

STATE OF WISCONSIN : CIRCUIT COURT : MILWAUKEE COUNTY  
BRANCH 8

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STROH DIE CASTING COMPANY,

Plaintiff,

VOLUME XVIII (p.m.)

v.

Case No. 639-887

MONSANTO COMPANY,

Defendant.

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May 9, 1991

Honorable Michael J. Barron  
Circuit Judge Presiding

A-P-P-E-A-R-A-N-C-E-S

RIORDAN, DRIVELLO, CARLSON, MENTKOWSKI, STEEVES by  
DONALD CARLSON AND JOHN PENDERGAST, appeared on behalf of the  
Plaintiff.

BORGELT, POWELL, PETERSON, FRAUEN by JOSEPH McDEVITT  
and KIRKLAND AND ELLIS by ANDREW RUNNING appeared on behalf  
of the Defendant.

\* \* \*

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I N D E X

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| Kenneth Hendrics   | Cross (Mr. Carlson)    | 3208        |
|                    | Redirect (Mr. Running) | 3224        |
|                    | Recross (Mr. Carlson)  | 3229        |
| William Papageorge | Cross (Mr. Carlson)    | 3234        |

1 THE COURT: Okay. Thank you, sir.

2 THE WITNESS: Thank you.

3 (The witness is excused.)

4 THE COURT: Are we now ready to resume,  
5 Mr. Papageorge?

6 MR. CARLSON: If I can can find my notes,  
7 I'll be ready.

8 THE COURT: We didn't have any cross  
9 except the one question?

10 MR. CARLSON: That's right. Bear with me  
11 just a second, Judge.

12 WILLIAM PAPAGEORGE, called as a witness  
13 herein, being previously duly sworn, was examined  
14 and testified as follows:

15 CROSS EXAMINATION

16 BY MR. CARLSON:

17 Q When you and I last had a chance to talk to each  
18 other -- I quite frankly forgot how many days ago it  
19 was -- I asked you to point out a particular kind of  
20 information for me in any documents, specifically  
21 whether or not Monsanto in a document had advised  
22 it's 312 customers that the 312 contained the  
23 5 chlorine PCB. Do you recall that as our last  
24 subject?

25 A Yes, I do.

1 Q I'd also asked you, sir, if you could point out any  
2 Monsanto's documents that were sent out in which  
3 Monsanto advised its 312 customer that the Pydraul  
4 was damaging the environment as opposed to being a  
5 contaminant.

6 A I'm not aware of any such document.

7 Q Now, if we could go back -- Oh, I think we'll start  
8 in 1966. And in 1966 as I understand your  
9 testimony, that was when you first found out that  
10 PCBs were present in the environment.

11 A What we found in 1966 was a report from the  
12 laboratory in Sweden that the investigators thought  
13 they saw something that looked like a PCB that was  
14 in the environment. They were not certain.

15 Q I'd like to show you one of the Monsanto documents  
16 now marked Plaintiff's Exhibit 487. Would you be  
17 kind enough to review it so that you have an  
18 appreciation of what the document is and then  
19 identify it for our record please.

20 A This is a tabulation covering the -- Entitled PCB  
21 Manufacturing and Sales Monsanto Industrial  
22 Chemicals Company 1967 through 1978 (Thousands of  
23 Pounds). Is that sufficient?

24 Q That's fine. Thank you. Can you tell me in  
25 1967 what was the total production of PCBs by

1 Monsanto?

2 A I'm having difficulty finding a total number. I do  
3 see a footnote that indicates some numbers are  
4 missing.

5 Q Okay.

6 (Whereupon, there was a change of  
7 reporters.)

8 \*

9 \*

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24 \*

25 \*

1 Q Okay. Would you turn, I think, to the second --

2 A Oh, yes.

3 Q -- page and see if that helps.

4 A I see it now on the second page.

5 Q Okay.

6 A 1967.

7 Q And the total production of PCBs that year was what?

8 A 75,309,000 pounds.

9 Q And then do you know -- Strike that.

10 1968, how many pounds were manufactured?

11 A 82,854,000 pounds.

12 Q Then in '69 your production went down a little bit?

13 A It did.

14 Q And it went down to what?

15 A 76,389,000 pounds.

16 Q It was in 1969 that your company recognized that PCBs  
17 were a worldwide ecological problem?

18 A It was by late 1969 we established that it was such a  
19 problem.

20 Q And then in 1970 what were your production levels?

21 A 85,054,000 pounds.

22 Q Was that the highest level of production of PCBs that  
23 you're aware of?

24 A Yes.

25 MR. CARLSON: I may have to get set up

1 here, Your Honor. Your Honor, I would offer --  
2 Strike that. I would offer into evidence Exhibit  
3 487.

4 MR. RUNNING: No objection.

5 THE COURT: So received.

6 MR. CARLSON: And I would also offer  
7 487.2, which is a blowup of the second page of that  
8 document.

9 THE COURT: Any time the original goes in  
10 evidence, any blowups automatically do.

11 MR. CARLSON: Thank you.

12 MR. CARLSON:

13 Q Mr. Papageorge, in 1970 -- 1967 did your company  
14 start to investigate the problems or potential  
15 problems of PCBs being in the environment?

16 A The emphasis in 1967 was on developing good  
17 analytical methodology. That could be the start of  
18 the investigation, yes.

19 Q And then in 1968 you were actually in the process of  
20 investigating? Or not?

21 A Well, the studies were extended. There were some  
22 toxicity studies started.

23 Q Okay.

24 A The effort at analytical methodology was continuing.  
25 That's about the extent of it for 1968.

1 Q And then in 1969 you started to get some results from  
2 your work?

3 A Yes.

4 Q And by 1970 the company recognized that it was going  
5 to have to get out of the PCB business eventually?

6 A Not all of it. Selectively.

7 Q Okay. In 1970 were PCBs profitable?

8 A Yes.

9 Q As a matter of fact, they have been in each year  
10 leading up to that time as well; weren't they?

11 A Certainly.

12 Q The hydraulic fluids by themselves probably didn't  
13 generate enough revenue for your company to stay in  
14 PCB production; wouldn't that be true?

15 A That's true.

16 Q In other words, really the PCB use that the company  
17 made money from was in dielectrics?

18 A That's not -- They made money from each of the  
19 product lines. It's not limited only to the  
20 dielectric use.

21 Q Most of the profits were from the dielectric use?

22 A As I recall, they were, and that's based on sheer  
23 volume. The amounts sold there were the greater.

24 Q Do you have Exhibits 1009 and 1010, the letters from  
25 europe in 1966?

1 A I wouldn't know where to look.

2 Q Okay.

3 THE COURT: Did you say 10 or 11?

4 MR. CARLSON: 1010 and 1011 (sic). I'll  
5 see if we can use our copies of it.

6 MR. McDEVITT: Don, they're on the floor  
7 behind.

8 MR. CARLSON: On the floor behind? Okay.  
9 Let me just bypass that for a second. We have got to  
10 get set up here.

11 MR. CARLSON:

12 Q I would like to show you what's been marked as  
13 Plaintiff's Exhibit 828. It's a document that was  
14 produced for us by your company. And after you have  
15 had a chance to review it, let me know if you  
16 recognize it.

17 A I recall this document, yes.

18 Q And you recognize that it came from a publication,  
19 "The New Scientist"?

20 A That's what's noted in handwriting in the upper  
21 right-hand corner.

22 Q That was published in December of 1966?

23 A That's what it states here.

24 MR. CARLSON: Your Honor, I would offer  
25 Exhibit 828 into evidence.

1 MR. RUNNING: No objection.

2 THE COURT: So received.

3 MR. CARLSON:

4 Q Could you just take a look at this briefly. It was  
5 reported that the Swedish researchers had identified  
6 PCBs in this article?

7 A Yes.

8 Q And there is reference to where PCBs may come from?

9 A There is a reference, yes.

10 Q Then there is reference to where some of the PCBs  
11 were found?

12 A Yes.

13 Q And at that point it was indicated that they did not  
14 know how much of the substance was dangerous or  
15 fatal?

16 A That is correct.

17 Q Then there was an indication that if it's comparable  
18 with DDT, then the limit would be 0.5 milligrams per  
19 cubic meter of air. What does that mean?

20 A Well, your first words -- It said "when comparable"  
21 or --

22 Q It says, "If it's comparable."

23 A "If"?

24 Q That's right.

25 A The person who wrote this article -- Just as it

1 reads, if it's comparable to DDT in its properties,  
2 then an equal or similar limit would be appropriate.

3 Q And then in this 1966 article there is reference to a  
4 dead eagle had at least ten times as high a  
5 concentration in its body. Did you understand or do  
6 you understand that's ten times as high as what?

7 A It obviously refers to the previous number there, .5  
8 milligram per cubic meter of air, but I have  
9 difficulty understanding how you translate cubic  
10 meters of air to weight of a solid material, such as  
11 the body of an eagle.

12 Q It goes through on the next column and indicates that  
13 in Sweden PCB is known to be used in electrical  
14 installations, correct?

15 A That is correct.

16 Q Hydraulic oils?

17 A Correct.

18 Q High-temperature and high-pressure lubricating oils?

19 A Correct.

20 Q Paints?

21 A Yes.

22 Q Lacquers?

23 A Yes.

24 Q And varnishes?

25 A Yes.

1 Q Those are all uses that occurred here in the United  
2 States as well; didn't they?

3 A I -- For all of them except that reference to  
4 high-temperature/high-pressure lubricating oils. No.  
5 That was a use in the United States. Yes, those uses  
6 were also applicable to the United States.

7 Q There is reference to the material, that it does not  
8 seem to be used as an insecticide, correct?

9 A Let me find that.

10 Q Sure. It's about halfway through -- not quite  
11 halfway through the first full paragraph on the upper  
12 right.

13 A Oh, I found it. Yes.

14 Q When did -- When was PCB fluid first used as a  
15 pesticide extender?

16 A As best I could determine, it was in the middle '50s,  
17 following a Department of Agriculture study that  
18 recommended that use.

19 Q And did your company do environmental testing before  
20 it was used as a pesticide extender?

21 A No.

22 Q It's referenced here that the material may enter the  
23 body directly through the skin?

24 A It does.

25 Q And by breathing or by way of food?

1 A Yes.

2 Q And it says, "especially fish"?

3 A Yes.

4 Q And, in fact, here in the United States that also  
5 turned out to be true; didn't it?

6 A Yes.

7 Q It also indicates that the PCB is much harder to  
8 break down than DDT. Was that true?

9 A Some of the PCBs are harder than DDT to break down.

10 Q Did your company know that in 1966?

11 A No.

12 Q Because you had not done any biodegrading testing by  
13 that point, had you?

14 A That's true, too, but we had not done any studies on  
15 DDT either, so we couldn't make a comparison.

16 Q You could have gone to the literature to look at DDT?

17 A That I don't know.

18 Q We'll discuss that later. The -- Strike that.

19 It is indicated here that it can,  
20 therefore, be presumed to be widespread throughout  
21 the world, referencing to the PCB contamination?

22 A That's what it says, yes.

23 Q And that was information that was available not only  
24 to manufacturers but also to anyone who happened to  
25 read "The New Scientist," I guess?

1 A That's true.

2 Q There was also a conclusion reported in 1966 that a  
3 child may -- that is, the daughter of the scientist  
4 may have gotten her PCBs through her mother's milk?  
5 That's in the first paragraph of the article?

6 A I see that, yes.

7 Q And of course, as it turns out, in fact that is a way  
8 that PCBs are transmitted to offspring? One of the  
9 ways?

10 A That's what I am told.

11 Q And that is one of the ways that DDT was transmitted  
12 to offspring?

13 A That's what I understand.

14 Q Who in 1966 had the responsibility -- What individual  
15 in 1966 had the responsibility of reviewing the  
16 information that was available in that year with  
17 regards to the potential harm that your product,  
18 PCBs, could cause?

19 A The harm as it relates to animals and aquatic life  
20 and humans would be evaluated by the Monsanto  
21 Corporate Medical Department based on any information  
22 they could generate or have available to make such an  
23 evaluation.

24 Q And who was in charge of the Medical Department in  
25 1966?

1 A Dr. Emmet Kelly.

2 Q The gentleman who is with us?

3 A Yes, sir.

4 Q Okay. When is the first document that -- Strike  
5 that.

6 What is the date of the first document  
7 that you can point me to that the Medical Department  
8 reviewed the information that was contained in "The  
9 New Scientist" article? Or that kind of information?

10 A I don't know that a document was prepared. That  
11 would not be the normal way things would be done.  
12 There may be a document. I am not aware of one.

13 (Switch in reporters.)  
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Q Now, I didn't reference, and it may be there -- I mean, I'm not trying to say anything that isn't supportable -- but I didn't see any reference in the article in the "New Scientist" to the word "phenol," P-H-E-N-O-L. Perhaps you can go through that and just let me know if that's there or not.

A It is not. They use the acronym PCB.

Q Okay. In the article it is indicated that, "The Swedish research worker has expressed concern over the increased amounts of polychlorinated biphenol."

A I see that, yes.

Q Now, in response to, or was interested in your response to some of Mr. Running's questions with regards to biphenol. Now, we probably should try to find his exhibits. They might be back here.

A Start here.

Q And do you have the exhibits before you, sir?

A I do.

THE COURT: This 1008 and 1009 now?

MR. CARLSON: That is correct. And it's our Defendant's Exhibit 10 and Exhibit 11 -- just 10.

Q All right. Have you had a chance to look that over again?

A Yes, I have.

Q With regards to the December 1st of 1966 letter, Dear

1 George. What particular product or line of products is  
2 he referencing?

3 A Well, I see references to three different kinds of  
4 products.

5 Q Okay.

6 A I see a reference to Monsanto's trademark Aroclor --

7 Q All right.

8 A -- which covers chlorinated biphenyls and chlorinated  
9 terphenyls and mixtures of the two. I also see in the  
10 postscript statement a reference to pen to chlorophenyl  
11 and sodium pentachlorophenate. I don't believe other  
12 chemicals are mentioned.

13 Q And in this letter he references in the postscript, "Is  
14 it likely that the chlorinated phenols show similar  
15 chromatographic traces to the chlorinated biphenols?"

16 A It does say that, yes.

17 Q Now, the letter was from Mr. Wood?

18 A Yes.

19 Q And did George call Mr. Wood and discuss with him what  
20 particular product line it was that was being reported  
21 on?

22 A Yes, they had a discussion.

23 Q And certainly by that time, or at least a couple days  
24 later the "New Scientist" article had come out clearly  
25 identifying the product involved as biphenyls, that is

1 PCBs as we discussed them today?

2 A Yes.

3 Q So if we have a lag time -- it seems to me we have a lag  
4 time of maybe five days or so between this letter and  
5 the article in the "New Scientist"?

6 A Looks to me like about two weeks from the date shown.

7 Q Would you be kind enough to look at Defendant's  
8 Exhibit -- I'm sorry, Plaintiff's Exhibit Number 11?

9 A I have it.

10 Q Okay. And this is the letter of November 28th of 1966?

11 A Yes.

12 Q So this predates both the article and the letter with  
13 the postscript?

14 A Yes.

15 Q It's addressed to Monsanto Europe?

16 A It is.

17 MR. CARLSON: We would offer Exhibit Number  
18 11, Your Honor. I think it's already in evidence.

19 MR. RUNNING: It is.

20 THE COURT: If it was not received before,  
21 it's received now.

22 Do you want the lights off?

23 MR. CARLSON: No, I think this will be all  
24 right.

25 MR. CARLSON:

1 Q And in this particular letter it references the  
2 polychlorinated biphenols in Paragraph 1?

3 A It does.

4 Q By then if we go into the text of the letter it talks  
5 about the information that was conveyed by Jensen in his  
6 work?

7 A It does quote that information, yes.

8 Q They use the word "biphenol" again in there, don't they?

9 A They do.

10 Q But over on the left-hand column somebody has written  
11 in -- can you read that -- it's "biphenyls" not  
12 "biphenol."

13 A That's what it looks like, yes.

14 Q Do you know who did that?

15 A I just don't recognize the penmanship right now.

16 Q Okay. If we look towards the bottom of this letter it  
17 references that "PCB is broken down considerably slower  
18 than DDT."

19 A Yes.

20 Q How did the writer of this article know that?

21 A Well --

22 MR. RUNNING: It's a letter.

23 MR. CARLSON: You're right. How did the --  
24 no, that portion of it, I think, came from the  
25 translation of an article. But regardless of that --

1 MR. RUNNING: I object to the question. It's  
2 a translation of a meeting presentation. That's a  
3 newspaper article.

4 THE COURT: I couldn't hear a word you're  
5 saying.

6 MR. RUNNING: I guess I object to the form of  
7 the question.

8 THE COURT: On what grounds?

9 MR. RUNNING: He's mischaracterized it. It  
10 should be clear what he's referring to.

11 MR. CARLSON:

12 Q All I want to find out is whoever wrote the sentence,  
13 "PCB is broken down considerably slower than DDT," how  
14 did they know that? Were there studies that had been  
15 done by that time?

16 A I have no information that tells me such a study was  
17 done. The reference you're referring to is a quote --

18 Q I understand.

19 A -- from a newspaper in Sweden, which was, the article of  
20 which was describing a meeting that was held in  
21 Stockholm.

22 Q I understand. What I'm trying to find out is if someone  
23 is reporting that PCBs are broken down slower than DDT,  
24 how do they know that if your company hadn't done any of  
25 that work yet?

1 A There was no study to support that statement.

2 Q Is the statement true?

3 A For some PCBs, yes.

4 Q Now, in 1966 -- I don't think it serves any real purpose  
5 to go through the entire letter, but in 1966 the  
6 question of whether or not PCBs were a contaminant in  
7 the ecology was pretty well known, at least as reported,  
8 wasn't it?

9 A The presence of a material that, to the researchers who  
10 did the work, resembled PCBs was known for that, for  
11 those samples at that time. There was still in the  
12 minds of those researchers some questions as to was it  
13 just exactly what was that material.

14 Q Well, in one of the things that came to my mind in  
15 looking at this is I didn't see any reference to any  
16 particular kind of PCB; that is, if it's a 3-chlorinated  
17 or 5-chlorinated, or 7-chlorinated in any of this  
18 material in 1966. Have you seen any reference to any  
19 particular kind of PCB being identified?

20 A In these --

21 Q Yes.

22 A -- documents?

23 Q Yes.

24 A I do not.

25 Q With regards to the information that your company had in

1 1966, it was concluded that, I suppose, there is no  
2 doubt that what had been termed as polychlorinated  
3 biphenyls is equal to Aroclor, correct?

4 A You said information our company had. You mean as a  
5 result of receiving this letter?

6 Q Yes.

7 A Yes, that is correct.

8 Q And there's also no doubt that the published facts will  
9 cause considerable unrest in several quarters. Also  
10 correct?

11 A That is what it says, yes.

12 Q And what unrest was that, sir?

13 A Well, that's the opinion of the person that wrote this  
14 letter. I just can't put myself in his shoes. I just  
15 don't know what he had in mind.

16 Q And then the writer of the letter also indicates that in  
17 the last paragraph -- I guess I will have to start with  
18 the sentence, "We probably will have to have." Do you  
19 see where that begins? It's on the right-hand side just  
20 a little bit about above midway down the last paragraph.

21 A I have difficulty finding that.

22 Q Okay.

23 A Oh, I see it now. Yeah. I see it.

24 Q "We probably will have to have Aroclor registered with  
25 the Swedish Board of Poisonous Substances, and the

1 industry will have to be particularly careful in  
2 handling the material. The problem in some cases, of  
3 course, may be to the disposal of used material. I  
4 understand that there hardly exists a convenient method  
5 of destroying Aroclor, and that possibly burying  
6 unusable material may be the only answer."

7 Is that what was also reported to your company?

8 A Yes, sir.

9 Q And at that particular point in time was your company,  
10 in any of its documents given to customers of your  
11 Pydraul, telling them that they would have to bury their  
12 Aroclors?

13 A I recall some bulletins referring to landfills. At the  
14 moment I don't know exactly which bulletins that  
15 statement appeared in.

16 Q I haven't seen it on any of the labels of the Pydraul  
17 312. Do you ever recall seeing it on any of the Pydraul  
18 312 or F-9 labels?

19 A That kind of information was at that time never on a  
20 product label by anyone.

21 MR. CARLSON: Move to strike anything "that  
22 was not on the label" as being a voluntary statement and  
23 not responsive.

24 THE COURT: The part about someone else is  
25 stricken. The balance of the answer will stand.

MR. CARLSON:

Q Mr. Papageorge, I'd like to show you what I have here marked as Exhibit 216. I'm going to have to get a copy with the actual sticker on it, but it's got a handwritten 216 on it with that exhibit number.

Do you recall that your company became aware of the fact that chlorinated hydrocarbons were found in British wildlife?

A Yes.

Q And do you recall that this information was reported back in October of 1967?

A Yes.

Q This is information, of course, that your company had available to it?

A Yes.

MR. CARLSON: I would offer Exhibit 216 into evidence, Your Honor.

MR. RUNNING: No objection.

THE COURT: So received.

MR. CARLSON:

Q Will you turn to the first page. I just want to make sure. This information was available in October of 1967?

A That's the date of the publication, yes, sir.

Q If we take a look at the top, which, I guess, we can

1 call a summary or an abstract of the article. It  
2 indicates that -- why don't you read it to us.

3 A "Polychlorinated biphenyl compounds have been detected  
4 in British wildlife. In birds' livers and eggs they are  
5 often in greater quantities than organochlorine  
6 pesticide residues. Polychlorinated biphenyls are known  
7 to be toxic, and their detection in wildlife raises the  
8 question of adverse effects they may have."

9 Q Now, it was found, was it not, that the PCBs -- or  
10 Strike that. It was being reported in this article as  
11 well that PCBs were being found in the environment?

12 A Yes.

13 Q And by October of 1967 there wasn't any question in  
14 Monsanto's mind that PCB was a contaminant in the  
15 environment, was there?

16 A In 1967 there were reports, this being one of them, that  
17 indicated contamination in the environment, yes.

18 Q Your company in 1967 did not advise its Pydraul  
19 customers that Pydraul contained the environmental  
20 contaminant PCBs, did it?

21 A In 1967, no.

22 Q I'd like to show you what has been marked as Exhibit 982  
23 and ask you if you'd be kind enough to review that for  
24 me.

25 A I have read it.

1 Q And what is it, sir?

2 A It's a copy of a letter from the United States  
3 Department of Interior Fish and Wildlife Service, Bureau  
4 of Sports Fisheries and Wildlife, Denver, Colorado,  
5 dated January 16, 1968 addressed to Monsanto Chemical  
6 Company, and signed by Mr. Richard A. Wilson, Senior  
7 Research Chemist (Biochemistry).

8 Q And can you tell me, sir, what the subject of that  
9 letter is?

10 A Mr. Wilson is pointing out that it's been brought to  
11 their attention that there's evidence of chlorinated  
12 biphenyl and chlorinated polyphenyl compounds have been  
13 found in avian and animal tissue. They were in the  
14 process of investigating, and they were asking for  
15 samples.

16 Q What are avian tissues?

17 A Tissues from birds.

18 Q And this was work that had been done or completed by  
19 January 16th of 1968?

20 A Well, obviously, yes.

21 Q Okay. And this came from the Department of the  
22 Interior?

23 A Yes.

24 MR. CARLSON: I'll offer Exhibit 982 into  
25 evidence, Your Honor.

MR. RUNNING: No objection.

THE COURT: So received.

MR. CARLSON:

Q Now, this particular work was done in the United States, was it not?

A Not necessarily.

Q Okay. It was something that at least information came to you from the governmental agency?

A Yes.

Q Now, when did, going back in time, when did Jensen start his work that resulted in PCBs being identified in the environment?

A As best as I can determine, he started that DDT study of his about 1964.

Q Okay. Do you recall the year that he found the peaks that were identified as PCBs?

A It was 1966 that he reported, as I said earlier, what he thought or was identifying as PCBs was not quite certain.

Q Now, when did your company first attempt to do any independent wildlife studies to determine the presence of PCBs?

A Will you help me in your definition of "independent wildlife studies"?

Q Where your own chemists, to start with, did that work.

1 A Well, Monsanto did not sponsor any wildlife studies.  
2 They did receive samples of tissues from wildlife from  
3 government laboratories, and that activity started about  
4 1969, '70.

5 Q So that somewhere between three and four years after  
6 PCBs were reported in the environment, Monsanto chemists  
7 or scientists started to look at slides of tissue that,  
8 or information regarding -- Strike that.

9 It was three or four years after Jensen's work was  
10 published that you first started within your company  
11 looking at the question of whether or not there had been  
12 wildlife contaminated with PCBs?

13 A We were looking at samples from wildlife.

14 Q And that was about three to four years after Jensen's  
15 work was published?

16 A Let me think. That was late '66 or was during '67. It  
17 took that much time to get the methodology, yes. In '69  
18 the methodology was established.

19 Q During that time lag, did you send any material, that is  
20 wildlife material, over to Sweden to let those folks do  
21 the work to see if the PCBs that they found in their  
22 wildlife was also in wildlife here in the United States?

23 A We didn't have any to send.

24 Q Could have gone out and caught lake trout, I suppose.

25 A Well, we were busy working on the methodology that was

1 reliable, and until that was accomplished any analysis  
2 would have been meaningless.

3 Q I see. So through all of 1967 anything that would have  
4 been done by Jensen would have been meaningless if you  
5 had sent it to him?

6 A I wouldn't characterize it that way, no. I don't know  
7 that it would add anything to Mr. Jensen's  
8 understanding.

9 Q How about your company's understanding?

10 A Well, we were getting information from Dr. Risebrough  
11 and Dr. Peakall on wildlife samples, and those appear to  
12 be typical of the kinds of things that Dr. Jensen would  
13 have discovered.

14 Q That was in '68?

15 A Well, we were working with Dr. Risebrough and had a  
16 dialogue going. His answers were not available until  
17 1968. So he too had a time period to get his laboratory  
18 tuned in to this.

19 Q Risebrough's work was reported in 1968?

20 A Yes.

21 Q Okay. What about the folks that found the contamination  
22 in the British birds that we had previously looked at?

23 A Yes.

24 Q Those folks were also available with their methodology,  
25 weren't they?

1 A That's right, we were communicating with them also.

2 Q But during this period of time -- Strike that. Was  
3 there any question at Monsanto in 1967 that the article  
4 that appeared in -- Strike that -- the article that  
5 appeared in 1967 regarding damage to the environment by  
6 PCBs was, in fact, inaccurate? Was there some thought  
7 that that work was inaccurate?

8 A No.

9 Q Then it seems to me that, sir, perhaps in 19, beginning  
10 of 1968 your company could have put a warning study on,  
11 warning sticker on your product comparable to the one  
12 that apparently was used in May of 1970?

13 A Well, we didn't think that one study from England and a  
14 questionable study from Sweden was enough solid evidence  
15 to put together the right words to put on the label. We  
16 just didn't have enough.

17 Q Well, if you wanted to have enough to put on the label,  
18 you could have sent some tissues from wildlife species  
19 here in the United States to those folks that had  
20 developed the methodology, couldn't you?

21 A Well, they hadn't quite developed. They were still  
22 developing. Mr. Jensen's methodology wasn't the best  
23 yet. It was at the forefront, but it was not completed.

24 Q Well, he had in found it in peaks, you remember that?

25 A Well, he found what he thought was a PCB. He did not go

on record specifically saying it is a PCB.

Q Well, everybody that reported on it certainly said it was a PCB?

A Well those are non-technical articles written by newspaper people.

Q I see. And those folks that wrote those articles were right, weren't they?

A It turned out that they were, but they still didn't describe the type of PCB, you'll note. They didn't say it was the higher chlorinated types.

Q That's an interesting point. In 19, the beginning of 1968 you would have no basis for saying that it was higher chlorinated or lower chlorinated PCBs that were being found?

A That's right.

Q So then why not put a label on all of your PCBs saying these are environmental contaminants?

A That would be, maybe a dishonest statement. May not be the truth.

Q But it was the truth, wasn't it?

A What was the truth?

Q The fact that the PCBs were environmental contaminants.

A Not all of them.

Q Well, some portions of the 1242 certainly were, weren't they?

1 A Yes, the higher chlorinated.

2 Q Was your company aware of the Aroclor 1242 chicken  
3 study that was done -- I don't know, chicken, some  
4 kind of bird that was studied back in 1963?

5 A I don't recall in 1963 a chicken study. I don't  
6 know.

7 Q We've previously had received in evidence what we've  
8 marked Exhibit 13.

9 I lost track of -- what Defendant's  
10 exhibit number is to that. 1074. Got more exhibit  
11 numbers than we know what to do with.

12 (Switch in reporters.)

13 MR. CARLSON:

14 Q Why don't you use my copy. And you'll recall this is  
15 also a 1968 document of your company, this one dated  
16 December 30th of 1968?

17 A It is.

18 Q And this is the wildlife people memo. Do you recall  
19 that? That's one you discussed with Mr. Running?

20 A I don't know that -- the expression "wildlife  
21 people."

22 Q Take a look at the second paragraph, the first  
23 sentence, it begins, "These wildlife people."

24 A Oh, I see.

25 Q And in that particular notation it says that these

1 folks have to be taken seriously, they have taken the  
2 DDT industry to court in Wisconsin; do you see that?

3 A I do.

4 Q Okay. Now, with regards to pressure, okay -- Mr.  
5 Running asked you a number of questions when you were  
6 on the stand about pressure your company was feeling  
7 to do certain things. There is all sorts of pressure  
8 that can be exerted on a company to make certain  
9 economic decisions; aren't there?

10 A Yes.

11 Q There can be legislative pressure?

12 A Yes.

13 Q There can be internal profit or loss pressure?

14 A Certainly.

15 Q There can be perceived pressure for maintaining the  
16 image of the company?

17 A Certainly.

18 Q There can be pressure to do the right thing?

19 A Yes.

20 Q There is all sorts of forces that are operating here;  
21 aren't there?

22 A That is correct.

23 Q One of the things that you folks did want to do, if  
24 you could, was to maintain some portion of the  
25 Aroclor business? That was one of the things that

1 you folks were hoping for; wasn't it?

2 THE COURT: I am sorry. One thing what?

3 MR. CARLSON:

4 Q -- that you folks were hoping for, was to maintain  
5 some portion of the Aroclor business when everything  
6 came out about PCBs and what they could cause?

7 A To maintain it under the right conditions.

8 Q And one of the kinds of pressure your company was  
9 feeling to start to take some of the products off the  
10 market was the pressure that was being asserted by  
11 the wildlife people, as they have been described  
12 here?

13 A That was certainly considered, yes.

14 Q Because if your folks -- Strike that.

15 If PCBs had been taken to court, like DDT  
16 was being taken to court, that was not in the best  
17 interests of the company, was it?

18 A I suspect not.

19 Q So that would be a kind of pressure operating on the  
20 folks at Monsanto to make decisions regarding whether  
21 or not to continue to manufacture a product?

22 A Yes. I don't know that I would call it pressure  
23 but -- All right. It is a consideration, yes.

24 Q As a matter of fact, about that period of time you  
25 came to find out that the law surrounding duties of

1 manufacture and the potential liability were  
2 changing; weren't they?

3 A I'm not familiar with that area, so I can't comment.

4 Q Certainly legal pressure does have the potential to  
5 motivate a company to make a decision?

6 A Well, yes. That's always --

7 Q I mean, it would be kind of silly if it didn't, it  
8 seems to me?

9 A That is right.

10 Q Now, when it says here that "the problem is that  
11 Aroclor has been identified along with DDT residues  
12 and, hence, we are almost certain of being drawn into  
13 the court records, and may also be one of the  
14 scapegoats of the DDT defense," what did that mean?

15 A Well, you're asking me to guess as to what Dr.

16 Richard had in his mind at the time.

17 Q All -- Did you talk to Dr. Richard about PCBs in  
18 general when you assumed the role of the person in  
19 charge of PCBs?

20 A Yes, sir.

21 Q Okay. And with regards to becoming scapegoats of the  
22 DDT defense, what did you understand that to mean?

23 A Well, I don't recall any discussion where the word  
24 "scapegoat" was used. I do recall a discussion with  
25 Dr. Richard, and he emphasized the DDT situation and

1       how closely PCBs were being identified with it, and  
2       he expressed his concern that because of this  
3       confusion the brush would be used on both products,  
4       and it would be very difficult to respond unless we  
5       got better information than we had.

6 Q     Now, with regards -- And we'll get into this probably  
7       at some later point in time. The fact of the matter  
8       was that when DDT was being litigated, they were  
9       saying, hey, it's PCBs that are causing these  
10      problems?

11 A     Some of that was going on, yes.

12 Q     As a matter of fact, your company called some people  
13      to task in the pesticide/insecticide industry for  
14      doing that; didn't you?

15 A     Yes.

16 Q     Told them to go fight their own battles in a sense?

17 A     I wasn't personally involved there but --

18 Q     That's what happened, though; isn't it?

19 A     That's what I was told, yes.

20 Q     When it says that the wildlife people have accused  
21      Aroclor of doing all the bad things of DDT, to some  
22      extent that's exactly what we find to be true; isn't  
23      it? There is a lot of things that PCBs do to the  
24      environment that DDT also did?

25 A     There were similarities, yes.

1 Q And there is also similarities in the -- some  
2 similarities in the molecular structure of the  
3 material, too; isn't there?

4 A I -- I have a problem with the word "molecular  
5 structure." You mean the structure of the molecule?

6 Q Yes.

7 A There are -- There are some similarities in the  
8 chemistry, yes.

9 Q And if we start with the basic thing, they're both  
10 chlorinated hydrocarbons?

11 A They are part of a large family that fits that  
12 description.

13 THE COURT: Good time to break.

14 MR. CARLSON: Yeah.

15 (Recess had.)

16 THE COURT: During the break one of the  
17 things we took up was, you know, when is this case  
18 going to end. Our best guesstimate right now is next  
19 Wednesday. Monday afternoon, Tuesday -- Hopefully  
20 finish the evidence on Tuesday. And there will be a  
21 lot of work that will be done by the Court and the  
22 judge -- and the attorneys relative to what's called  
23 the instructions conference.

24 That is, it's my responsibility to draft  
25 the verdict and also the legal instructions to you on

1 law. But the lawyers have input, a lot of input, on  
2 both of those decisions. And you can bet, as you  
3 have probably seen throughout this trial, there will  
4 be a lot of argument about what those instructions  
5 are going to consist of. But at least at this time  
6 we are pretty sure that Wednesday should be the day,  
7 at the latest on Thursday.

8 Okay. Resume cross-examination of Mr.  
9 Papageorge.

10 MR. CARLSON: Thank you, Your Honor.

11 MR. CARLSON:

12 Q Mr. Papageorge, would you be kind enough to review  
13 Plaintiff's Exhibit 951 to familiarize yourself with  
14 it, please.

15 A I have read it.

16 Q Okay. This is a memo from Bill Richard; is it not?

17 A It is.

18 MR. CARLSON: I would offer Exhibit 951  
19 into evidence, Your Honor.

20 MR. RUNNING: No objection.

21 THE COURT: So received.

22 MR. CARLSON:

23 Q With regards to this particular memorandum, the  
24 subject is "Aroclor Testing"?

25 A It is.

1 Q And this memorandum is December 9, 1968?

2 A Yes.

3 Q This is approximately two years after the Jensen work  
4 became published?

5 A Yes.

6 Q And two years after the Jensen work was published, as  
7 the first objective it is stated, "Determine whether  
8 Jensen and Co.," company, "really have Aroclor or not  
9 in tissue of birds"?

10 A It says that.

11 Q And Bill Richard at that time held what position?

12 A He was the Director of Research for those products  
13 that were sold as -- that contained PCBs and were  
14 sold as industrial-type fluids.

15 Q So two years after Jensen's work was published there  
16 was an objective to see whether or not Jensen was  
17 really right; is that right?

18 A Yes, that's a repetition of --

19 Q Sure.

20 A -- our program.

21 Q Right. And then Item No. 3 says, "Determine whether  
22 Aroclor is an enzyme inducer which affects steroids  
23 and Ca metabolism." And then he goes on and says, "I  
24 really don't know what I'm saying here, but you can  
25 clarify." Have you talked to Bill Richard about

1 that?

2 A Yes, I have.

3 Q Okay. And was there work done to see if Aroclor was  
4 an enzyme inducer?

5 A It was made indirectly through the chicken exposure  
6 studies.

7 Q Okay. That was the chicken exposure studies that in  
8 1971 it was reported that 1242 decreased the  
9 reproductive abilities of chickens? Amongst other  
10 things?

11 A Amongst other things, yes, sir.

12 Q And then in Item No. 4 it says, "Keep track of what  
13 government research labs are doing in way of testing,  
14 plus interpret their results for Monsanto," correct?

15 A That is correct.

16 Q One of the ways to keep track of what the  
17 government's doing is to, first of all, keep in touch  
18 with them?

19 A Certainly.

20 Q Another way is to give them samples of products so  
21 that they will keep in touch with you?

22 A Certainly.

23 Q And then there is also reference to "keep track" --  
24 in No. 5, "Keep track of what government research  
25 labs are finding in the way of geographical location

1 of so-called PCB peaks, and in what species of  
2 animals." With regards to that particular notation,  
3 apparently there is some government research labs  
4 that had identified PCB peaks as of the date of this  
5 memorandum?

6 A Yes.

7 Q And do you recall in what particular species those  
8 were found?

9 A I recall the presence -- the determination that PCBs  
10 were in some of the Great Lakes fish as determined in  
11 a Duluth, Minnesota, water laboratory. I recall  
12 the -- Let's see, this is December, '68.

13 Q Right.

14 A That's the only government lab that I am aware of  
15 that at that point in time had reported any findings.

16 Q Now, Bill Richard, what position did he hold in the  
17 research center?

18 A Director of Research for industrial fluids products.

19 Q So he was actually the one that was the head of that  
20 program?

21 A Which program?

22 Q The research program to determine whether or not  
23 Jensen's work was adequate -- was right?

24 A No. No. Well, no. No. Bill Richard was  
25 responsible for the development of products to be

1 used in industry. But not responsible for the  
2 analytical methodology development or animal toxicity  
3 testing programs.

4 MR. CARLSON: Do you know what direction  
5 I would go to get your large blowup of the sticker?

6 MR. RUNNING: Which sticker?

7 MR. CARLSON: The environmental.

8 MR. CARLSON:

9 Q With regards to the environmental sticker, as of  
10 19 -- December of 1968 it would be correct to say  
11 that some studies have shown that polychlorinated  
12 biphenyls may be an environmental contaminant?  
13 A Yes. But the word "some" would only cover three or  
14 four.

15 (Switch in reporters.)  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

1 Q Of course, at that point were those that were looking  
2 for PCB. It would also be correct to say that all  
3 studies looking for PCB had found them to be an  
4 environmental contaminant?

5 A No, there were more laboratories looking that didn't  
6 find it than laboratories looking and did find it.

7 Q I see. Now, with regards to the question of when your  
8 company was doing it's work, would you be kind enough to  
9 look at Plaintiff's Exhibit 2006.

10 I think for the purpose of brevity I will try very  
11 hard, with Mr. Running and Mr. McDevitt watching me, not  
12 to take anything out of context, but if you read the  
13 whole document, we'll be here for the rest of the  
14 afternoon. But I would like you to familiarize yourself  
15 with it.

16 A I don't recall ever seeing this document before.

17 Q You do not recall it?

18 A It does not ring any bells.

19 MR. CARLSON: Your Honor, I would offer  
20 Exhibit 2006. It's one of the internal Monsanto  
21 documents produced during the course of this litigation.

22 MR. RUNNING: Just a moment.

23 MR. CARLSON: Sure.

24 MR. RUNNING: No objection.

25 THE COURT: So received.

MR. CARLSON:

1  
2 Q Can you identify what that document is for us?

3 A It's a copy of a handwritten report entitled "Aroclor -  
4 Wildlife," dated -- looks like January 2, 1969, with a  
5 subtitle "S. Tucker's report to W. Richard."

6 Q Okay. And S. Tucker was who, sir?

7 A Scott Tucker was the research chemist responsible for  
8 the analytical methodology development, and he reported  
9 to Dr. Robert Keller.

10 Q And with regards to what was being reported, it was  
11 found -- if you'd be kind enough to turn to the fourth  
12 page, Item Number 3.

13 A I see it.

14 Q And would you be kind enough -- can you read your copy  
15 of it?

16 A It's not clear.

17 Q Okay. "After close reviewing the available literature,  
18 I find it difficult to dispute the verification of the  
19 interfering peaks as PCBs."

20 A That is what it states, yes.

21 Q And this particular document, memorandum, was dated  
22 what, sir?

23 THE COURT: He said January 2, 1969.

24 MR. CARLSON: Thank you.

25 Q So that by the first of the year, 1969, your company was

1 satisfied that PCBs being found in the environment were,  
2 reportedly found in the environment were, in fact, PCBs,  
3 correct?

4 A Well, that's what the opinion of Dr. Tucker was, but the  
5 next sentence expresses further that he had not  
6 demonstrated this in our laboratories, to quote someone  
7 here.

8 Q Right. Now this is almost, what, we're into the third  
9 year after Jensen's work?

10 A Well, the very first day of the third year.

11 Q I'd like to have you look at Plaintiff's Exhibit 963.  
12 Would you be kind enough to review that document.

13 Can you identify the document for me, sir?

14 A It's a copy of a Monsanto memorandum dated April 7, 1969  
15 addressed to Dr. Richard and others in Monsanto, and  
16 written by Mr. E.P. Wheeler. And attached to it is a  
17 report by Robert L. Metcalf at the Industrial Biotest  
18 Laboratory, Chicago.

19 MR. CARLSON: Offer Exhibit 963, Your Honor.

20 MR. RUNNING: No objection.

21 THE COURT: So received.

22 MR. CARLSON:

23 Q On the bottom of the second to the last page there is a  
24 section for conclusions and suggestions.

25 A I have found it.

1 Q And with regards to that it begins, "It seems to the  
2 writer that the evidence regarding the PCB effects on  
3 environmental quality is sufficiently substantial,  
4 widespread, and alarming to require immediate corrective  
5 action on the part of Monsanto."

6 Did I correctly read that?

7 A Yes.

8 Q It goes on to say, "Defensive measures presently  
9 underway will do little, if anything, to refute the  
10 evidence already presented," correct?

11 A That is correct.

12 Q What defensive measures had been underway?

13 A By this date, which is early '69 it consisted of the  
14 analytical methodology development and the placement of  
15 animal and bird toxicity studies.

16 Q By placement that is that they were underway?

17 A Yes.

18 Q Now, the memo does not reference any particular type of  
19 PCB as being a cause of the environmental, or causing  
20 the effects on environmental quality, does it?

21 A It does not.

22 Q And at that time you were not advising your Aroclor 1242  
23 customers of the information that your company had with  
24 regard to the PCBs affecting the environmental quality,  
25 were you?

1 A Not at that time, no.

2 Q As a matter of fact, it was more than a year later  
3 before you used this environmental sticker that's been  
4 presented to us?

5 A That is correct.

6 Q Before you will have a copy of Exhibit 971. Maybe you  
7 won't have it before you.

8 A I am having difficulty finding it. Not what I'm looking  
9 for.

10 Q I'm sorry, I thought it was there.

11 MR. McDEVITT: What number are you looking  
12 for, Don?

13 MR. CARLSON: 971. I want the September 9th  
14 of '69 memorandum from Richard to Wheeler. Okay. Thank  
15 you.

16 Our records would indicate, Your Honor, that  
17 Exhibit 971 is in evidence.

18 MR. RUNNING: Is that the September 5th memo?

19 MR. CARLSON: Yes, September 9th.

20 MR. RUNNING: I think that's right.

21 THE COURT: Well if it's not, it will be  
22 received now.

23 MR. CARLSON: Okay.

24 Q We've identified Bill Richard, I think we identified, or  
25 you identified Elmer Wheeler at some other time in your

1 testimony. Maybe just to refresh my recollection, what  
2 position did Mr. Wheeler hold in 1969?

3 A Mr. Wheeler was a member of Monsanto's Corporate Medical  
4 Department, and as I remember he had the title of  
5 Manager/Environmental Health.

6 Q And the subject of this particular memorandum was  
7 "Defense of Aroclor F. Fluids," correct?

8 A That is correct.

9 Q "F" standing for functional?

10 A Yes.

11 Q And there was a general policy stated in this  
12 memorandum. Would you be kind enough to read it for us?

13 A I will. "Make the Government, States and University  
14 prove their case, but avoid as much confrontation as  
15 possible. Comply and work with public officials to meet  
16 or exceed requirements ahead of time. Adverse publicity  
17 and competition are the real weapons."

18 Q Thank you. Now, with regard to the question of whether  
19 or not your company was feeling any pressure to do  
20 anything about taking your product off the market.

21 Certainly by September of 1969 your company was  
22 aware that the government was looking at the Aroclors,  
23 correct?

24 A In some departments, their laboratories, yes.

25 Q You understood that some state governmental agencies

1 were looking at potential hazards of the Aroclors?

2 A Yes.

3 Q And that universities were looking at potential hazards  
4 of the Aroclors?

5 A Yes.

6 Q And when the statement is made make these entities  
7 "prove their case," that was Monsanto's way of saying we  
8 don't have to do anything until they have proven their  
9 case. Isn't that what Mr. Richard is reporting here?

10 A No, sir that's a misrepresentation. First of all, it  
11 represents one man's use of words to express a position  
12 which really amounts to when faced with data, make  
13 certain that Monsanto has equal or better capability for  
14 developing the same data, such that when considering  
15 numbers offered by government, states or universities,  
16 that the numbers are meaningful and accurate. That is  
17 what he meant by "prove the case" rather than speculate.

18 Q Okay. And if they proved their case, then what?

19 A Then we take appropriate action based on the good data.

20 Q Okay. In the meantime your company looked at, you know,  
21 what the probable outcome was going to be?

22 A I'm sorry.

23 Q Your company was looking at what the probable outcome of  
24 this expected work by these agencies was going to be?

25 A Yes.

Q And in the second of the listed probable outcomes it indicates "We can't defend versus everything. Some animals or fish or insects will be harmed."

That was what your company thought would probably, one of the probable results of this work would be, correct?

A That's what Dr. Richard thought at that time, yes.

Q So even though your company knew that it was probable that the work by these governmental agencies would result in at least these findings, your company, as of that time, was not putting any warnings on your product with regards to potential contamination of the environment, was it, as of September '69?

A No.

Q One of the things that also was being conducted at that time was the WARF study; is that correct?

A Yes.

Q And it was expected that the Aroclor 1242 would be found?

A No, the question was raised will it be found.

Q Well, on the memorandum it said, "WARF Studies on DDT," and then "Aroclor 1254 will be found," exclamation point.

A Yeah.

Q Okay. And "Aroclor 1242 will be found," question mark?

1 A Yes, sir.

2 Q At that time had your company done biodegradation  
3 studies, that is, the breakdown of 1242?

4 A Not yet.

5 Q Not yet. Okay.

6 A They had started them, but had no answers.

7 Q And then if you'll turn to Page 3. Your company was  
8 aware of the fact that there was possible pollution by  
9 customers' plant operation?

10 A Yes.

11 Q Based on knowledge of plant practices that had been in  
12 existence and thought appropriate historically?

13 A Yes.

14 Q And one of your large customers was Johnson Motors.  
15 That was the one in Waukegan?

16 A They are listed here, and they were a large customer,  
17 yes.

18 Q And it indicates that there would be expected leakage of  
19 their machines?

20 A Yes.

21 Q And, in fact, that did happen, didn't it?

22 A Yup.

23 Q Now, the leakage that's reported here, there is external  
24 leakage, is it?

25 A The word "external" implies leaving the area of use and

entering the open environment.

Q Okay. And that information was known because of the way that companies had designed their waste handling system as of 1969, correct, or their water discharge systems?

A Would you repeat the question?

Q Yeah. I think that's fair. It was understood that there would be external leakage because as of 1969 it was known that the fluid handling procedures in the die cast industry were such that some of the PCBs would be lost outside the plant?

MR. RUNNING: Could I see that exhibit?

MR. CARLSON: Sure.

THE WITNESS: Well, you will note this column is entitled "Possible."

MR. CARLSON:

Q Right.

A There was no hard evidence to establish that it was actually happening. And the intent here is to highlight the areas in which we were to do some studies, and do some communicating, and become more familiar with actually what was going on.

Q Now, with regards to possible or probable conclusions on hydraulic leakage, there is reference to, "Product could be caught at machines, but will take a lot of cleanup work with customers. Will have to have replacement

1 product -- with less sensitive components. Work from  
2 this base on cleanup to prevent more pollution  
3 problems."

4 Now, that's what the probable conclusion was as  
5 reported by Mr. Richard, correct?

6 A Yes.

7 Q And the reason that he references that the "product  
8 could be caught at machines" is that prior to this time,  
9 because of the lack of knowledge about PCBs, customers  
10 weren't necessarily putting dikes around their machines,  
11 barriers around the machines?

12 A Some of them, yes.

13 Q And your company had not recommended to its customers in  
14 any of your literature regarding your fluids that that  
15 was necessary?

16 A I don't recall any specific reference to diking.

17 Q Or had you made any reference to the use of collection  
18 ditches in any of your literature around machines by  
19 that time?

20 MR. McDEVITT: Trenches?

21 MR. CARLSON: Trenches.

22 THE WITNESS: There were some bulletins that  
23 contained references to capturing the material. At the  
24 moment I don't remember the exact bulletins that this  
25 appeared in.

MR. CARLSON:

Q Well, I can't represent to you that I've seen every bulletin you folks put out over the years, but with regards to those, the only thing I can think of was that in some of the bulletins you talked about how to separate Pydraul from water if it had already been collected. Is that what you're thinking of?

A That's part of the theme.

Q Okay.

A Don't waste, collect it, clean it up, reuse it, all of these things are covered in these bulletins.

Q But by 1969 I don't recall any information in any of your technical bulletins advising customers that they should put trenches around the machines to recover the fluid.

A That is correct.

Q What were the shrimp experiments in west Florida that were going to be, in quotation marks, "aired" some time soon?

A Well, this referred to the shrimp studies by the federal laboratory in Gulf Breeze, Florida.

Q When it says, "Must expect them to be aired," did you folks know what the results of those were at that point?

A Yes, we were talking with the director of the laboratory, and he told us the results of the studies,

1 and indicated that he was going to report them either in  
2 a technical publication or a popular press.

3 Q Is that the study that referenced the juvenile shrimp  
4 that were being killed as a result of low concentration  
5 levels of PCBs?

6 A That is the study.

7 Q How much in advance of the study -- Strike that. How  
8 much in advance of the publication of the study did your  
9 company have knowledge of it?

10 A I don't remember when it was officially published. We  
11 knew about it in about the summer of '69. So, I don't  
12 know -- I don't remember when it was published.

13 Q With regards to the pollution abatement plan that your  
14 company started to work on, do you have Exhibit 1075  
15 before you?

16 A Yes, I have it.

17 Q I have to get another copy of it. Probably skipped  
18 ahead, that's why.

19 With regards to that, this was one that was being  
20 developed as of November of 1969, correct?

21 A Yes.

22 Q And one of the things that was done when the information  
23 was put together was there was a series of drawings of  
24 what the different chemicals involved look like. Do you  
25 recall that?

1 A Yes.

2 Q And one of the chemicals that was drawn at that time was  
3 terphenyl. Do you recall that? I think you can turn  
4 the page. Page 3.

5 A Yes.

6 Q And terphenyl at that time had been used or sold under  
7 the name Santowax?

8 A The terphenyl itself, yes, sir.

9 Q Yes. And had your company done any environmental  
10 testing or long-term testing of terphenyls as of  
11 November of 1969?

12 A No.

13 Q In this particular document, we now have in November of  
14 1969 a problem, "Damage to the ecological system by  
15 contamination from polychlorinated biphenyl." Did I  
16 correctly read that?

17 A I'm trying to find it here.

18 Q I'm sorry, it's on Roman Numeral II, right underneath  
19 the drawing of the terphenyl and Aroclor 5460?

20 A I see it, yes.

21 Q The word "Damage" there, does that refer to the, for  
22 example, the reproductive problems that PCBs were  
23 causing some forms of birds?

24 A Yes.

25 Q And the damage, did that also have the effect of PCBs on

1 the juvenile shrimp?

2 A Well, the effects on the juvenile shrimp was a  
3 laboratory finding. There was no evidence that it was  
4 happening in the environment. So I don't know that one  
5 could conclude that what they saw in the laboratory was  
6 actually taking place in the environment. So I don't  
7 know that the juvenile shrimp report fits that  
8 description.

9 Q Okay. But the company at this point did use the word  
10 "damage" to describe the problem not simply  
11 "contamination," isn't that true?

12 A That is right.

13 Q And that was accurate?

14 A To some species, yes.

15 Q Right. But, again, the particular sticker that your  
16 company did put out six months later or so just talks  
17 about the -- I'm sorry -- about the "Polychlorinated  
18 biphenyls which some studies have shown may be an  
19 environmental contaminant."

20 You didn't tell the customer in that sticker that  
21 it was damaging the environment, did you?

22 A Those words were not used, no.

23 Q And then if we go to the nature of the problem -- Strike  
24 that. The extensiveness of the problem is such that  
25 your company recognized it was, if not a worldwide

1 problem, it was covering most of the world?

2 A Most of the industrial world, yes.

3 Q And then there's reference to, "The involvement could  
4 and most likely will follow the DDT investigations."  
5 What does that mean?

6 A Since the PCBs were discovered by the analytical  
7 chemists who were studying DDT, the company felt that  
8 any activity regarding the DDT studies, whether they be  
9 further studies or discussions, meetings, product  
10 restrictions as any of those activities progressed, they  
11 believed at the time that PCBs would be brought up in  
12 the discussions and might get involved along with the  
13 DDT.

14 Q And part of the reason for that is that like DDT, PCBs  
15 did cause damage to some aspects of the environment,  
16 correct?

17 A Some of the PCBs did that, yes.

18 (Change in reporters.)

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1 Q Now, if we go back and look at the nature of the  
2 problem in Section 4, the sentence reads, "Professors  
3 Widmark and Jensen of the Institute of Analytical  
4 Chemistry at Stockholm, Sweden, in November, 1966,  
5 announced and confirmed findings PCB in fish, birds  
6 and eggs," correct?

7 A Yes.

8 Q So from the work that was done with Widmark, your  
9 company understood that in 1966 when this work was  
10 published, that was confirmation of -- Strike that.

11 There had been a series of studies  
12 performed over the -- a year, year and a half earlier  
13 in which the PCBs were found in a variety of aspects  
14 of life in Sweden? I guess that's the easiest way of  
15 saying it.

16 A Yeah.

17 Q And at the time that work was published, those that  
18 published believed that they were confirming that  
19 PCBs in fact were the contaminating source?

20 A Yes. Keep in mind that this was a qualitative  
21 finding, not a quantitative also.

22 Q And then towards the latter section of this you  
23 indicate, or the company indicates -- I am sorry.  
24 Maybe it's not correct to say "the company," but the  
25 drafter indicated that, "Monsanto confirmed the

1 presence of PCBs in mid-1969 and confirmed the  
2 adequacy of work by Widmark and Jensen and others;  
3 truly, the PCBs are a worldwide ecological problem,"  
4 correct?

5 A That is correct.

6 Q And the reason, amongst others, that the work was not  
7 confirmed until mid-1969 of -- was that between  
8 December of 1966 and December of 1968 there really  
9 hadn't been much work done, had there?

10 A Well, there had been a lot of work done, and as time  
11 went on, the methodology became better and better, to  
12 the point where in '69 there was complete confidence  
13 in the results.

14 Q In the plan there were a number of molecules depicted  
15 in drawings. I think you would find them -- I don't  
16 have the page number, but it's SR 21944 on the bottom  
17 right.

18 A Would you repeat that number again?

19 Q Sure. It's 21944, is the STR number on the bottom  
20 right.

21 A I don't have a 944.

22 Q Okay. Do you have a picture of the -- Do you have a  
23 picture? Okay. You have, what, 1075? We'll get you  
24 there. Do you have the drawings that I made  
25 reference to?

1 A I have it.

2 Q And can you tell me, first of all, the chemical at  
3 the top left, that's aldrin, what is that?

4 A Pesticide. That's all I know about it.

5 Q Okay. And dieldrin?

6 A Another pesticide.

7 Q Endrin?

8 A Another pesticide.

9 Q Heptachlor?

10 A A pesticide.

11 Q Lindane?

12 A A pesticide.

13 Q Heptachlor epoxide?

14 A I am not familiar with the uses of that product.

15 Q And then on the bottom, DDT?

16 A That is a pesticide.

17 Q DDD?

18 A I don't recall that.

19 Q Do you recall that the pesticides that you do  
20 identify here were all pesticides that had been  
21 identified as being potentially damaging to the  
22 environment?

23 A I recall that there had been allegations that at some  
24 time or other these materials had been involved in  
25 some harm to the environment.

1 Q And the product at the bottom left, the DDT, contains  
2 the eyeglass configuration of the phenyl rings?

3 A The eyeglass --

4 Q Well, I guess some people have been referring to it.  
5 You see that there are -- on the DDT structure there  
6 is two six-sided structures drawn?

7 A Yes.

8 Q And those are the phenyls?

9 A The phenyls.

10 Q Phenyls. And, like polychlorinated biphenyls, there  
11 are two of them in DDT?

12 A Yes.

13 Q They're bound together at a different location than  
14 they are in PCBs?

15 A It's not the location, it's they're bound to another  
16 extra carbon.

17 Q That's right, and then there is another series of  
18 carbon, hydrogen and chlorine involved?

19 A Yes.

20 Q Which of the -- I'm not saying that they're on the  
21 list, and I don't mean to give you the impression  
22 they are, but when PCBs were used as a pesticide  
23 extender, what pesticides were they used in  
24 conjunction with?

25 A The one I recall is lindane, and this came from a

1 Department of Agricultural -- Department of  
2 Agriculture scientific paper.

3 Q And at one time was it believed that the PCBs  
4 enhanced the ability of lindane to do their job as a  
5 pesticide? That is, to kill pests?

6 A I don't know how to understand the word "enhance"  
7 here. They were intended to prolong the presence of  
8 lindane on, say, a shelf on which crawling insects  
9 might exist, and, therefore, get exposed to the  
10 active ingredient, which is the lindane.

11 Q Okay. Any toxic mechanism of PCB itself?

12 A To what?

13 Q To the insect?

14 A I have never heard that that has been established.

15 Q Do you know if that's been studied?

16 A I am under an understanding the Department of  
17 Agriculture, when they developed this -- this  
18 extender use or this co-use, did some work with the  
19 PCBs themselves and did not establish that they were  
20 effective insecticides.

21 Q By themselves?

22 A By themselves.

23 Q Would you be kind enough to turn to Page 5.

24 THE COURT: We're still on Exhibit 1075?

25 MR. CARLSON: Yes. I am sorry. For this

1 one it's Exhibit 24. I thought -- There is a  
2 difference between 1075 and 24. I didn't realize  
3 there was.

4 MR. CARLSON:

5 Q When the company was looking at the effects on  
6 Monsanto, and one of the potential effects is legal  
7 liability, did the potential of direct lawsuits come  
8 from information your Legal Department was providing  
9 you?

10 A Not up to this point, no.

11 Q And it is true, though, that the possibility of  
12 direct lawsuits was a kind of pressure your company  
13 felt in making decisions about what to do with your  
14 Aroclor products?

15 A The possibility of direct losses?

16 Q Yes.

17 A Will you help me with the --

18 Q Sure.

19 A -- expression "direct losses"?

20 Q Lawsuits.

21 A Oh, lawsuits.

22 Q Right. Rather than -- I guess that's  
23 self-explanatory. That is a kind of pressure your  
24 company was feeling at the time you were making  
25 decisions regarding PCBs?

1 A I don't know that I would call it pressures. These  
2 are normal considerations made in any product line  
3 and business arrangement. You must always consider  
4 these things you are calling pressures.

5 Q I guess fair enough. I think pressure is probably  
6 determined by the person who is making the decision.  
7 If they have -- If they are starting to make  
8 decisions based on the perception that if they don't  
9 make a decision, they're going to get sued, that  
10 would be, in your view, a pressure?

11 A That's one form, but then there is the other form,  
12 that if you do arbitrarily stop selling, you're going  
13 to get a lawsuit, too. It cuts both ways.

14 Q Okay. That's interesting because -- And believe me,  
15 if you have a -- something that you can reference me  
16 to, I would be happy to see it. And that is, was  
17 there any memorandum addressing the question of  
18 lawsuits that would be brought against your company  
19 for stopping selling the Pydraul 312?

20 A I don't remember any memorandum, no.

21 Q Now, in the "Legal Liability" aspect of -- mentions,  
22 "All customers using these products have not been  
23 officially notified about known effects nor do our  
24 labels carry this information." What particular  
25 known effects were there at the time this draft was

1 prepared in November of 1969?

2 A It was the effect on the wild birds, the laboratory  
3 tests on juvenile shrimp, and Dr. Risebrough's work  
4 on the, again, wild birds.

5 Q So now there are known effects in 1969, but you do  
6 not tell your customers that there are known effects  
7 of the PCBs in your warnings on the Pydraul labels,  
8 correct?

9 A Not as of that time, yes.

10 Q As a matter of fact, in November of 1969 your labels  
11 still didn't tell your customers that they even had  
12 PCBs?

13 A That is true.

14 Q So now in November of 1969 you know PCBs are a  
15 worldwide contaminant, correct?

16 A Yes.

17 Q You know that PCBs are damaging the ability of birds  
18 to reproduce?

19 A Yes.

20 Q You know that PCBs can potentially interfere with or  
21 kill juvenile shrimp?

22 A Yes.

23 Q You know PCBs are found in fish?

24 A When we use the expression "PCBs," it's always some  
25 of the PCBs.

1 Q Were found in fish?

2 A Yes.

3 Q And at that time you still didn't tell your customers  
4 that their product even had PCBs, correct?

5 A In November?

6 Q Right.

7 A Yes, you're correct.

8 Q I would like to go through with you a number of  
9 exercises in decision making that your company  
10 apparently went through as reported on Page 10.

11 Would you be kind enough to turn to Page 10 for me.

12 THE COURT: Same exhibit?

13 MR. CARLSON: Same exhibit. Thank you.

14 MR. CARLSON:

15 Q And one of the things that we may -- that was  
16 available as an option, not necessarily one that was  
17 a credible option or one that your company would  
18 take, but nevertheless an option, was do absolutely  
19 nothing, just kind of wait it out and see what  
20 happens?

21 A That was an option.

22 Q And the only advantage to that was that it reduced  
23 the cost, but, however, it would have to be weighed  
24 against the potential loss of business in the future?

25 A Those are some of the considerations, yes.

1 Q And it was also understood that more than likely you  
2 would be forced out of the Aroclor business entirely,  
3 if you did absolutely nothing?

4 A Again, another consideration, yes.

5 Q And you probably would face numerous suits? That was  
6 another consideration?

7 A Yes, possible.

8 Q Now, the next consideration was discontinue  
9 manufacturing of all polychlorinated biphenyls. And  
10 your company -- or, the drafter of this particular  
11 report went through what potential effects that could  
12 have. One of the things that was pointed out was  
13 that the liability for what you had done was present,  
14 but it also goes on, "and possibly by the shifting to  
15 the lower chlorinated materials and the recovery  
16 techniques the contamination may already be reduced  
17 to an acceptable level," and that was work that had  
18 been done up to that point?

19 A Yes.

20 Q And it goes on, "Obviously the entire business would  
21 be lost without any or very few substitutes to be  
22 offered," right?

23 A Yes.

24 Q You did have competitors for fire-resistant fluids  
25 for hydraulic systems, however, in 1969; didn't you?

1 A We did, yes.

2 Q And then you looked at the financial loss, loss of  
3 money, that you may have as a result of raw material  
4 contracts. I presume that you folks had contracted  
5 to buy base materials from which PCBs were  
6 manufactured? That would be one of the kinds of  
7 things?

8 A Yes.

9 Q "Customer contracts." If you didn't sell them the  
10 product, they are not going to pay you for them?

11 A Yes.

12 Q And, "Royalty, secrecy contracts." What were those?

13 A I am not familiar with them. These are contracts  
14 negotiated with customers by marketing people.

15 Q Then it was the understanding that competition would  
16 take advantage of the situation and sell more of  
17 their products since you were selling less?

18 A Yeah.

19 Q Then it says, "We would be admitting guilt by our  
20 actions." The guilt being what?

21 A Well, it would be presumed that, the fact that was  
22 discontinued, there must be something wrong. Don't  
23 know what it is, but something wrong --

24 Q Okay.

25 A -- kind of impression.

1 Q And as it turned out, there was something wrong, even  
2 with 1242, right?

3 A Depends on your definition of what was wrong.

4 Q Had the five-chlorinated as a component, and  
5 five-chlorinated, even in the earlier studies, was  
6 found to be causing a problem?

7 A When it got into the environment.

8 Q Right. Now, if you discontinued, you would have a  
9 loss of capital investment in the plant. That  
10 certainly would affect your profits; wouldn't it?

11 A Yes.

12 Q And there was at the end an indication that you  
13 thought you would gain a little public image on  
14 the -- as a result of that kind of an action?

15 A That was a conclusion drawn by the group that drew  
16 this up, yes.

17 Q And then there is the respond-responsibly approach?

18 A Yes.

19 Q And the respond-responsibly approach had an  
20 interesting aspect to it in that when it was graphed  
21 out under the responsible approach, the profits never  
22 dropped below potential liability? Would you be kind  
23 enough to turn to the second to the last page of the  
24 document. Do you have it?

25 A I believe I do.

1 Q Okay. In each of the -- Let's start with the "Do  
2 Nothing." Except I don't know how to work this  
3 thing. Under the do-nothing approach there was a  
4 perception by the drafters that eventually you're  
5 going to be out of the Aroclor business anyway  
6 because you wouldn't have any sales at some point in  
7 the future, here projected to be sometime between  
8 1973 and 1974, correct?

9 A That's what it shows.

10 Q And prior to that, sometime before 1972, but after  
11 '71, there was a crossover where the profits would be  
12 below the liability, correct?

13 A Correct.

14 Q And then there would be only liabilities continuing  
15 thereafter?

16 A That's what that depicts.

17 Q All right. Now, if you discontinued manufacturing  
18 PCBs immediately, of course your profits from PCBs go  
19 from a number to zero very quickly; don't they?

20 A They do.

21 Q And your liabilities were thought to continue only on  
22 to about 1975, correct?

23 A That is correct.

24 Q And there up above it was thought your liabilities  
25 would only continue on to mid-1973 or the first

1 quarter of '73?

2 A Correct.

3 Q Then if we look at the responsible approach, your  
4 profit line never drops below your liability line,  
5 does it?

6 A That is true.

7 Q As a matter of fact, there is the perception that  
8 there will be a dip in profits between 1971 through,  
9 oh, mid-1972, correct?

10 A Correct.

11 Q And then after mid-1972 profits are going to keep on  
12 going again, right?

13 A Yes.

14 Q While liability is going to tail off to some nominal  
15 level as of 1974?

16 A Yes.

17 Q Now, would you be kind enough to take a look -- and,  
18 by the way, the approach that was taken in fact did  
19 result in your company continuing to make a profit on  
20 PCBs; didn't it?

21 A Well, you misinterpreted the profit. The profit did  
22 not necessarily have to come from PCBs. It could  
23 come from substitute materials that would be  
24 developed to replace the PCBs. That came under the  
25 responsible approach plan.

1 Q Okay. Or if you weren't forced out of the dielectric  
2 uses, you could continue to make profits on your  
3 dielectric uses on into the future?

4 A That's part of it, yes.

5 Q And that's one of the things that you folks at that  
6 point were still hoping to be able to preserve?

7 A At that point, yes.

8 Q All right. Now, if you turn to the last page --

9 A I have it.

10 Q There is a graph which depicts the probability of  
11 success?

12 A I see it.

13 Q And what is being graphed out here?

14 A I -- I don't know that I understand your question.

15 Q Well, I just want -- In this particular graph the top  
16 line shows "Resultant Profits" on a dashed line?

17 A Yes.

18 Q I assume that's money Monsanto gets to keep over your  
19 expenses of producing, manufacturing and selling your  
20 products?

21 A Yes.

22 Q And then there is also a line for "PCB Production"?

23 A Yes.

24 Q And the PCB production drops down for a while in --  
25 oh, beginning in about 1971, and drops down for a

1 while in about mid-1972, and goes on back up again?

2 A That's the dielectric use, yes.

3 Q Okay. Now, it doesn't say that here of course, does  
4 it? It simply says "PCB Production"?

5 A Yes. But that was intended to cover the uses that  
6 would be controllable and sustainable.

7 Q So that in November of 1969 you expected that you  
8 were going to be out of the PCB hydraulic fluid  
9 business?

10 A It wasn't that specific. It was being considered  
11 that some of the uses would have to be seriously  
12 reviewed, and some of them may well have to be  
13 discontinued, and that's why you see the line  
14 there -- "New Products" line.

15 Q Right.

16 A That reflects the loss of the old product line.

17 Q Because one of the things that drives the necessity  
18 of developing new products is you can't make the old  
19 anymore? Kind of by economic necessity, if you are  
20 not going to be allowed to make the old anymore,  
21 you're going to have to develop some new?

22 A That's one reason for new products, yes.

23 Q With regards to the PCB environmental abatement plan,  
24 was that plan further implemented at some point by  
25 raising the costs of dielectric fluids to cover some

1 of the exposure to liability that your company  
2 sustained earlier?

3 A I'm not aware of any price increase based on that  
4 kind of added costs. The price increase is based on  
5 the -- the normal cost increases that go with  
6 spending more money for research and more money for  
7 testing, in addition to the normal increases for  
8 labor and raw material, and on and on.

9 (Switch in reporters.)

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1 Q Well, the people that were running the Aroclor section  
2 of the company wanted to continue to keep their section  
3 of the company profitable, correct?

4 A Yes.

5 Q And, for example, the cost of some of the programs that  
6 had to be undertaken just the mailing costs, for  
7 example, had to be borne somewhere?

8 A That's right.

9 Q And one of the ways that companies can do that is raise  
10 the price of another product, in this case another PCB  
11 product, which can cover some of these other expenses  
12 that you're incurring?

13 A True.

14 Q Do you by any chance happen to have Exhibit 40 up there  
15 before you? You can use this.

16 A All right.

17 Q That's all right. This particular document is one that  
18 you and Mr. Running discussed in your testimony. It's  
19 the November 17th of '71 memo.

20 A Yes, it is.

21 Q This particular memo, when you first read it, caused you  
22 some concern, didn't it?

23 THE COURT: You mean back in 1971, or in this  
24 trial, or what?

25 MR. CARLSON:

1 Q The first time you read it ever. Whenever you read that  
2 memo, first time you read it, that caused you some  
3 concern, didn't it?

4 A Yes, it did.

5 Q Because the fact of the matter is that the way that memo  
6 was drafted provides some information that you were not  
7 happy with.

8 A I don't know that I was unhappy. I found it not  
9 realistic.

10 Q Okay.

11 A Just didn't make any sense.

12 Q Okay. And in view of that you and Mr. Running went  
13 through it, and it made you look like an idiot. I kind  
14 of felt bad, because it dawned on me it was going to  
15 take 10,000 years for PCBs to escape from your company's  
16 system based on an EPA report. Do you remember that?

17 A I do.

18 Q I felt bad before, so I don't have any problem about  
19 that. One of the things that I did take a look at,  
20 however, that I thought maybe I should, was the date of  
21 the EPA estimate on escape of hydraulic fluids. Do you  
22 recall the EPA estimating in 1989 that the hydraulic  
23 fluid escape would be a ton a year?

24 A Yes.

25 Q Prior to that, back in 1971, I don't recall seeing any

1 information on that particular subject.

2 A Well, that number hadn't been arrived at yet.

3 Q And also in looking at even the practices of Stroh, you  
4 sat through a lot of the testimony here. It appears to  
5 me that the practices of companies over almost twenty  
6 years in typing up how they handle fluids has resulted  
7 in considerably less hydraulic fluid escape to the  
8 environment in 1989 than it did in 1971.

9 A The programs for the proper handling of these hydraulic  
10 fluids that were proposed by Monsanto in, starting in  
11 about 1970 and so on, were pretty much in place within a  
12 few months rather than the fifteen, twenty years you  
13 have in mind. So the practices, once established, and  
14 if they're maintained, then the amount of loss would  
15 stabilize, it would not go up or down, assuming some  
16 realism in all these estimates.

17 Q Well, yeah. And interjecting realism into the  
18 estimates, how many pounds of hydraulic fluid do you  
19 think there are down at the bottom of the Waukegan  
20 harbor?

21 A Oh, I have no idea.

22 Q A lot?

23 A I don't know.

24 Q And how many pounds of hydraulic fluid do you think  
25 there are up in the Green Bay area of Lake Michigan?

1 A I have no idea. I didn't even know they were there.

2 Q How many pounds -- fish are being caught up there that  
3 have PCBs in them. I guess there's at least PCBs there.

4 A I don't know where the fish have been.

5 Q Okay. How about --

6 A Really.

7 Q How about the Fox River?

8 A I know nothing about the Fox River.

9 Q The fact of the matter is, over the years there's been a  
10 lot of hydraulic leakage that will, in one form or the  
11 other, make its way into the environment, correct?

12 A You're talking about past practices.

13 Q That's right.

14 A And we're talking here about what's going to happen from  
15 1971 on.

16 Q Right.

17 A And that's why that number didn't strike me as making  
18 any sense at all. If it did, then our program wasn't  
19 working.

20 Q I see.

21 A I couldn't accept that. It had to be working.

22 Q Well, that's interesting. Were there mailings telling  
23 hydraulic fluid users that they should dam up their  
24 machines by 1971?

25 A No, that's not the only way to communicate. Mailings

1 are just one way to do it. It's better if it's done  
2 person-to-person.

3 Q You've been here when these folks have been testifying  
4 about the use of clarifier pits as being a way for  
5 handling water discharge?

6 A I don't recall, except this last witness.

7 Q Okay.

8 A Yes, Mm-Mm.

9 Q And another way, one of the ways that the hydraulic  
10 fluids can be lost in the environment is getting into  
11 the water base. I mean, that is one way that it can  
12 happen?

13 A Yes, that's probably the most common way, if it does  
14 happen.

15 Q Another way that it can happen is for the fluids that  
16 get onto rags or absorbed by sawdust or those types of  
17 things, you know, that also can get out into the  
18 environment?

19 A Well, they're just tossed into the environment. If  
20 they're buried properly, they're not going to go  
21 anywhere.

22 Q Well, in 1971 there weren't any regulations regarding  
23 any special burying of PCBs, though, were there?

24 A But there were local regulations regarding burial of  
25 industrial chemicals, of which PCBs are an example.

1 Q And if you have that in a local landfill -- and in 1971  
2 they weren't using special chemical landfills like they  
3 are today, were they?

4 A Oh, the state-of-the-art or science or engineering has  
5 changed a lot. Each period of time the things do  
6 improve.

7 Q And if you wash rainwater through some buried rags with  
8 PCBs on it, there's a potential for the ground water to  
9 be contaminated?

10 A Yes, but a good industrial chemical landfill should not  
11 be located where ground water is going to go through the  
12 buried material.

13 Q I understand that. In 1971 the concept of landfill was  
14 a lot different than today's industrial chemical  
15 landfill though, wasn't it?

16 A It was different, but some of the basic principles were  
17 still followed like ground water contamination.

18 Q Another way that PCBs were lost in the environment were  
19 those that got off, went up the smokestack. If they got  
20 on to, for example, trimmings that were on the floor, go  
21 through the furnace, PCBs go up the stack?

22 A If the temperatures are not high enough.

23 Q Right. Another way that PCBs go into the environment is  
24 if there's a leak onto an area of a die cast machine  
25 that's hot and you have vaporization.

1 A If it's just vaporization, yes.

2 Q Now, the Stroh Company, I think there's some testimony  
3 by Mr. Damiani, was not a particularly large customer of  
4 yours, but even Stroh was buying at one time about  
5 17,000 pounds of your hydraulic fluid a year.

6 If you're buying 17,000 pounds of hydraulic fluid a  
7 year, those typically are known to be replacement  
8 fluids, aren't they?

9 A That sounds like an initial fill to me.

10 Q Okay. Regardless of that, if you are replacing  
11 hydraulic fluids, it's because these fluids have gotten  
12 out somewhere?

13 A Somewhere.

14 Q And the individual who drafted this particular report  
15 indicated that, in his mind, if the customer simply  
16 added the new to the old, in this case the terphenyl to  
17 your PCBs, it would be a gradual loss to the environment  
18 of all the PCTs and PCBs. That is what he reported,  
19 isn't it?

20 A That's what he said, yes.

21 Q And, in fact, for those companies that did not change  
22 over by draining their machines back in 1971 or 1972,  
23 there was loss of hydraulic fluid to the environment  
24 even by the best of intentioned customers, wasn't there?

25 A I need some help in your definition of "loss."

1 Q Well, some of it vaporized?

2 A And, hopefully, so little that it didn't impact the  
3 environment.

4 Q All right. Some of it went up the stack?

5 A That's the same.

6 Q I was talking about some of it would get onto the hot  
7 part of the machine and some portion of it would go up  
8 the stack when you melt down the trimmings, right?

9 A That's possible.

10 Q And some of it, when you're washing down the floor, is  
11 going to get into the water and you're not going to get  
12 it all separated out all the time?

13 A And in all those cases something should be done to  
14 minimize it.

15 Q To minimize it, but you're always going to have some,  
16 right?

17 A There's always -- we never did say every molecule would  
18 be captured.

19 Q Right.

20 A But it's got to be as small as you can get it.

21 Q Because one of the problems with PCBs is they seem to  
22 stay with us for a long time. I mean, we're here 1991,  
23 twenty years after this memorandum, and I've heard  
24 testimony about PCBs still being around. Why is that?

25 A Where are they around? Are you talking in machines?

1 Transformers.

2 Q In non-contact cooling waters, in machines. I mean,  
3 these things just stay with us.

4 A Well, if you don't let them escape out into the  
5 environment they will be in your plant, yes.

6 Q But if you have a hydraulic leak onto some hot material,  
7 then you got PCBs vaporizing your plant again?

8 A But I don't know. It may condense on the walls in the  
9 ceiling.

10 Q That's right, then you have to clean your walls and  
11 ceiling.

12 A If it gets too heavy in the room, yes, you have to  
13 decontaminate.

14 Q That's one of the problems with the product isn't it?

15 A I don't know that it's a problem. It can be managed.

16 Q Let me put it this way. It certainly is not a cost that  
17 your customers expected they would they were going to  
18 have to incur when they bought your products back in the  
19 sixties, are they?

20 A That's true.

21 Q As a matter of fact, when the companies were buying your  
22 product in the sixties they certainly didn't think they  
23 were going to have to pay to have the stuff incinerated  
24 either, did they?

25 A We didn't either.

1 MR. CARLSON: Okay. Your Honor, this would be  
2 a good time.

3 THE COURT: I didn't want to interrupt your  
4 flow.

5 MR. CARLSON: No, that's fine.

6 THE COURT: All right, 8:45 tomorrow. Almost  
7 ten after five. It's time to leave.

8 (Whereupon, the jury was excused.)

9 (Court stood recessed until 8:45 A.M. May 10,  
10 1991.)  
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