was a
15 serious consideration in developing this product. The
16 principle points raised had to do with impact on the
17 customer and his operations and costs to the customer
18 imposed on him by a totally different product. Those
19 were the most important consideration because the
20 marketing people were concerned that if we approach the
21 customer with an incompatible product that created all
22 sorts of problems, economic and what have you, we would
23 be almost forcing the customer to go to the competition
24 and they didn't want this to happen.

25 Q. Therefore it was important to develop a

1 product, phosphate ester product that was compatible with
2 the 312 and 312a?

3 A. Certainly.

4 Q. Monsanto did look at the concept of how much
5 it could cost the company, Monsanto, if the customer's
6 machines had to be drained in order to accept the new
7 fluid; isn't that true?

8 A. Certainly.

9 Q. And Monsanto anticipated that if its
10 customers were asked to drain their machines of PCBs
11 before putting in the new hydraulic fluid, that some
12 customers would ask for the money back for the hydraulic
13 fluids that they had previously purchased from him?

14 A. Well, they anticipated the possibility for
15 such a request to be made, yes.

16 Q. And attempted to calculate how much that
17 could possibly cost the company?

18 A. Yes.

19 Q. In 1969, in December of 1969, Monsanto
20 looked at the potential for continuing selling PCB
21 products outside the United States; isn't that true?

22 A. Well, that came up as part of the
23 discussions relating to what is a proper approach, yes.

24 Q. And it was though that even if you could not
25 sell PCB products in the United States, you may still be

1 able to sell them in Japan if that country was not
2 concerned about pollution.

3 A. That was considered, yes.

4 Q. At one point in time, however, Japan
5 abruptly curtailed the rights to sell PCB products,
6 didn't they?

7 A. I don't know how abruptly. They did move
8 fairly quickly, yes.

9 Q. Are you familiar with the Wharf paper on
10 PCBs in the Great Lakes or Great Lakes --

11 A. I'm familiar with at least one. I believe
12 there were more than one.

13 Q. You are right. Are you familiar with an
14 original papaer that came out in January of 1970?

15 A. I don't recall the date, but that sounds
16 about right, yes.

17 Q. Do you recall in that report that it was
18 mentioned that two parts per million PCB concentration in
19 sedement in Lake Michigan was considered to be a high
20 concentration?

21 A. I don't remember the details, no. I'd have
22 to see the document again.

23 Q. The Wharf work was sent to Elmer Wheeler to
24 your knowledge, wasn't it?

25 A. Yes.

1 Q. And then as the question of the hydraulic
2 fluids continued in February of 1970, your company
3 developed some predrafted answers for field salespeople
4 to use when questioned about PCBs, or at least as of that
5 date, those predrafted answers existed, didn't they?

6 A. Yes.

7 (At this time, there was a ten minute break in the
8 deposition)

9 (Plaintiff's Deposition Exhibit 30 was marked)

10 Q. (By Mr. Carlson) Mr. Papageorge, when we
11 were off the record, you've had a chance to review the
12 contents of Exhibit 30?

13 A. I have.

14 Q. And Exhibit 30 consists of several separate
15 types of documents, does it not?

16 A. Yes.

17 Q. The first documents or first pages are a
18 memo from N.T. Johnson of February 16 of 1972, to the
19 people listed?

20 A. Certainly, yes.

21 Q. And have you seen that before?

22 A. Yes.

23 Q. And the second is a two-page letter of
24 February 9, 1970, from Donald Olson to certain Monsanto
25 customers?

1 A. Yes.

2 Q. And then there is a February 18, '70 letter
3 to certain Monsanto customers?

4 A. Yes.

5 Q. And then there's a section on possible
6 customer questions on PCBs and publicity?

7 A. Yes.

8 Q. And you've seen all of these before?

9 A. I have.

10 Q. With regards to the N.T. Johnson memo, on
11 the second paragraph he notes that, "We want to avoid any
12 situation where a customer wants to return fluid." Does
13 he not?

14 A. I see that, yes.

15 Q. And do you know why he, on behalf Monsanto
16 or at least in that capacity, did not want any situation
17 to occur where a customer would want to return fluid?

18 A. Well, there are many considerations involved
19 in that desire or that want. Primarily, it's one of
20 creating situations where attempts to -- I hesitate
21 because there is two kinds of fluids I have in mind here.
22 One is the fluid already in the system, and there's
23 certainly no need to drain the system if the fluid is
24 performing well. The advantages of using that fluid are
25 present, and as long as it's carefully handled, there's

1 no problems. The other situation is the one where a drum
2 or a container unopened of new material is in the
3 customer's storeroom, and again, there is no reason for
4 him to panic and send the material back as is. Handling
5 of used material can create situations where escape into
6 the environment might occur. Just the process of
7 draining a system could create opportunities for that to
8 happen. The shipping back of material in containers that
9 may not be originally designed to handle this kind of
10 fluid could create a transportation problem. It was an
11 attempt really to discourage action that wasn't intended
12 and it wasn't perceived to be helpful, and yet to try to
13 minimize creating potential from other problems relating
14 to PCBs to be created because of frantic activity that
15 might result from people who misunderstand the problem.

16 Q. One of the problems that could occur if the
17 customers wanted to return their fluids, was that it
18 could be expensive to Monsanto?

19 Q. Well, I don't know what you mean by
20 expensive. You mean in disposing of it? There are costs
21 associated once Monsanto has this material, it must
22 dispose of it. It's used.

23 Q. Or if it's material that otherwise was
24 suitable for use as a hydraulic fluid, if it was some --
25 strike that. If the hydraulic fluid was still

1 serviceable but the customer wanted to return it because
2 of the perception about PCBs, you would expect the
3 customer to ask for his money back and that could be
4 expensive to Monsanto.

5 A. Well, there is a cost involved and the
6 degree of expense depends on the number requests, the
7 amounts returned, yes.

8 Q. Then it goes on to note in that same
9 paragraph at the end of the fourth line from the bottom,
10 "He -- I presume he being the customer -- will then top
11 off with a new fluid and eventually all Aroclor 1254 and
12 Aroclor 1260 will be out of his system." Where did
13 Monsanto expect that all of this 1254 and 1260 was going
14 to go?

15 A. At this point in time?

16 MR. RUNNING: Well, I object to the
17 relevance of that. We are not talking about the Pydraul
18 fluids. We don't even know if this is hydraulic fluids.

19 Q. (By Mr. Carlson) Go ahead.

20 A. We are referring here to the Aroclor 1254
21 and 60?

22 Q. Yes.

23 A. If it's properly managed and handled, and
24 for some reason is removed from the use to which it was
25 put, it could be disposed properly in a landfill or at

1 this point in time -- well, it was a little early yet,
2 but the incineration idea was developing. And in
3 subsequent months, the possessor of that Aroclor 1254 and
4 60 material could have sent that material to Monsanto for
5 destruction by incineration.

6 Q. At least in February of 1970, that was not a
7 concept that was being told to your sales force, though,
8 was it?

9 A. Well, the sales force knew we were working
10 on incineration and this particular sentence really
11 refers to the future when it uses the word eventually.

12 Q. It will be out of its system?

13 A. Yes. It may take many years.

14 Q. So it wasn't Monsanto's expectation that all
15 of the 1254 and 1260 in your customer systems would end
16 up in waste disposal sites as of February 16 of 1970?

17 MR. RUNNING: Objection, you are
18 mischaracterizing what he just said.

19 A. I would not say that we expected all of it.
20 We expected the amounts that did not get treated properly
21 to be such a small amount, relatively speaking, that no
22 harm would be expected.

23 Q. (By Mr. Carlson) Okay. Even if it was
24 treated properly, that is fluids handled properly, which
25 I think is what you meant to say, you did expect that

1 there was going to be some escape of the fluids into the
2 environment, didn't you?

3 A. Yes. Very little though. I don't know how
4 to quantify that for you.

5 Q. Okay. And if we take a look at the February
6 9, 1970 letter, it discusses the PCBs being found in the
7 environment which were 54 percent and 60 percent chlorine
8 by weight, do we not?

9 A. It does --

10 Q. The second paragraph.

11 A. -- they are mentioned, yes.

12 Q. Again, what, in fact, was being found were
13 higher chlorinated biphenyls in products which were 54
14 percent and 60 percent chlorine by weight?

15 MR. RUNNING: I object of you saying there
16 is any contradiction. The sentence says it is claimed
17 that the PCBs found strongly resemble chlorinated
18 biphenyls containing 54 percent and 60 percent chlorine
19 by weight. There's no inconsistency.

20 Q. (By Mr. Carlson) Well, let's go through
21 this. There's no chlorinated -- strike that. In your
22 products, is there a chlorinated biphenyl molecule which
23 is 54 percent chlorine?

24 A. I'd have to sit down and do some arithmetic
25 here. It wouldn't surprise me if there's a combination

1 of chlorine, hydrogen, and carbon in this polychlorinated
2 biphenyl forum that may very closely approach 54 percent.

3 Q. If it dose, it's incidental to the
4 formulation of the product of Aroclor 1254, isn't it?

5 A. I guess incidental is as good a word as any.

6 Q. Okay.

7 A. It's almost a coincidence that the single
8 chemical would have the same chlorine that the mixture
9 does.

10 Q. Would a more -- I expect either Mr. Running
11 will object or you will tell me if my statement is
12 inaccurate, but would a more accurate sentence in the
13 beginning of the second paragraph be that it is claimed
14 that PCBs containing higher chlorinated molecules which
15 are found in our 54 percent and 60 percent chlorine by
16 weight products have been found in the environment?

17 A. Well, that statement is true, but those same
18 chemicals are found in other Aroclors like Aroclor 1262
19 and Aroclor 1268, and these chemical fingerprints that
20 were being seen at the time didn't indicate even those --
21 even higher chlorinated. The fingerprint looked more
22 like the Aroclor 1254 and 60 than it did anything else.

23 Q. How much work had been done on the
24 biodegradation of the lower chlorinated PCBs as of
25 February of 1970?

1 A. Not an awful lot, just some preliminary
2 screening kind of work.

3 Q. Was it Monsanto's expectation that the lower
4 chlorinated polychlorinated biphenyls were degrading?

5 A. Yes.

6 Q. In the bottom section of the letter on the
7 first page, it makes reference to the following, "We
8 would like to point out following additional facts."
9 Number 1 is, "Products such as Pydraul 90, 135, 230, 312,
10 A-200, F-9, 150, and 60, Turbinol 153 and Therminol FR-1
11 and FR-2 are not formulated with Aroclor 1254 or 1260.
12 First of all, the statement is accurate, isn't it?

13 A. Yes.

14 Q. Is there an indication in this letter what
15 the Aroclors -- strike that -- what the Pydraul 312 and
16 F-9 were formulated with?

17 A. Not in this letter, no.

18 Q. Was it your company's expectation that a
19 Pydraul 312 user receiving this letter, if they did not
20 use the Aroclors 1254 and 1260, would not have to take
21 any action?

22 A. Certainly not.

23 Q. Was --

24 A. That's why we included the last paragraph on
25 page 2 of the memo.

1 Q. And that was the Chemical Week information
2 on water pollution?

3 MR. RUNNING: Well, it says more than that,
4 Mr. Carlson.

5 MR. CARLSON: Yes, okay.

6 Q. (By Mr. Carlson) But that is one of the
7 things that was provided?

8 A. Certainly.

9 Q. And in that information, was there any
10 reference to any PCB standards for the State of Wisconsin
11 as of the date of that particular publication, October 29
12 of '69?

13 MR. RUNNING: Why don't you show him the the
14 Chemical Week article other than testing his memory on
15 it.

16 MR. CARLSON: My copies so poor I can't read
17 it. Do you ever a clear copy with you?

18 MR. RUNNING: I think I may actually.

19 MR. CARLSON: Okay.

20 MR. RUNNING: I have the relevant page from
21 the Chemical Week article and for Wisconsin it reads
22 under the heading, "Toxic Substances, none in
23 concentrations or combinations toxic to humans or public
24 health significance." I also has various standards of
25 allowable temperatures and oxygen levels.

1 MR. CARLSON: That's fine. Thank you.

2 Q. (By Mr. Carlson) Now, Mr. Papageorge, in
3 February of 1971, at what levels did Monsanto believe
4 Pydraul 312 would be toxic in humans?

5 A. You said February 1971?

6 Q. Yes. I'm sorry, February 1970, you are
7 right, thank you. I'm jumping ahead of myself.

8 A. The levels that applied to Pydraul, as best
9 I remember, had to be, for certain, the standards I
10 mentioned yesterday of the Americans Governmental
11 Industrial Hygienists relating to the PCB exposure over
12 an eight-hour working day.

13 Q. Okay.

14 A. Or eight-hour exposure day. There were no
15 other numerical guidelines available to pass on to
16 anyone.

17 Q. Okay. For example, if eye a cast company in
18 February of 1970, wanted to know what PCB concentration
19 levels in its water discharge would potentially be a
20 human health problem, were there any guidelines
21 available?

22 A. No, they would have to develop their own
23 from the exposure number back to the conditions under
24 which a human being would be exposed of that disposal,
25 water, disposed water, and determine from that the

1 A. This February 9 letter was sent to all
2 customers who had purchased Pydrauls from Monsanto for a
3 period of at least three years.

4 Q. Is that what you've been told by others in
5 the company?

6 A. No, I was involved personally.

7 Q. But, I mean, who did the mailing?

8 A. Oh, the secretaries. The secretaries did
9 the physical work.

10 Q. Did you keep some record of the addresses
11 and other information from the people that received the
12 February 9 letter?

13 A. Yes, we did.

14 Q. Now, go to February 18, 1970 letter.

15 A. I see it.

16 Q. What was the purpose of the February 18,
17 1970 letter?

18 A. This letter was sent to customers of PCB
19 products used in electrical equipment.

20 Q. And then it was on -- we have the possible
21 customer question section. Will you turn to that form
22 me?

23 A. I have it.

24 Q. And in you would, turn to page 4 of that
25 section, under Effluent and Its Control.

1 amounts that were possible.

2 MR. CARLSON: Could you read that back for
3 me?

4 (Reporter read back last answer)

5 Q. (By Mr. Carlson) Okay. In the last
6 sentence it reads, "We feel that all possible care should
7 be taken in the application, processing, and effluent
8 disposal of these products to prevent them from becoming
9 environmental contaminants." Did I correctly read that?

10 A. Yes, you did.

11 Q. And the paragraph above that referencing
12 products, specific products were products with Aroclor
13 1254 and 1260; is that correct?

14 A. Yes.

15 MR. RUNNING: Well, I think the letter can
16 be read by anyone.

17 MR. CARLSON: Well, anyone can read it.

18 MR. RUNNING: And I object to the
19 characterization.

20 Q. (By Mr. Carlson) Monsanto also had a
21 February 18, 1970 letter?

22 A. Yes, sir.

23 Q. By the way, how did Monsanto go about
24 determining who would receive the February 9 letter, was
25 it sent to just the Aroclor 1254 and 1206 customers?

1 A. This February 9 letter was sent to all
2 customers who had purchased Pydrauls from Monsanto for a
3 period of at least three years.

4 Q. Is that what you've been told by others in
5 the company?

6 A. No, I was involved personally.

7 Q. But, I mean, who did the mailing?

8 A. Oh, the secretaries. The secretaries did
9 the physical work.

10 Q. Did you keep some record of the addresses
11 and other information from the people that received the
12 February 9 letter?

13 A. Yes, we did.

14 Q. Now, go to February 18, 1970 letter.

15 A. I see it.

16 Q. What was the purpose of the February 18,
17 1970 letter?

18 A. This letter was sent to customers of PCB
19 products used in electrical equipment.

20 Q. And then it was on -- we have the possible
21 customer question section. Will you turn to that form
22 me?

23 A. I have it.

24 Q. And in you would, turn to page 4 of that
25 section, under Effluent and Its Control.

1 A. I have it.

2 Q. One of the questions is, "How do I dispose
3 of Aroclor 1254/1260, etcetera, effluent from a my
4 plant." That was one of the questions that Monsanto
5 expected your sales folks to be asked, I guess?

6 A. That's what it states, yes.

7 Q. Okay. The last full sentence on the bottom,
8 it reads, "We don't recommend feeding this material to
9 local sewage treatment plants --" in part, does it not?

10 A. Yes, it does.

11 Q. Did you recommend feeding this material to
12 the local sewage treatment plants for 1242 fluids?

13 A. No.

14 Q. During the time Pydraul 312 was
15 manufactured, did any of its labels or product brochures
16 advise that the material should not be mixed with
17 anything that goes into those sewage plants?

18 A. No, that would not be a statement included
19 on any industrial chemical label.

20 Q. Specifically for the Pydraul 312 that was
21 not included?

22 A. That's true.

23 Q. And on page 5, there is a question, "Can I
24 test my effluent to see if my effluent has no Aroclor
25 1254, etcetera." Correct?

1 A. That is correct.

2 Q. And then there is an answer, "Yes.

3 Analytical equipment is available and can do this if the
4 proper techniques are used, etcetera --" and gives some
5 information about that, does it not?

6 A. It does.

7 Q. Did Monsanto at the time Pydraul 312 or F-9
8 was manufactured, ever advise its customers to check its
9 effluent to see if those PCBs were present?

10 A. I cannot, of course, speak for the field
11 representatives and his discussions with the customer.
12 On the other hand, I don't recall any mailing that
13 addresses that subject, so I frankly do not know.

14 Q. If you would be kind enough to turn to page
15 8, there's a question, "Why should PCB be an
16 environmental contaminant and chlorinated Terphenyls
17 not." Do you see that question?

18 A. I do see it.

19 Q. By the way, later on, it was determined by
20 Monsanto that if Terphenyls were used long enough, they
21 would be an environmental contaminant just as PCBs were,
22 right?

23 A. Some of them.

24 Q. In the middle of the response there is
25 reference that those Aroclors -- I'm sorry, "Those such

1 as Aroclor 1221, 1232, and 1242 haven't been identified
2 in marine, aquatic, and wildlife environment." Correct?

3 A. That is correct.

4 Q. But some of their components had been,
5 hadn't they, some of the components of 1242 had been
6 identified?

7 A. Certainly as in combination with others to
8 give the fingerprints that we talked about earlier.

9 Q. Then if we go to page 9 -- on page 11, under
10 application, question number 2, it was hypothesized that
11 your salesman maybe asked, "My product X contains Aroclor
12 1254/1260, what should I tell my customers." And in the
13 middle of the third line, the sentence reads, "We would
14 say that it would not seem wise to use Aroclor 1254 or 60
15 for keeping dust down on roads." That's one of the
16 responses that was prepared for your salespeople to use,
17 right?

18 A. Yes, sir.

19 Q. You didn't tell your salespeople that it
20 would not be wise to use the 1242 to keep dust on the
21 roads though, did you?

22 A. Yes, but this question here was specific for
23 54 and 60.

24 Q. Oh, I understand that. I understand that.
25 I'm switching to a generality again. I'm not trying to

1 confuse you. I'm just trying to find out. You never
2 told your salespeople to give this same information to
3 the 1242 users?

4 MR. RUNNING: Well, you are stating that as
5 a fact. You should be asking him as a question.

6 A. Well, not knowing all of the documents and
7 discussion that were given to the sales marketing people
8 in the field, I can't answer that.

9 MR. CARLSON: I do offer Exhibit 30.

10 Q. (By Mr. Carlson) Are you aware of a PCB
11 conference that took place in Duluth in March of 1970?

12 A. Yes, sir.

13 Q. And one of the things that was referenced in
14 that conference was PCBs had been found in the Milwaukee
15 River?

16 A. I remember that, yes.

17 Q. And about that time, it was reported that
18 the acute toxicity to fish increased as the number of
19 chlorines decreased, a change in which you had been
20 seeing or thought you had seen earlier, wasn't it?

21 A. I don't know that it was so much a change.
22 I have trouble with your definition of change. We were
23 aware of presence of PCBs in fish. Up to that point,
24 they were not informed by any laboratory that they had
25 studied or noted toxicity, a harmful effect on the fish.

1 It was a presence as compared to a toxicity. For me,
2 this was a first time I had heard a report that
3 associated a harm to some fish with an Aroclor. That
4 changed.

5 (Plaintiff's Deposition Exhibit 31 was marked)

6 Q. (By Mr. Carlson) And I'd like to have you
7 review, if you would, Plaintiff's Exhibit 31. It's
8 fairly short. I think you are probably familiar with it.

9 A. I have read it.

10 Q. All right. The document is a March 30, 1970
11 memo to yourself from R. Emmet Kelly?

12 A. Yes.

13 Q. And do you recall seeing this before?

14 A. I have.

15 Q. And the subject of that particular memo is
16 PCBs being found in milk?

17 A. Yes.

18 Q. And he raises a question, "When are we going
19 to tell our customers not to use any Aroclor in any paint
20 formulation that contacts food, feed, or water for
21 animals or humans." Correct?

22 A. He does.

23 Q. What did you tell him?

24 A. I told him as soon as we'd get to it, which
25 was our phase out program in a few months following this.

1 Q. I don't mean in amount of time. I mean what
2 did you tell him about when you are going tell your
3 customers not to use that or was that part of the phase
4 out program?

5 A. Well, the phase out program, these Aroclors
6 of all kinds are not available for coatings of any kind
7 whether they are food, feed, water, or skyscraper.

8 Q. It was important to you that the Aroclors
9 not get into the food chain?

10 A. Certainly.

11 MR. CARLSON: I will offer Exhibit, what is
12 it, 31.

13 Q. (By Mr. Carlson) When is the first time
14 Monsanto told its Pydraul 312 customers what it was made
15 of?

16 A. That, I don't know.

17 MR. RUNNING: Well, I object to that.

18 MR. CARLSON: Okay.

19 MR. RUNNING: The label says chlorinated.
20 hydrodioxide.

21 MR. CARLSON: Yeah, I know that. Okay.

22 Q. (By Mr. Carlson) Give me some other
23 examples of chlorinated hydrocarbons besides PCB.

24 A. Chlorinated benzene, chlorinated ethylene.

25 Q. Would you say there's a pretty long list?

1 A. Oh, it's a quite a long list.

2 Q. Okay. When did you tell your customers --
3 strike that. when did you tell your Pydraul 312
4 customers that it contained PCBs?

5 A. That I don't know.

6 (At this time, there was a break in the deposition
7 for lunch.)

8 (Plaintiff's Deposition Exhibits 32 and 33 was
9 marked)

10 Q. (By Mr. Carlson) Mr. Papageorge, we've had
11 a chance to have lunch, and I'd like to go over a few
12 more documents and I have a few more questions for you if
13 you can bear with me.

14 A. Yes, sir.

15 Q. Over the break that we had, you had a chance
16 to review Exhibit Number 33, did you?

17 A. I did.

18 Q. And can you identify for me what this
19 documents is?

20 A. It's an outline of a presentation made to
21 Monsanto's corporate management committee in April of
22 1970, attached to it is the text of the information that
23 was shared with that committee.

24 Q. If you would be kind enough to turn to STR
25 001432, which is about the fourth document from the end.

1 A. I believe I have it here.

2 Q. It's a PCB Content Plant Effluent Report?

3 A. Yes.

4 Q. Where was that plant effluent for the two
5 plants referenced -- or I'm sorry, for the three plants
6 referenced going?

7 A. To community sewage treatment plants.

8 Q. Okay. And in the Anniston plant, you
9 started with a discharge in the effluent of 50 pounds per
10 day in June of 1969?

11 MR. RUNNING: Just for the record, Don,
12 would you acknowledge at least that when you said 500
13 pounds this morning that you were in error?

14 MR. CARLSON: Yes. I will certainly do
15 that. I would also --

16 MR. RUNNING: I make plenty of errors
17 myself. I just want the record to reflect it,

18 Q. (By Mr. Carlson) The hundreds I think came
19 to ind because of the 700 pounds per day at Sauget, but
20 it was 50 pounds per day in Anniston in June of '69, and
21 it goes down at the time apparently of this report was
22 five pounds per day?

23 A. Yes, sir.

24 Q. And what is the date of this report?

25 A. This is April of 1970.

1 Q. Are the listings for October of '70, January
2 of '71, September of '71, expected discharges?

3 A. Yes?

4 Q. And then on Sauget, it shows 700 pounds per
5 day in April of '69?

6 A. Yes, sir.

7 Q. Down to 200 pounds per day in March of 1970?

8 A. Yes, sir.

9 Q. And at the present time time of this study,
10 it was 65 pounds per day?

11 A. That is correct.

12 Q. And then in Newport, was that a relatively
13 knew facility?

14 A. No, that was of the United -- the plant over
15 in Europe.

16 Q. Oh, I see.

17 A. And we didn't have as good information at
18 that time.

19 Q. Over there, at the time of this study, the
20 plant discharge of PCB content in effluent was 30 pounds
21 per day?

22 A. Yes, sir.

23 (Plaintiff's Deposition Exhibit 34 was marked)

24 Q. Would you be kind enough to refer to Exhibit
25 34?

1 A. I have it.

2 Q. And the cover sheet is a memo from yourself
3 of April 7 of 1970, to the people listed?

4 A. Yes, sir.

5 Q. And that includes or attached to it is the
6 management planning polychlorinated biphenyl
7 environmental problem?

8 A. Yes, sir.

9 Q. And are you the author -- or are you the
10 author of that particular document?

11 A. Yes, sir.

12 Q. In the statement of the problem about a
13 third of the way through it, there's a sentence,
14 "Increasing evidence has been noted that indicates PCB as
15 ubiquitously present in the environment and is resulting
16 in damage to the ecological system." First of all, did I
17 fairly read that?

18 A. Yes, you did.

19 Q. I'm interested with regards to the 1254 and
20 1260 Aroclors that were being picked up in sampling, for
21 example in 1969, I think, somewhere along that in the
22 environment?

23 A. Yes, sir.

24 Q. How were those particular Aroclors getting
25 into the environment?

1 A. Well, I can't speak for each and every
2 incident.

3 Q. No, I understand that.

4 A. But the Aroclors 1254 and 1260 were the
5 types that were used in what we called open uses.

6 Q. Okay.

7 A. An example was in paints and varnishes and
8 the like. It's easy to see how that use could allow for
9 easy entry into the environment.

10 Q. Okay.

11 A. As to just how they got there, it's possible
12 and understandable to expect that some of it could have
13 been done because of association with some kind of water
14 stream and ending up in rivers and streams and lakes.
15 Some of it could have come from evaporation where some of
16 these materials were exposed to high temperatures, they
17 evaporated into the atmosphere, and then eventually find
18 their way on the ground and their normal changes in
19 climates and all end up that water systems. Some of them
20 found their way into the environment because of their
21 use, and by that, I have in mind such things as adhesive
22 or as a caulking material such as when the building is
23 dismantled or the window pain removed and the caulking
24 around it is discarded. It wasn't buried. No particular
25 efforts were made to contain it. It could have gotten

1 out into the environment.

2 Q. All of those that you've referenced would be
3 uses of those products from the plasticizer group?

4 A. Yes.

5 Q. The products were used as dielectric fluids
6 and capacitors and other electrical components, were they
7 not?

8 A. Yes, they were.

9 Q. Was it Monsanto's expectation that a
10 significant amount of the PCB pollution that was being
11 found in '69, was coming from these electrical
12 applications?

13 A. We did not perceive that as a significant
14 source because we were very conscious of the fact that
15 these liquids containing these kinds of PCBs were in
16 sealed steel containers, so it was quite difficult for us
17 to expect that use to be a big source.

18 Q. Wasn't the plasticizer portion of this
19 business in pounds per year substantially less than the
20 hydraulic fluids?

21 A. I don't remember that. We are talking now
22 about the Aroclor 1254 and 60?

23 Q. That's right. No, I'm sorry, that was a
24 misstatement. In looking at all PCBs for either
25 electrical applications, hydraulic fluids, or

1 plasticizers, was the plasticizer business a smaller
2 portion of the total than the others?

3 A. I don't believe so. I think it was larger
4 than the industrial fluids, the hydraulic fluids.

5 Q. Was the only direct pollution of waterways
6 that your company found coming from industrial
7 applications -- I'm sorry, of hydraulic fluids of all
8 PCBs?

9 MR. RUNNING: I didn't understand the
10 question.

11 Q. (By Mr. Carlson) Yes. In looking at how
12 PCBs, even in small quantities, got into the waterways,
13 is the only direct way that this occurred from the
14 industrial fluids?

15 A. Not the only way, no.

16 Q. What other direct way did it occur?

17 A. I'm confused by what other direct way.

18 Q. I don't want to be cumbersome about it, and
19 perhaps if I can just tell you hypothetically what I'm
20 thinking. If you have a manufacturing facility that has
21 die cast machines and some fluid gets on the floor and
22 they clean the floor and it gets into either the sewage
23 system and doesn't biodegrade or goes in through a ditch
24 and gets into a lake, that's one way that you can have
25 PCB contamination of a lake?

1 A. Yes.

2 Q. And some circumstances in the plasticizer,
3 for example, that you mentioned, if you have an adhesive,
4 there apparently is a wearing away somewhere and then
5 it's carried by some other medium to the water and then
6 deposited into the water?

7 A. Yes, as an additional step involved.

8 Q. Okay. In retrospect, you're company has
9 concluded that much of the -- strike that -- that some of
10 the PCBs identified which prompted the 1254 and 1260
11 letters back in 1970, was, in fact, residual PCBs in
12 1242?

13 A. In retrospect, I'm assuming you mean as of
14 today?

15 Q. That's right.

16 A. As of today, yes.

17 Q. And the knowledge -- or what additional
18 knowledge is there today that you have that you didn't
19 have in 1969, in that regard?

20 A. Oh, we have the results from all of the
21 biodegradation studies that were underway or just getting
22 started in late '69, or early 1970.

23 Q. So that the actual work that you did -- I
24 presume your management plant didn't occur overnight,
25 Exhibit Number 34?

1 A. You mean the writing of it?

2 Q. That's right.

3 A. Well, no, the elements in it, no.

4 Q. Okay. For example, if we turn to the page 6

5 of the work where you have Objective and in the

6 subheading a Status, do you see that?

7 A. Yes, I see that.

8 Q. And it indicates in the paragraph beginning

9 with biodegradability, it reads, "Biodegradability

10 studies of existing and substitute products with

11 acclimatized microorganisms are being conducted at Ruabon.

12 Data to date indicates that the monochlor and some of the

13 di in trichlor biphenyls degrade; remaining PCBs are

14 highly resistant." First of all, did I correctly read

15 that?

16 A. Yes, you did.

17 Q. And did the continuation of the work that's

18 referenced confirm the preliminary data that's reported

19 in this particular report?

20 A. The continuation of that work at the Ruabon

21 laboratory?

22 Q. Yes.

23 A. It did. It confirmed these early findings,

24 but there were additional studies made with different

25 organisms.

1 Q. Was it your expectation as of the date of
2 this report that the biphenyls that had four chlorines
3 and more were the ones that were resistant to
4 biodegradation?

5 A. Well, at that time --

6 MR. RUNNING: Well, that's a compound
7 question, and I want to break it up. Do the four and
8 then the more. You are linking in the four with the
9 five.

10 MR. CARLSON: No, I'm just expanding the
11 size.

12 MR. RUNNING: Object. Compound question.

13 A. The thinking at that time centered around
14 the five chloro and higher.

15 Q. (By Mr. Carlson) I understand.

16 A. The four and less were perceived to be the
17 types that would lend themselves to degradation.

18 Q. But the four is in reference in your report
19 anyway as being the type that would lend itself to
20 biodegradation?

21 A. Not at this time, no, but that was the
22 thinking amongst the scientist that were preparing all of
23 these tests programs. They were trying to confirm their
24 scientific opinions here.

25 Q. And you tried, as best you could, to

1 accurately convey to the folks that would receive this
2 management plan their thinking?

3 A. Well, no, no. In this case, I tried to
4 convey the data that was available, not the thinking on
5 the part of the scientist.

6 Q. Why don't we, if we could, in a number of
7 documents that I've reviewed -- I guess I'm going to try
8 to paraphrase a little bit, but if I misstate something,
9 and I'm sure either Mr. Running or yourself will let me
10 know, but there seems to be reference to the use of PCBs
11 in hydraulic systems where the PCBs cannot be controlled.
12 Do you remember seeing that phrase appearing in Monsanto
13 documents?

14 MR. RUNNING: Well, I object to the
15 characterization.

16 A. I don't know that the -- I don't recall the
17 reference to cannot be controlled. I recall the
18 reference to difficult to control.

19 Q. (By Mr. Carlson) Okay. What is meant by
20 the term difficult to control?

21 A. Well, that can cover many different factors.
22 The fact that these fluids are used under high pressures
23 creates a difficulty in maintaining systems that won't
24 leak. The type of operation by its very nature is such
25 that shutting it down is not easily done. That gives

1 another type of difficulty, and in so many cases,
2 frankly, there were some operators that didn't have the
3 resources to provide the necessary attention in terms of
4 maintaining their equipment or building the curbing
5 required and the collecting systems to control, so that's
6 another kind of difficulty that what is expected in
7 someplaces not everywhere.

8 Q. We may have covered this yesterday, and I
9 certainly don't want to be repetitious. Did your company
10 ever advise die cast companies to build curbing around
11 die cast machines?

12 A. I personally am not aware of any document
13 that states that, but I am personally aware that that was
14 a often repeated recommendation to the marketing
15 department.

16 Q. As of what year?

17 A. Starting in 1970.

18 MR. CARLSON: I guess for the record I will
19 be offering Exhibit 34.

20 Q. (By Mr. Carlson) Yesterday you and I talked
21 a little bit about close the loop, do you remember that
22 conversation?

23 A. I do.

24 (Plaintiff's Deposition Exhibit 35 was marked)

25 Q. (By Mr. Carlson) You now have Exhibit

1 Number 35?

2 A. I do.

3 Q. And Exhibit 35, the first page is a memo
4 from yourself of August 31 of 1970, to a number of people
5 indicated on the document?

6 A. Yes, sir.

7 Q. And attached to that was a rough draft of
8 the Polychlorinated Biphenyl Waste Control and Disposal?

9 A. Yes, sir.

10 Q. These are suggestions that you had drafted
11 at that time referable to handling of PCBs?

12 A. Yes, sir.

13 Q. Was this rough draft ever put in final form
14 for distribution to your salespeople?

15 A. Yes, sir.

16 Q. Was it put in final form for distribution to
17 customers directly?

18 A. Not from my office. I don't know what
19 others may have done with it.

20 Q. Have you talked to Mr. Damiani or any other
21 Monsanto salespeople that have called on Stroh,
22 personally talked to them about this litigation?

23 A. No.

24 Q. Do you have any information that Stroh
25 received from your sales and marketing people the

1 information set forth in your draft?

2 A. I do not.

3 MR. CARLSON: We'll be offering Exhibit
4 One -- I'm sorry, Exhibit 35.

5 Q. (By Mr. Carlson) Would you be kind enough
6 to refer to Exhibit 36. Have you seen -- you've had a
7 chance to review it?

8 A. Yes, I have.

9 Q. And have you seen this particular document
10 before?

11 A. Yes, I have.

12 Q. And the -- it's a letter of August 29 of
13 1960, to a Mr. S. Facini at Chicago Pneumatic Tool
14 Company.

15 A. I'm confused.

16 Q. Maybe I'm looking at the wrong one.

17 MR. RUNNING: I think you mean 32.

18 MR. CARLSON: I'm sorry.

19 MR. RUNNING: I think you marked that as 32.

20 MR. CARLSON: Oh, did I. Okay.

21 Q. (By Mr. Carlson) Do you have Exhibit 32
22 there?

23 A. Yes.

24 Q. Okay. Let's go back. You've had a chance
25 to look at Exhibit 32?

1 A. I have.

2 Q. And this is an August 29, 1960 letter from
3 Jack Garrett to a S. Facini?

4 A. It is.

5 Q. And have you seen this document before?

6 A. Not before.

7 Q. Do you know who Jack Garrett was?

8 A. I do.

9 Q. Who is he?

10 A. He was a member of Monsanto's corporate
11 medical department. He was the corporate industrial
12 hygienist.

13 Q. In this particular letter, the second
14 paragraph -- first of all, if you will bear with me and
15 see if I read this correctly, "If the material is
16 discharged in large concentrations it was adversely
17 effecty the organisms in the bottom of the receiving
18 stream which will effect the aquatic life in the stream."
19 Now, did I correctly read that?

20 A. You did.

21 Q. And then it goes on to say, "This effect
22 will probably not be any more serious than the effect of
23 heavier petroleum oils." Did I correctly read that?

24 A. You did.

25 Q. Am I correct in saying that as of 1960,

1 Monsanto had not directly studied the effects of the PCB
2 discharges on the aquatic life?

3 A. That is correct.

4 Q. And, in fact, the fourth paragraph down of
5 Mr. Garrett indicates that, "Based on the toxicity
6 studies of these fluids with laboratory animals, I would
7 not expect them to be very toxic to aquatic life. On the
8 other hand, this is a surmise on my part since we have no
9 tests on aquatic animals." Am I correct in reading that?

10 A. You did.

11 Q. Did from the reading of the documents that
12 you had available to you in your wworkrk at Monsanto, did
13 you find any documents that indicated the folks working
14 PCBs in the '50s and early '60s, considered what happened
15 to fish that may be contaminated, did anybody look at
16 that subject?

17 A. I found no such documents.

18 Q. Did you find any references to whether these
19 fish maybe consumed either by humans or by birds or other
20 creatures?

21 A. This is in the '50s and '60s?

22 Q. That's right.

23 A. I found no such documents.

24 MR. RUNNING: '60s before not 1968?

25 Q. (By Mr. Carlson) Yes, prior to your

1 becoming aware of Jensen's work.

2 A Yes.

3 MR. CARLSON: We will be offering Exhibit
4 32.

5 (Plaintiff's Deposition Exhibit 36 was marked)

6 Q. (By Mr. Carlson) Do you have Exhibit 36
7 there?

8 A. I do.

9 Q. And Exhibit 36 is a document dated October
10 19 of 1970?

11 A. October 19, yes.

12 Q. Have you seen this before?

13 A. Yes.

14 Q. Can you tell me what the first two pages
15 are?

16 A. It's a copy of a memo addressed to me by --
17 written by Mr. Wheeler on the subject of toxicity
18 research.

19 Q. And in that particular memo, there's a
20 number of itemized additional data that was needed?

21 A. Yes.

22 Q. Under item number 3, it reads, "Escape to
23 the environment cannot be prevented in all proposed
24 applications (including disposal of products containing
25 them)." First of all, did I correctly read that?

1 A. You did.

2 Q. Did that include the use of PCBs by die cast
3 companies?

4 A. You are asking me to guess as to what Mr.
5 Wheeler had in mind. I don't know what he meant by all
6 proposed applications.

7 MR. CARLSON: We'll offer Exhibit 36.

8 Q. (By Mr. Carlson) Was it found in 1970, that
9 in your 1242 hydraulic fluids -- strike that -- your
10 Aroclor 1242, 1242-Bs, and 1254s, that they contained
11 contaminants of chlorinated naphthalene?

12 A. No, there was no such finding.

13 Q. Do you remember receiving a memo from R. B.
14 Keller regarding chlorinated naphthalenes?

15 A. I believe I recall a memo.

16 Q. That same memo also was looking at whether
17 or not furans were preent, do you remember that?

18 A. In several Monsanto products --

19 Q. Right.

20 A. -- yes, I remember that.

21 Q. And you remember that at that time they did
22 not find my furans?

23 A. That is correct.

24 Q. Does that refresh your recollection of
25 whether or not they may have found naphthalene?

1 A. I recall the discovery of chlorine
2 naphthalenes in the chlorinated terphenyls. I do not
3 remember any reference to chlorinated naphthalenes in
4 PCBs.

5 Q. Terphenyls being -- strike that. Are you
6 aware that in January of 1971, Elmer Wheeler had written
7 to IBT regarding some pheasant reproduction that may have
8 been affected by PCBs?

9 A. Pheasant reproduction. I recall the topic
10 of discussion that he referred to. I don't at this
11 moment remember any specific letter to IBT.

12 Q. Do you recall it being found that pheasant
13 reproduction was being affected by exposure to PCBs?

14 A. I recall that, yes.

15 Q. And when the decision was made to market the
16 terphenyls in place of the biphenyls Pydraul 312, am I
17 correct in saying that your salespeople were told to sale
18 your biphenyl 312 first even though the terphenyls may be
19 available?

20 A. Yes. Those are paraphrase -- that question
21 is paraphrased, but in other words, the material already
22 in field warehouses would be moved out and followed by
23 the new material.

24 Q. At the time the new material was first being
25 marketed, was it expected by Monsanto that it would not

1 be an environmental contaminant?

2 A. It was expected that if it became a
3 contaminant, it would be more acceptable to the
4 environment than the PCBs. In other words, it was
5 perceived to be a step in the right direction.

6 Q. But your company was willing to market the
7 rest of its PCB fluid before it took this step?

8 MR. RUNNING: You mean if --

9 MR. CARLSON: That's right.

10 A. When properly used we saw no problem.

11 Q. (By Mr. Carlson) So the answer to my
12 question is yes?

13 A. Yes.

14 Q. By 1971, you knew that the Aroclor 1242 was
15 potentially damaging to our environment?

16 A. '72. Yes. Our studies showed that it did
17 effect birds, yes.

18 Q. And was it understood that the effect on the
19 birds, in part, was due to the biomagnification and
20 biocumulation that was occurring?

21 A. Well, the biomagnification process created
22 conditions where the amounts of PCBs that were ingested
23 by the birds would be such that they would be affected
24 especially in terms of their hatchability of their eggs,
25 shell thickness, and so on.

1 Q. So the concept of biomagnification was
2 understood in January of 1971?

3 A. Yes.

4 Q. As was the concept of biocumulation?

5 A. Yes.

6 (Plaintiff's Deposition Exhibit 37 was marked)

7 Q. (By Mr. Carlson) Do you have Exhibit Number
8 37?

9 A. I do.

10 Q. Have you had an opportunity to review that?

11 A. I have.

12 Q. Can you tell me what Exhibit 37 is?

13 A. It's a copy of a document. It's entitled
14 Industrial Hydraulic Fluids Transition Plan.

15 Q. Would you be kind enough to turn to page 25
16 for me?

17 MR. RUNNING: I'll object on foundation
18 until you establish he worked with this document or saw
19 this before.

20 Q. (By Mr. Carlson) Have you seen this
21 document before?

22 A. I have.

23 Q. On page 25, there is a statement, Policy on
24 Returned Fluids.

25 A. I do.

1 Q. And if you bear with me and see if I read it
2 accurately. "All customers should be discouraged from
3 draining present fluid from their machines. It is very
4 costly to refill machines and returned fluid will add to
5 our already overwhelming inventory of fluid for
6 incineration." Did I correctly read that?

7 A. That is correct.

8 Q. Did that policy on returned fluids as stated
9 in the document apply to the Pydraul 312 that was in use
10 in die cast companies?

11 A. It would apply but the procedure does permit
12 the return if you will read further.

13 Q. But the customers were to be discouraged
14 from returning it?

15 A. Yes. There was no reason to return unless
16 there were problems.

17 Q. Well, you hadn't had an incineration program
18 by that point, didn't you?

19 A. Oh, yes.

20 Q. And you knew that 1242 was a damage --
21 potential damage to the wildlife?

22 A. Potential but not if properly used.

23 Q. Well, let's go back to your ten part per
24 billion effluent standard, okay?

25 A. Yes, sir.

1 Q. You didn't tell your customers that that was
2 a standard -- Monsanto didn't?

3 A. I don't know that.

4 Q. okay. You are not aware of any regulatory
5 standards in 1971, on permissible or impermissible PCB
6 discharges?

7 A. That is correct.

8 Q. You knew that in washing floors even if you
9 are washing down sustains of hydraulic fluid that someone
10 was going to get into the environment?

11 A. Yes.

12 Q. You knew that this could biocumulate over
13 years in the food chain?

14 A. If it's of the higher chlorinated type.

15 Q. Okay. But you knew the 1242 was causing
16 this kind of damage?

17 A. I did not know that. How would I know that?

18 Q. Well, I thought you told me that the chicken
19 studies had been done by this time?

20 A. Well, the chickens were deliberately fed
21 1242, and an effect was noted. This tells us if birds
22 are exposed to 1242, you should see this kind of result.
23 There's a difference between a deliberately planned
24 exposure to the birds and what might happen to the
25 environment because other factors come into play.

1 Q. You had been advised that there were PCBs
2 found in brown pelicans?

3 A. Of the higher chlorinated types, yes.

4 Q. And of the perigan falcon?

5 A. Of the higher chlorinated types, yes.

6 Q. When you say of the higher chlorinated
7 types, you are going back again of the 1254, 1260
8 designation, aren't you?

9 A. Yes, I am.

10 Q. But what really was occurring is that there
11 were PCBs of higher chloro -- there were PCBs in these
12 birds of the same type that was in the 1242?

13 MR. RUNNING: Well, I object to that
14 characterization.

15 MR. CARLSON: Well, that's true, isn't it?

16 MR. RUNNING: You know the percentages in
17 the 1242 and you are must muddling the issue.

18 MR. CARLSON: No. Exactly what I'm saying
19 is exactly true. I know --

20 A. Some of them are present in both. The
21 quantities are very different.

22 Q. (By Mr. Carlson) I understand. But they
23 are there?

24 A. Yes.

25 Q. And depending upon your plant quality

1 control, you may have more higher chlorinated in 1242
2 sometimes than you it at others times?

3 A. Where.

4 Q. As the 1242 is being manufactured.

5 A. Well, it will vary a percent or two.

6 Q. Do you have your quality control records
7 showing the percentage of higher chlorinated biphenyls in
8 1242 -- does the company still have those?

9 MR. RUNNING: We produced records showing
10 the percentages.

11 MR. CARLSON: No, I'm talking about the
12 quality control.

13 MR. RUNNING: Well, the tests that were done
14 at the time. I don't know what you are referring to
15 quality control, but we produced those records.

16 MR. CARLSON: Okay.

17 Q. (By Mr. Carlson) Did your company do
18 day-to-day quality control on that?

19 A. Yes. Each batch of material undergoes
20 quality control.

21 Q. Okay.

22 A. But quality control did not include
23 determination of the types of PCBs in the mixture.

24 Q. Now, do you have any other exhibits there
25 before you?

1 A. Yes, I do. I have three more numbered
2 exhibits.

3 (Plaintiff's Deposition Exhibit 38 was marked)

4 Q. (By Mr. Carlson) Okay. Is the next one
5 Exhibit Number 38?

6 A. 38.

7 Q. And that is identified as what, sir?

8 A. This is a copy of a memorandum dated January
9 25, 1971, authored by N. T. Johnson and addressed to the
10 recipients listed on the first page.

11 Q. And on the bottom paragraph of the N. T.
12 Johnson, January 25, '71 memorandum, indicates that, the
13 company would prefer not to ship the new formulations to
14 any customer until the old formulations have been sold
15 out from the Queeny plant or warehouses. Is that fair
16 reading?

17 A. It does -- yes, that's fair.

18 MR. CARLSON: And I'll offer Exhibit 38.

19 (Plaintiff's Deposition Exhibit 39 was marked)

20 Q. (By Mr. Carlson) And you have Exhibit 39?

21 A. I do.

22 Q. And can you identify that for me, please?

23 A. This is a copy of a summary of the status of
24 the PCB environmental issue that was presented to
25 Monsanto's corporate management committee in November of

1 1971.

2 Q. Have you seen that document before?

3 A. I have.

4 Q. Is the information that's contained on
5 there, to the best of your knowledge, accurate?

6 A. It is.

7 Q. If you would turn to 2702, which is, I
8 think, about the third from the last page.

9 A. I have it.

10 Q. It shows 1972 sales of Pydraul fluids of
11 \$5.5 million?

12 A. It does.

13 Q. With a gross profit of 1.7 million?

14 A. It dose.

15 (Plaintiff's Deposition Exhibit 40 was marked)

16 Q. (By Mr. Carlson) Okay. And you have
17 Exhibit Number 40?

18 A. Yes.

19 Q. And can you identify that for me, please?

20 A. It's a copy of a memorandum addressed to Mr.
21 T. L. Gossage dated November 17, 1971, authored by Mr. C.
22 L. Bradford and N. T. Johnson.

23 Q. And would you be kind enough to turn to page
24 STR 006231? I guess it's page 8 of the projects
25 analysis.

1 A. I'm confused, I only have four pages.

2 MR. RUNNING: Let me interpose a foundation
3 objection. You haven't established that he used this
4 document at the time of his employment at Monsanto.

5 MR. CARLSON: Okay.

6 MR. RUNNING: Just that he's seen it, or
7 actually, you just asked him to read what it was.

8 MR. CARLSON: At this point, I don't think
9 I've asked him much of anything.

10 MR. RUNNING: Right, right.

11 Q. (By Mr. Carlson) Let's start with -- to
12 reidentify it. It is a document dated November 17 of
13 1971, to T. L. Gossage?

14 A. That is correct.

15 Q. By Bradford and Johnson?

16 A. Yes.

17 Q. Mr. Bradford at that time held what position
18 with the company?

19 A. He was the technical specialist in the group
20 that marketed functional fluids used as industrial
21 hydraulic fluids.

22 Q. And Mr. Johnson?

23 A. Mr. Johnson was his supervisor, and he was
24 the manager of marketing for those products.

25 Q. And if we turn to page 3, the third

1 paragraph, you've seen the document before, haven't you,
2 before today?

3 A. This is the first time I've seen this one.

4 Q. This one being this copy of it?

5 A. No, no, this document.

6 Q. I see. Is the memorandum of Mr. Bradford
7 and Mr. Johnson to Mr. Gossage the kind of memorandum
8 that you would expect people in that position to send to
9 Mr. Gossage?

10 A. Certainly. They reported to Mr. Gossage.
11 These are part of his team.

12 Q. And one of of their jobs was to report on
13 chlorinated terphenyls?

14 A. Yes.

15 Q. Okay.

16 MR. RUNNING: I don't object to the
17 document. I just object to him asking questions about it
18 until you lay a foundation.

19 MR. CARLSON: Okay.

20 Q. (By Mr. Carlson) And the third paragraph of
21 the last page on page 3 -- I'm sorry, second to last page
22 on page 3, first of all, it reads, "Since all other new
23 products would be compatible with the old, we would
24 recommend simply adding the new to the old as make-up."
25 First of all, technically, did that correspond with your

1 understanding at the time?

2 A. Yes.

3 Q. Was there anything different about your
4 competitors fluids at that point which would allow them
5 to be used with your products if a customer had so
6 chosen?

7 A. I don't know enough about the competitors
8 products to comment.

9 Q. It goes on, "This, of course, would mean
10 gradual loss to the environment of all PCTs and PCBs in
11 our current customers' system." Does it not?

12 A. It does say that.

13 Q. The people that wrote this memorandum, what
14 kind of people reported to them? Did salesforce report
15 to them?

16 A. Salesforce reported to Mr. Johnson. I'm not
17 aware of anyone reporting to Mr. Bradford.

18 Q. So Mr. Johnson would receive his information
19 from the people that were out in the field calling on
20 the customers?

21 A. Well, that would be one source of
22 information.

23 Q. Then he goes on, "The alternative would be
24 to replace their current charge of fluid with new fluids
25 and incinerate their old fluid, all at our expense."

1 That's what the document says anyway, correct?

2 A. Yes, it does.

3 Q. And did Monsanto at some point at Monsanto's
4 expense offer to incinerate the fluids that were in use
5 in your customers die cast systems were Pydraul 312 or
6 F-9 was in use?

7 A. I don't know.

8 Q. And then, "A rough estimate of the amount of
9 fluid involved in that operation would be 20 million
10 pounds?"

11 A. That's what is printed in here.

12 Q. And is that data consistent with information
13 that was made available to you when you were looking at
14 how much fluid was out into the field?

15 A. Yes.

16 MR. CARLSON: We will offer Exhibit Number
17 40.

18 (At this time, there was a ten minute break in the
19 deposition)

20 (Plaintiff's Deposition Exhibit 42 was marked)

21 Q. (By Mr. Carlson) We've had a brief break,
22 and, Mr. Papageorge, during that break have you had an
23 opportunity to review what has been marked as Plaintiff's
24 Exhibit Number 42?

25 A. I have.

1 Q. And can you tell me what the document is,
2 sir?

3 A. This is a copy of a reasearch report from
4 Monsanto's research laboratory, and it's dated February
5 12, 1971, and it describes the activities during the
6 previous year, 1970, by that laboratory in support of the
7 PCB studies.

8 Q. On the summary of the work, there is a
9 number of points that are made starting with water and
10 sediment, etcetera. Do you see what I'm making reference
11 to?

12 A. I see that, yes.

13 Q. And in that particular reference, it's
14 indicated that, "Water and sediment from four
15 manufacturing sites, 13 customer sites, 12 U.S. rivers,
16 one U.K. river, and Lake Michigan" were looked at and
17 Aroclor was found?

18 A. Well, it doesn't say that. It just says
19 that's the kind of sample they looked at.

20 Q. Well, I'm sorry. Up above -- I guess we
21 have to read it in context with the previous paragraph.
22 The previous paragraph reads, "The attached table
23 summarizes results of the work done during 1970 on the
24 detectionof PCBs in environmental materials. It covers a
25 total of 496 samples which were analyzed during 1970.

1 PCBs typical of our Aroclor products were found in" then
2 water and sediment --

3 A. That is correct.

4 Q. Okay. In the manufacturing sites where the
5 Aroclors were found, Aroclor is being -- strike that --
6 where the PCBs were found, were those your manufacturing
7 sites?

8 MR. RUNNING: They are listed on the table.

9 MR. CARLSON: Yes, I know.

10 A. I will have to look at the tables, sir.

11 Q. (By Mr. Carlson) Sure.

12 A. I know that some of them were. Yes, I can
13 see four of them already, yes. Those are -- four of them
14 are Monsanto sites.

15 Q. And, for example, at the Anniston plant,
16 PCBs of the 1242 variety were found, I believe, in the
17 Snow Creek water as shown on the first page of the table?

18 A. I see that, yes.

19 Q. I may be reading this wrong, and certainly I
20 don't want to characterize something that doesn't exist,
21 but it appears to me that with the exception of the
22 Delaware -- with the exception of your Pensacola plant --
23 that was your plant, wasn't it or was that somebody
24 elses?

25 A. That is Monsanto's plant.

1 Q. That 1242s were found just about everywhere
2 the samples were taken?

3 MR. RUNNING: Objection, that's
4 mischaracterization.

5 MR. CARLSON: Well, I supposed we can go
6 through it.

7 Q. (By Mr. Carlson) 1242 was found at the
8 Coomerige plant?

9 A. Yes.

10 MR. RUNNING: Are you referring just to the
11 four manufacturing sites, then I'll withdraw my
12 objection, but if you are talking about all the sampling.

13 MR. CARLSON: No, I'm just talking about the
14 sampling that appears on these tables with the exception
15 of the non-industrial sampling that was done.

16 MR. RUNNING: If you are referring to the
17 environmental sampling, I'm obtain my objection.

18 MR. CARLSON: Okay. We can go through them.

19 Q. (By Mr. Carlson) You -- that is the
20 Appleton Coted Paper Company was looked at and ten
21 samples were taken?

22 A. Well, it's not very clear. I read that as
23 the ten referring to air samples. I don't know what
24 happened in that water entry there.

25 Q. Okay.

1 A. Unless that's a typographical error, because
2 there's nothing else across the page that fits the water
3 role.

4 Q. Okay. 1242 was found at the Appleton Coated
5 Paper Company?

6 A. Yes.

7 MR. RUNNING: In the air.

8 A. In the air.

9 Q. (By Mr. Carlson) At General Motor 1242 was
10 found in the water?

11 A. General Motors, which -- there's two
12 listings.

13 Q. I'm sorry, the first listing, General Motor
14 Corp. --

15 A. General Motors --

16 Q. -- the Central Foundry Division.

17 A. -- Bedford, Indiana, there is 13 water
18 samples, and they found 1242 and 1248.

19 Q. And then there is a General Motors sample
20 that was looked at, a mold sand?

21 A. Yes.

22 Q. And 1242 was there?

23 A. Yes.

24 Q. And then at Ford they looked at some mold
25 sand and found 1242?

1 A. Yes.

2 Q. At Johnson Motors in Waukegan, Illinois,
3 they looked at water and found 1242?

4 A. Yes.

5 Q. Wisconsin Steel, they looked at water and
6 found 1242?

7 A. Yes.

8 Q. At the Wheeling Pittsburgh Plant, they
9 looked at water and found 1242?

10 A. Yes.

11 Q. And then at Lester Coating, they looked at
12 the storm sewer water and found 1242?

13 A. Yes.

14 Q. At Central Diecasting, they looked at water
15 and found 1242?

16 A. Yes.

17 Q. Timken Bearing, they looked at water and
18 found 1242?

19 A. Yes.

20 Q. U.S. Steel, they looked at water and found
21 1242?

22 A. Yes.

23 Q. At JARD Co, Inc., they looked at water and
24 found 1242?

25 A. Yes.

1 Q. They looked at General Electric and they did
2 not find 1242 at General Electric?

3 A. That is correct.

4 Q. When they looked at the fish composite from
5 the Manitowoc River, there was a PCB level found in -- is
6 that just referencing that was found in parts per
7 million?

8 A. Yes.

9 Q. There was no attempt to identify which of
10 the Aroclors those PCBs came from?

11 MR. RUNNING: Well, that's not true.

12 MR. CARLSON: Okay. I'm sorry.

13 Q. (By Mr. Carlson) Well, the document says
14 1244?

15 A. Yes.

16 Q. Okay. And would that be because of the
17 higher chlorinated PCBs found in 1254? Higher
18 chlorinated prior PCBs found in 1254, that's why it's
19 reported as coming from 1254?

20 A. Well, this is what the analytical chemist
21 saw from the results of his instrument. The chemical
22 fingerprint resembles Aroclor 1254, and that's what he
23 reported.

24 Q. Okay. Do we know where the PCBs came from
25 that ended up in the Manitowoc River and got into those

1 fish?

2 A. I don't know.

3 Q. For the Kewaunee fish composite, do you know
4 if there's a die cast company in the area where the
5 Kewaunee River is located?

6 A. I do not.

7 Q. Do you know if they used 1242 in that area?

8 A. I don't know.

9 Q. Was an attempt made to identify where the
10 PCBs were coming from for each of the readings of PCBs in
11 fish that are reported on this table?

12 A. I am aware of an attempt being made. I
13 don't know how successful that effort was.

14 Q. For example, as I understand it, the
15 Wisconsin Aluminum --

16 MR. RUNNING: No, this is Wisconsin Alumni
17 Research Foundation.

18 Q. (By Mr. Carlson) Oh, I'm sorry, the Alumni
19 Research Foundation is one that -- you are right -- that
20 sent that material in?

21 A. Yes. They sent samples to Monsanto, shared
22 samples with us to compare results.

23 Q. Okay. If a die casting operation today was
24 allowing 1242 Pydraul fluid that was in its -- strike
25 that. The Aroclor 1242 that was in its Pydraul 312 fluid

1 to get into a river, would you expect that over a period
2 of time the PCBs would be picked up by the fish?

3 A. Yes, over a period of time if the river had
4 fish in it.

5 Q. Sure. We are assuming that there's
6 something swimming around in there.

7 A. Yes.

8 Q. And if those fish were analyzed with the
9 presence of PCBs, would the fingerprint look like the
10 1254?

11 A. Very likely not.

12 Q. Do you have any documents that you've
13 reviewed that address that particular question?

14 A. There are reports from Monsanto's
15 laboratories addressing that type of question, however it
16 was in rats and chickens.

17 Q. That's the direct feeding studies?

18 A. Well, it is direct feeding, but what I'd
19 like to point out, the test animal was fed a given kind
20 of PCB.

21 Q. Right.

22 A. Its tissue was analyzed with time, six
23 months, one year, and so on, and it was noted in those
24 reports that the identity of the original PCB was
25 disappearing as time went on in the tissue of these tests

1 animals --

2 Q. Okay.

3 A. -- which is analogous to what happens in
4 fish. It might ingest Aroclor 1242, but in time, it
5 shows up in its tissue if analyzed.

6 Q. Right.

7 A. It has the fingerprint of a 1254.

8 Q. I see. That process also is affected by the
9 amount of biodegradation that occurs in the environment
10 before the fish is exposed to the PCBs also?

11 A. Certainly. It accelerates it. It happens
12 quicker than --

13 Q. We had discussed on various occasions the
14 concept of landfilling unwanted PCBs as a topic, and I
15 just had to let you know what subject I'm addressing.
16 Are there landfills today that are having to be dug up as
17 a result of PCBs being in them, which at the time those
18 PCBs were placed in those landfills was perfectly
19 acceptable practice?

20 A. I'm not personally aware of any landfill
21 being dug up, to use your expression, because of PCBs.

22 Q. Are you aware of work done on the sediment
23 of lakes in order to clean up the area as a result of PCB
24 deposition?

25 A. I don't know of any personally.

1 Q. Have you read about it?

2 A. No.

3 Q. Are there PCBs found in the Waukegan Harbor?

4 A. Yes.

5 Q. There was a lawsuit being the EPA and
6 Outboard Marina about that, wasn't there?

7 A. Yes.

8 Q. As a matter of fact, Monsanto was a part of
9 that for a while?

10 MR. RUNNING: But then dismissed by the EPA.

11 Q. (By Mr. Carlson) And the products liability
12 case put you on hold with an agreement that Statute of
13 Limitations has been told?

14 MR. RUNNING: The case was dismissed.

15 MR. CARLSON: The products liability case is
16 still potentially remaining. You can't be sued. I
17 understand --

18 MR. RUNNING: The case against Monsanto has
19 been dismissed, and its been dismissed for eight years.

20 MR. CARLSON: The allegation against
21 Monsanto under the regulation has been dismissed, but the
22 potential products liability case by Outboard Marina
23 against you, against Monsanto, is not pending at the
24 present, but as I understand it, there's an agreement
25 that the Statute of Limitations has been told as to that

1 also, so that case can be brought.

2 Q. (By Mr. Carlson) Now, regardless of all of
3 that, all I want to know is were you deposed in that
4 case?

5 A. Yes.

6 Q. And were you familiar with the environmental
7 problems that prompted the EPAs actions?

8 A. At the time I was, of course, much more
9 familiar. I had forgotten some of the details.

10 Q. Did it involve PCBs in the Waukegan Harbor?

11 A. Yes.

12 Q. Coming from the die cast operations of
13 Outboard Marina?

14 A. That was alleged. I personally don't know.

15 Q. Do you recall being asked to provide some
16 advice on handling of PCB fluids for a company whose
17 discharge water was into the Sheboygan River?

18 A. Sheboygan River.

19 MR. RUNNING: Does he recall -- I'm sorry.

20 MR. CARLSON: Does he recall consulting
21 about or hearing about a situation where the die cast
22 company's discharge water was going into the Sheboygan
23 River.

24 A. Of course, I recall the river. I don't
25 recall any specific incident, but that kind of question

1 was fairly common in the early '70s. I, at the moment,
2 don't recall a specific.

3 (Off-the-record discussion.)

4 Q. (By Mr. Carlson) Mr. Papageorge, you've
5 been most tolerant, I appreciate it, and let me just ask
6 you a few more questions, and we'll see if we can't
7 finish this up. In December of 1971, is it fair to say
8 that one of the reasons the company elected not to have
9 customers return Pydraul 312 or F-9, or at least to
10 discourage it, was to aid in maintaining the company's
11 market share in the hydraulic business?

12 A. I don't know enough about the market factors
13 that would lead the marketing managers to arrive at a
14 position like that. I don't know how that would effect
15 market share, personally.

16 Q. That's left to folks in marketing and sales?

17 A. That's their job, yes, sir.

18 Q. And you don't recall reviewing any Monsanto
19 documents addressing that particular question?

20 A. I have not, no.

21 Q. Was there at some point in time, to your
22 recollection, in 1972, dibenzo furans found in foreign
23 PCB material?

24 MR. RUNNING: Manufactured by Monsanto or
25 other companies?

1 MR. CARLSON: Other companies.

2 A. Your date confuses me because the presence
3 of furans in foreign material was found by the Dutch
4 researchers as early as 1970.

5 Q. (By Mr. Carlson) Okay.

6 A. There may have been other studies that
7 confirmed that, but that was not new information in '72.

8 Q. Have you read studies in which it is
9 reportedly found that furans have been found as a result
10 of combustion of PCBs?

11 A. I don't recall reading reports addressing
12 that.

13 Q. From your look, it appears as if you
14 remember reading something address that?

15 A. No, I recall discussions which the
16 scientists that are knowledgeable were talking about the
17 possibility for such a reaction to take place. I do not
18 remember any scientific report that supported that
19 thought.

20 Q. Have you actually gone out and done research
21 on that issue?

22 A. I have perused the literature when I was
23 aware that it was present. I didn't have any particular
24 research product addressing only that.

25 Q. Is it your testimony that there is no

1 research literature indicating that furans are produced
2 by combustion of PCBs?

3 A. No. It's my testimony I'm not aware of such
4 literature.

5 Q. Do you remember Dr. Kelley looking at
6 laboratory results of the Monsanto PCB workers back in
7 1972?

8 A. I don't recall. Is this a blood study --

9 Q. Yes.

10 A. -- or urine study?

11 Q. Yes, both.

12 A. I recall a study of that type. The details,
13 I don't recall any longer.

14 Q. Do you recall being reported that there were
15 abnormal results in the hematric glucose and pollen
16 esters in lab results from your PCB workers.

17 A. I don't remember those details, no.

18 Q. Do you recall Monsanto paying for the
19 incineration costs of Firestone, fire resistant fluids
20 from their heat exchanger systems?

21 A. No.

22 Q. In instances such as with Firestone or
23 General Motors or Outboard Marine, you are not saying it
24 didn't happen, it's just that you didn't have contact
25 with that particular subject?

1 A. That's right.

2 MR. RUNNNG: Well, I don't -- you mean
3 instances such as -- you only named three companies. Are
4 you talking about paying for incineration?

5 MR. CARLSON: That's right.

6 Q. (By Mr. Carlson) What happened to the
7 incinerator that was used to incinerate PCBs?

8 A. It was shut down in 1977, when Monsanto
9 stopped producing PCBs. And at that time, it was in such
10 bad need of repair that it was dismantled.

11 Q. Do you recall at that same time there being
12 discussions about whether or not incineration on the PCBs
13 were producing dioxins and furans?

14 A. I wasn't personally involved at that time.

15 Q. Do you recall a letter from IBT to Dr.
16 George Lebatos at Monsanto enclosing the results of a
17 four-day static fish toxicity study?

18 A. I recall a letter from IBT and I recall that
19 the results were not clear at all, and, in fact, the
20 lasting memory that I have is that the test was a
21 failure. I don't know if that is the same report that
22 you have.

23 Q. Do you remember that there was a particular
24 fish toxicity study addressing 1242?

25 A. Yes, along with other PCBs.

1 Q. And at 100 parts per million, it appeared as
2 though all the rainbow trout were killed within 96 hours?

3 A. I don't remember that specific detail.

4 Q. Or do you remember all the bluegills being
5 killed within 48 hours?

6 A. I don't remember the detail.

7 Q. At the area where the incinerator used to
8 be, what does it look like now?

9 A. Today?

10 Q. Yes.

11 A. It's a cleared area with crushed white
12 limestone on it.

13 Q. Did Monsanto use some material as absorbants
14 for PCBs in situations where there were spills or leaks,
15 that sort of thing?

16 A. Certainly.

17 Q. What kind of material was used?

18 A. The most common was a clay that activated
19 clay bentonite, in particular. We also used a such
20 common thing as sawdust, sand. That pretty well covers
21 it.

22 Q. What did you do with the sand when you
23 mopped up some PCBs with it?

24 A. Oh, we burried it. We put it in steel drums
25 and then buried it in Monsanto's landfill.

1 Q. What years was that done?

2 A. It was as long as the operation continued.

3 Q. And what is activated clay?

4 A. It's a clay that has the ability to absorb
5 or pick up chemicals readily rather than just filter them
6 and keep them from going through. This actually has a
7 property where the -- in this case, the PCBs cling
8 tenaciously to it.

9 Q. I guess I'm a little bit interested. If,
10 for example, in the early 1960s, if you mopped up some
11 PCB fluid with -- in used sand as an absorbant material,
12 why did you put it in steel drums and bury it?

13 A. Because we felt that was the proper thing to
14 do. We sure didn't want to scatter it around all over
15 the back yard.

16 Q. Did you think it was potentially harmful in
17 that situation?

18 A. Well, I don't know that it is considered in
19 those specific terms. It is just a bad practice to treat
20 chemicals that way and it is a common practice in the
21 plant to bury chemicals like PCBs.

22 Q. You've seen some of these commercial
23 absorbing materials that are on the market that you can
24 use if you spill from motor oil from changing the oil in
25 your car, put it on your garage floor and mop it up, that

1 kind of thing?

2 A. Yes, sir, like kitty litter type thing?

3 Q. Sure. Yes. As a matter of fact,
4 vermiculite was used as absorbing material for PCBs also,
5 wasn't it?

6 A. That's a good material, yes.

7 Q. Did any of your product literature ever
8 advise your customers what to do with any absorbing
9 material that was used to clean up any PCB spill?

10 A. I have seen literature that describes the
11 use of proper landfills. At the moment, I don't recall
12 what product line that literature was describing.

13 Q. There wasn't any literature that told your
14 customers that if they had a Pydraul 312 leak in their
15 die cast company and they cleaned it up by putting some
16 sand on it, that they would have to put it in steel drums
17 and bury it in the landfill, was there?

18 A. I haven't seen that. I don't know whether it
19 exists or not.

20 MR. CARLSON: That's all the questions I
21 have. I thank you very much.

22 MR. RUNNING: Let's take a break. I may
23 have a little bit of questions.

24 (At this time, there was a short break in the
25 deposition.)

1 MR. RUNNING: No questions.
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NOTARIAL CERTIFICATE

STATE OF MISSOURI)
)
COUNTY OF ST. CHARLES) ss

I, NICKI J. MADISON, a Professional Reporter and a duly commissioned Notary Public within and for the State of Missouri, do hereby certify that pursuant to Notice there came before me at the law offices of Caruthers, Herzog, Crebs and McGhee, in the City of St. Louis, State of Missouri,

WILLIAM B. PAPAGEORGE,

who was by me first duly sworn to testify to the truth and nothing but the truth of all knowledge touching and concerning the matters in controversy in this cause; that the witness was thereupon carefully examined under oath and said examination was reduced to writing by me; that the signature of the witness was waived by agreement of all parties; and that this deposition is a true and correct record of the testimony given by the witness.

IN WITNESS WHEREOF, I have hereunto set my hand and seal this 10th day of April, 1991.

My commission expires June 27, 1994.

Notary Public