

STATE OF WISCONSIN : CIRCUIT COURT : MILWAUKEE COUNTY
BRANCH 8

STROH DIE CASTING COMPANY,

Plaintiff,

VOLUME XVI (p.m.)

v.

Case No. 639-887

MONSANTO COMPANY,

Defendant.

May 7, 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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P-R-O-C-E-E-D-I-N-G-S

THE COURT: Now we'll resume the direct examination of Mr. Papageorge.

DIRECT EXAMINATION (con't)

BY MR. RUNNING:

Q Mr. Papageorge, I'm going to hand you up Defendant's Trial Exhibit 1034.

MR. McDEVITT: 94.

MR. RUNNING: 1094.

Q Mr. Papageorge, the first page of the document is just an indication of where it was filed apparently. Would you turn to the second page. Can you identify this as an April 28, 1971, memorandum from Dr. Keller to yourself?

A Yes.

MR. RUNNING: I move for the admission of this document, Your Honor.

MR. CARLSON: No objection.

THE COURT: So received.

(Exhibit No. 1094, previously marked for identification, was received into evidence.)

MR. RUNNING:

Q The subject of the memorandum, Mr. Papageorge, is indicated to be Aroclor Analytic Program. What was that?

1 A That's the program in Monsanto's research
2 department which was charged with the responsibility
3 for developing analytical procedures that would
4 determine PCBs in samples, all kinds of samples, at
5 very low levels with accuracy.

6 Q Was this the program that had resulted in the
7 taking of the 167 environmental samples that we
8 saw?

9 A That was part of the program, yes.

10 Q The first paragraph reads, "This memo will confirm
11 recent action we have taken to speed up Aroclor
12 analytical projects effective April 27. Two teams
13 will be working concurrently backed up by a third
14 team for mass characterization work and dioxin
15 studies."

16 What was the reason for this speeding up
17 of the Aroclor analytic properties?

18 A We were very anxious to get answers to several
19 questions which involved analytical procedures
20 quickly, and this was Dr. Keller's response to my
21 request to look into his program and see if he could
22 do something to speed up the time tables that he had
23 originally put out.

24 Q And was the result as indicated in this memo to
25 have three teams of scientists working

1 simultaneously?

2 A That is correct.

3 Q Mr. Papageorge, I'm going to hand you Defendant's
4 Trial Exhibit 1095. Can you identify this as a
5 May 1, 1970, memorandum sent by your secretary to
6 Mr. Sido?

7 A Yes.

8 Q Is this a Monsanto business record?

9 A Yes.

10 MR. RUNNING: I move for the admission --

11 THE COURT: Spell Sido.

12 MR. RUNNING: S-i-d-o.

13 MR. CARLSON: No objection.

14 THE COURT: So received.

15 (Exhibit No. 1095, previously marked for
16 identification, was received into evidence.)

17 MR. RUNNING:

18 Q Mr. Papageorge, why did your secretary send this
19 memorandum?

20 A I was in Europe at that time; and before I left I
21 had asked her to make sure that this label wording
22 was quickly sent over to Mr. Sido's office. And in
23 my absence she composed this memorandum and signed
24 her name as my secretary.

25 Q Did your secretary draft the label?

1 A No. No.

2 Q You were in Europe for the meeting with the other
3 PCBs producers?

4 A That was one of the objectives, yes.

5 Q What else did you do on that trip in brief terms?

6 A We visited several governmental agencies, we
7 visited Dr. Widmark in Sweden and a group in the
8 Netherlands, another university group.

9 Q What was the purpose for adding the paragraph that's
10 in the middle of this memorandum as an additional
11 label?

12 A This was to inform the person who had the drum or
13 container of products that contained PCBs that the
14 PCBs could be an environmental contaminant and that
15 they -- You'll notice the words, "Use extreme care
16 to avoid this material from getting into the
17 environment."

18 Q Now, Mr. Carlson has referred several times to this
19 word and to this word in the text of the label.

20 "Some studies have shown may be an environmental
21 contaminant." Mr. Papageorge, was this label to be
22 affixed to products containing Aroclor 1242 as an
23 ingredient?

24 A Yes.

25 Q As of May 1, 1970, do you know of any published

1 study that had cited Aroclor 1242 as an
2 environmental contaminant?

3 A There was no such study, no report.

4 Q Is that why you included the "may" in the label
5 language as opposed to "has been"?

6 A Well, that's one of the reasons. Plus the fact that
7 some plants that were making reports on PCBs were
8 not certain as to their findings. So that they too
9 were qualifying their -- in their reports what they
10 were finding.

11 Q Was the first sentence on that label an accurate
12 representation of the state of the scientific
13 literature as of May 1, 1970?

14 A Yes.

15 Q The second sentence, "Extreme care should be taken
16 to prevent any entry into the environment through
17 spills, leakage, use, disposal, vaporization or
18 otherwise." Why was that sentence included?

19 A That was to reemphasize the need to take care to
20 prevent PCBs from becoming environmental
21 pollutants.

22 Q Who was Mr. Sido?

23 A Mr. Sido at that time was Monsanto's custodian of
24 the label files. He's the person that made certain
25 that the files -- that the labels followed the

1 industry standards and that they were ordered when
2 the need arose and so on.

3 Q Was he responsible for transferring this language
4 onto an acceptable label for use with the
5 product?

6 A Yes.

7 Q Did he do so?

8 A Yes.

9 Q Mr. Papageorge, I think we already have this up,
10 Defendant's Trial Exhibit 1007. Is that a copy of
11 the environmental warning sticker that was affixed
12 to the drums?

13 A It is.

14 Q What drums was it affixed to?

15 A It was affixed to drums of Monsanto packaged
16 products that contained polychlorinated
17 biphenyls.

18 Q Would that include Pydraul 312?

19 A Yes.

20 MR. RUNNING: Your Honor, this is in
21 evidence already, 1007.

22 Q Mr. Papageorge, I'm going to show you Defendant's
23 Exhibit 1007.1. It's a blowup of that label. Can
24 you identify this as a blowup of the label on the
25 drums?

1 A It is.

2 Q What color was the label on the drums?

3 A Red lettering on a white background.

4 Q Why was that color chosen, if you know?

5 A We felt it was -- It would attract attention by the
6 reader of the labels.

7 Q This label -- Mr. Papageorge, did you look for
8 models, samples of similar labels by other chemical
9 companies or other industrial chemical companies
10 that you used as an example?

11 A We did look but found no precedent had been set by
12 anyone. This represents a first attempt to
13 associate environmental contamination with an
14 industrial chemical.

15 Q Do you know of any other chemical company that had
16 put a similar warning sticker on any of its products
17 before May, 1970?

18 A I do not know of any.

19 Q Do you know of any other company that put a similar
20 environmental warning sticker on any of its
21 products before May of 1970?

22 A The only warnings that were -- that I had noticed
23 were those required by regulations such as those
24 that appear on farm chemicals, pesticides and so on.
25 For industrial chemicals this is first.

1 Q Was it put on the labels voluntarily?

2 A Yes.

3 Q Mr. Papageorge, let me show you Defendant's Trial
4 Exhibit 1098. Can you identify this as the
5 presentation made by Mr. Mason to the corporate
6 management committee on May 11, 1970?

7 A Yes. I would call this a copy of the slides Mr.
8 Mason used in making the presentation.

9 Q By "slides," you mean transparencies like we are
10 showing here?

11 A Yes.

12 MR. RUNNING: I move for admission of this
13 document, Your Honor.

14 MR. CARLSON: No objection.

15 THE COURT: So received.

16 (Exhibit No. 1098, previously marked for
17 identification, was received into evidence.)

18 MR. RUNNING:

19 Q And have I highlighted the indication that this was
20 a presentation by Mr. Mason, Mr. Papageorge?

21 A That is true.

22 Q Who was Mr. Mason?

23 A Mr. Mason at that time was an assistant general
24 manager in the organic division of the Monsanto
25 Company, and he is the man that the functional

1 fluids business group headed by -- headed by Mr.
2 Burgen reported to. He's right below the vice
3 president, second in command so to speak.

4 Q Was he the boss of your boss at the time?

5 A Yes.

6 Q Where were you on May 11, were you still in
7 Europe?

8 A I was in Europe, yes, sir.

9 Q Did you have input into this presentation before you
10 left?

11 A Before I left and while in Europe, I got at least --
12 at least two telephone calls from Mr. Mason when he
13 was preparing his material. And he talked to me
14 about them, and I was able to make some comments.
15 So I was aware that this was going on.

16 Q Let's turn to the objective shown to the corporate
17 management committee. It reads, "Objective: To
18 maintain a profitable business serving the needs of
19 functional fluids users and the carbonless
20 duplicating paper industry whilst minimizing the
21 escape of non-biodegradable biphenyls into the
22 environment."

23 Mr. Papageorge, were those two goals, the
24 goal before the whilst and the goal after the
25 whilst -- were they considered to be inconsistent?

1 A No. In fact, they are not inconsistent at all.

2 They can both be achieved simultaneously.

3 Q I have circled "non-biodegradable". What

4 category -- I assume there's non-biodegradable and

5 there's biodegradable, right?

6 A That was the two categories used at that time, yes,

7 sir.

8 Q Which category was Aroclor 1242 at the time?

9 A They were considered to be amongst the biodegradable

10 types.

11 Q Now, the slide of, "Action To Achieve Objective.

12 (1) Market non-biodegradable chlorinated biphenyls

13 only for closed system applications where control is

14 possible.

15 "(2) Phase out of all non-controlled

16 applications replacing with biodegradable

17 chlorinated biphenyls or other satisfactory

18 products."

19 Did you concur with these proposed actions

20 to achieve the objective?

21 A I did.

22 Q Explain what a closed system is.

23 A It's a system in which the PCB liquids are contained

24 in a -- in a tank or a steel box, and I have in mind

25 an electric transformer as an example which is

1 sealed. The liquid has no chance of leaving the
2 unit. That's just an example of the type of system
3 we call closed systems.

4 Q What's the difference between a closed system and
5 closing the loop or closed loop?

6 A Close the loop was a term originally used by Mr.
7 Mason to describe the -- It's not the physical
8 things involved. It's more the concept of keeping
9 track of the PCBs from the moment they are
10 manufactured, packaged, shipped, used by the
11 consumer; and the item that was used was properly
12 controlled until final disposal.

13 The whole intent here is to try to account
14 for as much of the PCBs that are in this loop at
15 every point. The objective being to avoid entry
16 into the environment.

17 Q Would it be possible to have a closed loop system
18 for a given product that was not used in a
19 hermetically sealed container?

20 A Yes, it's possible.

21 Q Would hydraulic fluids be an example of that?

22 A Yes.

23 Q Explain what you mean.

24 A Well, the use of hydraulic fluids in equipment in
25 every case involves a container, a storage tank, the

1 piping, the pump to circulate the fluid, the item in
2 which it's used eventually, and then returned back
3 to the central storage tank. So that is a loop in
4 itself, a physical loop.

5 The PCBs themselves are not intended to be
6 exposed to the open air even. It's not an open vat
7 of this material exposed to the atmosphere.

8 They are constantly inside something
9 whether it be a tank, a pump, or a hose or a pipe.
10 So that kind of system if maintained properly could
11 be considered a sealed system.

12 Q Mr. Papageorge, you understand the hydraulic systems
13 leak, don't you? Doesn't that make it something
14 other than a closed loop system the fact that they
15 leak?

16 A They do leak. But there are relatively simple ways
17 to put up with that leak, to do something about it.
18 Even a transformer electrical service might ooze out
19 the material. That doesn't mean you tolerate it.
20 You do something to capture that and repair that
21 leak.

22 Q For it to be a closed loop system, what would you do
23 about the leak in the case of hydraulic fluid?

24 A You contain it in something.

25 Q What do you do after you contain it?

1 A Then you use the best available disposal
2 opportunity whether it be incinerator or it's burned
3 off properly or an approved chemical landfill.

4 Those are the two that are available -- that were
5 available in those days.

6 Q Could you explain what Monsanto was doing to close
7 the loop regarding the production of PCBs?

8 A In production at the Monsanto plants, we as I said
9 earlier improved our approach on maintenance. Not
10 only did we repair -- repair the leaks quickly, but
11 we provided for means of capturing the leak before
12 it got away from us beyond our control.

13 When maintenance work did take place on
14 the system, the fluid in the system that had to be
15 drained to allow us to work on the pump or the hose
16 or the pipe was carefully collected and put into
17 proper containers for proper disposal.

18 We put in this -- the curbing --

19 THE COURT: This is getting a little
20 repetitive.

21 MR. CARLSON: Objection.

22 THE WITNESS: The things I mentioned
23 earlier, the production.

24 MR. RUNNING:

25 Q What about restriction on the range of PCB products

1 that were sold, was that another step that was
2 taken, the plasticizers?

3 A Yes. The PCBs were not sold to the uses that were
4 obviously open-end uses with immediate entry into
5 the environment.

6 Q Regeneration and --

7 MR. CARLSON: Could I have the last
8 question read back.

9 (Question read aloud by the Reporter.)

10 MR. CARLSON: Thank you.

11 MR. RUNNING:

12 Q Mr. Papageorge, referring to regeneration and
13 recycling, would Findett, F-i-n-d-e-t-t -- I won't
14 go over all the testimony again.

15 A This is a good example of that, yes.

16 Q Biodegradation. Would studies of how Aroclor 1242
17 behaves in the environment be included?

18 A Yes.

19 Q And would studies of feasibility of distilling
20 Aroclor 1242 to remove the 7 percent of the
21 molecules that had 5 chlorines or higher -- would
22 that be included in that?

23 A That's part of that program, yes.

24 Q You referred to this when you were explaining the
25 12-point program on Thursday, but we'll touch on

1 this in a little more detail. Incineration. Could
2 you explain just briefly what was involved in that
3 aspect of closing the loop.

4 A We had to make studies to determine what conditions
5 are required to take PCBs that are no longer useful
6 or cannot be recycled or reclaimed and destroy them
7 completely by high temperatures to harmless
8 products. That is what we meant by incineration.

9 Q I'm not going to spend a lot of time on this. It's
10 one month after the other report we looked through.
11 But was the work on biodegradation continuing in May
12 of 1970?

13 A Certainly, yes.

14 Q I see several references to good response, good
15 progress, good progress. Were the reports
16 encouraging?

17 A Yes.

18 Q Under the heading Replacement Products, paragraph 2,
19 "Good progress on phosphate ester replacements for
20 hydraulic fluid applications, TCP, CDP, TBP" -- and
21 you'll have to help me out. Mr. Papageorge,
22 pronounce the chemical?

23 A Nonyl phenyl/cumyl phenyl diphenyl phosphate.

24 Q What's that?

25 A That's a chemical, part of the phosphate ester group

1 that Monsanto's research chemists had in essence
2 custom designed and were able to demonstrate that it
3 had properties that were very, very favorable and
4 improvement over the other TCP, CDPs.

5 Q Is TCP tricresyl phosphate?

6 A Yes.

7 Q Was that available on the market at the time?

8 A Yes.

9 Q What about CDP?

10 A Cresyl diphenyl phosphate.

11 Q Very briefly explain what that was.

12 A It's -- It has the same cresyl as the tricresyl
13 group. Cresyl, c-r-e-s-y-l.

14 Q Was that also --

15 A It's -- I can't explain without sketching a chemical
16 structure for it. But it is a part of the phosphate
17 ester family.

18 Q Was that also a known chemical on the market?

19 A Yes.

20 Q What's TBP?

21 A Tributyl phosphate is another common phosphate
22 ester.

23 Q And are those considered as replacement candidates
24 for Aroclors?

25 A They were.

1 Q Were they rejected?

2 A Not totally until Monsanto's chemists came up with
3 this last one we just described which showed even
4 better properties. So it concentrated on the new
5 phosphate ester.

6 Q Was the new phosphate ester something that say Stroh
7 Die Casting Company could have obtained from
8 Haughton or some other supplier?

9 A Not to my knowledge, no. That was not available on
10 the marketplace.

11 Q Was it a discovery by Monsanto?

12 A I don't know how to describe discovery in the
13 chemical field. I'm sure it was not an unknown
14 chemical. It's just a matter of whether it was
15 commercial or not.

16 Q Was Monsanto the first company to develop this
17 chemical?

18 A For commercial purposes and application, yes.

19 Q Does it take more or less time to take a new
20 chemical and bring it to market than to take a
21 chemical that's already available on the
22 marketplace?

23 A Oh, it takes a lot more time and resources to come
24 up with a new chemical.

25 Q Then why did Monsanto develop the new chemical

1 instead of using some of the old chemicals?

2 A They were trying to match the fire resistance of the
3 old formulation of Pydraul fluids, and this
4 phosphate ester was the one that came the closest to
5 it.

6 Q Did it quite match the PCB fluid?

7 A Almost. Not quite. But good enough.

8 Q Now, the report in April -- There had been reference
9 to the toxicity testing. It says, "No change since
10 last report." But then there's a mention, "Have
11 discussed results with Dr. Burger, executive office
12 of the president." President of what?

13 A That's the president of the United States.
14 That's --

15 Q Richard Nixon?

16 A In 1970? I believe that's who it was, yes.

17 Q Who is Dr. Burger?

18 A Dr. Burger was the technical representative from the
19 office of -- if I recall correctly, Office of
20 Science and Technology in the executive offices of
21 the president.

22 Q When did you first meet with federal officials
23 concerning the PCBs problem?

24 A Early February 1970, federal officials.

25 Q Did Dr. Burger pressure you to take more steps than

1 Monsanto was taking at the time?

2 A No. He was supportive of everything we had done as
3 we went along.

4 Q The next entry is, "We have analyzed Aroclors 1248
5 and 1254 for octochloro dibenzo dioxin. None
6 found." What was that a reference to?

7 A The octochloro dibenzo dioxins mentioned there is
8 the material that will we commonly hear later
9 referred to as dioxins as associated with Agent
10 Orange and was known to be quite toxic to some test
11 animals.

12 It was a highly controversial toxic
13 material, and our laboratory looked at PCBs to
14 determine whether or not they contain this material
15 dioxins. They didn't find any.

16 Q Next entry, "Central Institute for Nutrition and
17 Food Research, Zeist, Holland, examined Bayer,
18 Prodelac and Monsanto chlorinated biphenyls for
19 dibenzo furans and none found in Monsanto material."
20 How is this information obtained?

21 A That was initially brought to Monsanto's attention
22 by the investigators in Holland, the Netherlands,
23 reporting their findings to Monsanto representatives
24 in Europe in Belgium. That was relayed to
25 St. Lewis. And while in Europe we visited with

1 members of that research team and discussed their
2 findings face to face.

3 Q And here we see a reference to Incineration.

4 Paragraph (1) reads, "Successful trial at John Zinc
5 Company, Tulsa. 1242, 1260, 1254 destroyed at
6 2,000 degrees Fahrenheit off gas HCl. Engineering
7 work now in hand to build suitable incinerator.
8 Estimated cost \$250,000." What was John Zinc
9 Company briefly?

10 A It's a company located in Tulsa that had experience
11 with burners primarily in the petroleum and
12 petrochemical industry.

13 Q And were they developing a petro-type incinerator
14 for Monsanto?

15 A They eventually did, yes. This refers to the test
16 part. Later on the development work began.

17 Q Why didn't you just go buy an incinerator that was
18 already in commercial use?

19 A There was no such incinerator available. This is
20 new technology.

21 Q Is that why you needed to have a trial?

22 A That's right.

23 Q And then there's a reference to, "Incinerator
24 probably located in Krummrich."

25 A That's the Monsanto plant in Sauget, Illinois.

1 Q Just briefly we went through the numbers. Can you
2 identify this chart titled Control of Plant
3 Emissions, an updated report to Monsanto on
4 reducing levels in municipal sewers?

5 A That's what it is, yes.

6 Q It contains information one month more current?

7 A Yes.

8 Q The transparency is titled Hydraulic Fluids,
9 "Recognize that control of spillage and pump
10 leakage makes the use of non-biodegradable
11 chlorinated biphenyls undesirable."

12 Was Aroclor 1242 considered to be a
13 non-biodegradable chlorinated biphenyl?

14 A No.

15 Q Why was non-biodegradable material considered to be
16 undesirable for hydraulic fluids?

17 A It goes back to our desire to minimize the
18 opportunities for such types of PCBs getting into
19 the environment. And since the investigators kept
20 reporting the PCBs being found as being the type
21 that are associated with 1254 and 1260, it was
22 decided that as long as an acceptable alternate
23 material could be found there is really no need to
24 stay with the Aroclor 1254 and 1260 blendings --
25 blends.

1 Q Was that decision ultimately extended to
2 Aroclor 1242 as well?

3 A Yes.

4 Q But not at this time?

5 A That is correct.

6 Q Mr. Papageorge, I want you to briefly identify this
7 document, Defendant's Trial Exhibit 1103. Can you
8 identify that as an August 21, 1970, letter you sent
9 to Mr. Doug, last name Dube, of the State Laboratory
10 of Hygiene in Madison?

11 A It is.

12 MR. RUNNING: I move for the admission of
13 this exhibit, Your Honor.

14 MR. CARLSON: No objection.

15 THE COURT: So received.

16 (Exhibit No. 1103, previously marked for
17 identification, was received into evidence.)

18 MR. RUNNING:

19 Q Mr. Papageorge, was Monsanto still cooperating with
20 state and local government officials as of August
21 1970?

22 A Oh, yes.

23 Q Did this policy ever change?

24 A No.

25 Q Mr. Papageorge, let me show you Defendant's Trial

1 Exhibit 1104. Can you identify this as an
2 August 26, 1970, memorandum issued by Mr. Wolk and
3 sent to a number of Monsanto managers including
4 yourself?

5 A It is.

6 MR. RUNNING: I move for the admission of
7 this exhibit, Your Honor.

8 MR. CARLSON: Give me a second to look at
9 it. Let me do it this way, Your Honor. I have no
10 objection to the document being received in
11 evidence. I would reserve my right with regards to
12 specific material within the document whether or
13 not it's appropriate to show it to the jury.

14 I've been told he's only going to use the
15 first page. I don't have a problem with that.

16 MR. RUNNING: I think the whole document
17 is admissible. I'm going to refer to the first
18 page. If he was an objection to the remainder, we
19 can talk about it at the end of the day.

20 MR. CARLSON: That's fine.

21 THE COURT: So received.

22 (Exhibit No. 1104, previously marked for
23 identification, was received into evidence.)

24 MR. RUNNING:

25 Q Mr. Papageorge, was approval given to begin work on

1 the incinerator on August 26, 1970?

2 A Yes.

3 Q This is construction of the new incinerator?

4 A Yes.

5 Q Was this the first of its kind, this
6 incinerator?

7 A Yes.

8 Q Mr. Papageorge, let me show you Defendant's Trial
9 Exhibit 1105. Can you identify this as an
10 August 27, 1970, memorandum from Mr. Tom Ford to
11 Mr. Mason and to others including yourself enclosing
12 a letter from the Environmental Defense Fund?

13 A That is correct, yes.

14 MR. RUNNING: I move for the admission of
15 this document, Your Honor.

16 MR. CARLSON: Hold on one second. I have
17 no objection to the first page, the STR document
18 29379. The second page is hearsay. Lack of
19 foundation.

20 MR. RUNNING:

21 Q Mr. Papageorge, were both pages of this document
22 maintained in the ordinary course of business by
23 Monsanto Company?

24 A Yes.

25 Q Is the second page of this exhibit an attachment to

1 the first page?

2 A Yes.

3 Q Is it referred to in the first page?

4 A The letter itself? Yes.

5 Q Was it transmitted to you in the ordinary course of
6 business?

7 A Yes.

8 Q Did you rely on it in your work as manager of
9 environmental control for Monsanto?

10 A Yes.

11 MR. RUNNING: I move for the admission of
12 the entire exhibit.

13 MR. CARLSON: Your Honor, you're going to
14 have to read the exhibit -- the second page of this
15 exhibit. You're going to have to read it, and we
16 are going to have to discuss it outside the presence
17 of the jury.

18 THE COURT: Do it now?

19 MR. CARLSON: Yeah.

20 (The following proceedings were held
21 outside the presence of the jury in chambers.)

22 THE COURT: All right. The record should
23 reflect the Court is in chambers with counsel for
24 both sides relative to the letter dated August 24th,
25 1970, from the Environmental Defense Fund. It's

1 from the executive director to the public relations
2 department of the defendant.

3 MR. RUNNING: Attached to the August 27th
4 memorandum of Mr. Ford.

5 THE COURT: Okay. We'll hear from Mr.
6 Carlson first.

7 MR. CARLSON: First of all, Your Honor, I
8 still maintain it's a hearsay document. Second, it
9 contains statements of opinion specifically in the
10 second paragraph with regards to, "We have been
11 most impressed by Monsanto's willingness....,"
12 et cetera.

13 I have no information as to what
14 information Monsanto shared with the Environmental
15 Defense Fund. I have no way of cross examining Mr.
16 Cameron as to his opinions. So for both of those
17 reasons, I would object to the document.

18 MR. RUNNING: Your Honor, Stroh has taken
19 the position that anything ever produced from
20 Monsanto files is a business record because it was
21 retained by Monsanto in the ordinary course of its
22 business.

23 And the comment even came up, "Well, what
24 if Monsanto retained a copy of Playboy Magazine, is
25 it a business record of Monsanto?" And the answer

1 from Stroh was, "Yes." This is a document that was
2 received by Monsanto. It was relied on by
3 Monsanto's managers. It was certainly retained in
4 the ordinary course and used in the ordinary course
5 of business.

6 It's an authentic document. There's no
7 doubt of that. It's a business record of Monsanto.
8 It's also relevant to this case in that there's a
9 charge being made in this case that Monsanto's
10 conduct was outrageous, it was reckless, it was
11 indifferent, and that it was done with conscious
12 knowledge of those facts.

13 Well, if Monsanto is receiving a letter of
14 commendation from Environmental Defense Fund, which
15 the evidence will show was a leader in attempting to
16 ban DDT in this country, then it certainly wasn't on
17 notice from the environmental lobby that its actions
18 were outrageous. That's a relevant factor.

19 But the point at hand is whether or not
20 this is a business record; and under the position
21 taken by Stroh and the rules of this Court, this
22 clearly is a business record. It was prepared and
23 retained in the ordinary course of business and
24 relied on by Monsanto's managers.

25 And for Stroh to argue that this should be

1 excluded, they are clearly arguing for double
2 standard because they have taken the diametrically
3 opposed position when it came to documents that they
4 thought advanced their case.

5 THE COURT: Okay. Any response?

6 MR. CARLSON: Well, a couple of
7 things. One is that with regards to the question of
8 whether or not documents were produced for business
9 records, it was also perfectly understood by us that
10 Monsanto reserved the right to object on the grounds
11 of relevance, privilege, and any other prejudice and
12 any other grounds that they thought they would have
13 to assert. I think they probably have done that.
14 Although I can't recall.

15 With regards to the content of the
16 document, however, this is opinion evidence which is
17 not an opinion which we are going to be able to
18 cross-examine on. It's totally impossible. That's
19 why it's objectionable at this point.

20 Likewise although the witness has said
21 they relied upon it, I would invite the Court to
22 find anything in here that Monsanto could have read
23 and said, "Well, we relied upon this information to
24 do anything," because it's obviously something sent
25 to the public relations department by the

1 Environmental Defense Fund in return for something
2 else that Monsanto had done. Whether or not it be
3 giving money or anything else, I don't know what
4 preceding --

5 THE COURT: I've heard enough gentlemen.

6 MR. CARLSON: Okay.

7 THE COURT: First of all, I don't think
8 they have to rely on it. There's nothing in the
9 code that requires Mr. Running, Mr. McDevitt, or you
10 to rely on something.

11 Second, the exception includes opinions.
12 908.03(6) indicates, "A memorandum, et cetera, in
13 any form of acts, events, conditions, opinions, or
14 diagnoses, transmitted by a person with knowledge,
15 all in the course of a regularly conducted activity,
16 unless the source of the information indicates lack
17 of trustworthiness." There's no question about it.
18 It comes in.

19 (Exhibit No. 1105, previously marked for
20 identification, was received into evidence.)

21 MR. CARLSON: The last point for the
22 record. There's no testimony that there is a
23 regular practice of this company in soliciting
24 opinions from the Environmental Defense Fund.

25 THE COURT: I don't think it's required

1 that they had to solicit it. I think it would be
2 stupid on Monsanto's part not to retain such a memo
3 as a part of their regularly conducted activity of
4 their company.

5 MR. RUNNING: Thank you, Your Honor.

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

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1 (Whereupon, the following proceedings
2 were had in the presence of the jury.)

3 MR. RUNNING: Your Honor, I renew my
4 offer of Defendant's Trial Exhibit 1105.

5 THE COURT: Received over objection.

6 MR. RUNNING:

7 Q Mr. Papageorge, let me direct your attention to the
8 second paragraph of Mr. Ford's cover memorandum. He
9 says, "Recently an Associated Press story about the
10 continuing fight against DDT, being waged by the
11 Environmental Defense Fund, wrongly said that
12 Monsanto made DDT in Anaheim. We contacted EDF, and
13 the attached letter resulted."

14 It goes on, "As you know, EDF is one of
15 the most active and respected environmental forces in
16 the United States. It has been the leading proponent
17 in the battle against DDT. EDF's words of praise
18 about our PCB program are the exact response we hope
19 to elicit by others via the Monsanto Magazine
20 feature." I take it Monsanto has a company magazine
21 they send to its employees?

22 A They do.

23 Q And that's Monsanto Magazine?

24 A Yes.

25 Q Let's talk a little bit about the Environmental

1 Defense Fund. Was Mr. Ford correct, were they the
2 leader in the fight against DDT?

3 A Yes, they were.

4 Q Can you tell us a little background about the
5 Environmental Defense Fund?

6 A Well, they are an activist group very much interested
7 in protecting the environment. They have many,
8 many -- I say "many" -- several capable attorneys
9 working for their cause. My experience with them is
10 that they do like to work with good, sound data
11 rather than just emotions alone, so I have a mutual
12 respect, I hope, with them.

13 They worked quite well when I was in
14 discussions with them. But at the same time they
15 never let their objectives be diluted in any respect.
16 They still are very interested in doing the right
17 thing for the environment.

18 Q Is it accurate that the Environmental Defense Fund
19 was -- was the leading proponent in the battle
20 against DDT?

21 A Yes.

22 MR. CARLSON: Object as leading.

23 MR. RUNNING:

24 Q What was --

25 THE COURT: It's repetitive.

1 MR. CARLSON: I understand that I have
2 let him lead for a long time, to keep things going.

3 THE COURT: It's not only leading, it's
4 repetitive.

5 MR. CARLSON: Yes.

6 MR. RUNNING:

7 Q Is this the letter that was attached?

8 A Yes, it is.

9 Q Who is it signed by?

10 A A Mr. Roderick A. Cameron, who was the executive
11 director of the Environmental Defense Fund at that
12 time.

13 Q And the first paragraph of the letter apologized for
14 mistakenly identifying Monsanto as having produced
15 DDT in Anaheim, California?

16 A It does.

17 Q Had Monsanto solicited the comments in the second
18 paragraph of the letter?

19 A No, sir.

20 Q The second paragraph reads, "At EDF we have been most
21 impressed by Monsanto's willingness to be responsible
22 where the environment is concerned. We have closely
23 watched the development of information concerning the
24 environmental impact of Monsanto's product,
25 polychlorinated biphenyls, PCB. What impressed us

1 most was Monsanto's attitude and finally its action
2 to lessen the environmental degradation caused by its
3 product. We continue to watch your PCB clean-up
4 program to be sure that your action is as good as
5 your word, but in the meantime we are impressed by
6 your sensitivity and responsibility. Indeed, in many
7 informal conversations we have signalled" -- "singled
8 out your company as being one capable of acting in
9 its own long-term interest and that of society rather
10 than its short-term economic interest. We have great
11 respect for you."

12 Mr. Papageorge, did this statement from
13 the Environmental Defense Fund have any impact on
14 your subsequent actions as Manager of Environmental
15 Control for Monsanto?

16 A Well, it certainly told us that apparently we were
17 going in the right direction as it affects the
18 environment, because this is certainly one group that
19 was watching the environment very closely and was
20 well-qualified to make some evaluation.

21 Q Did you receive other favorable comments on
22 Monsanto's PCB policy during this period?

23 A I recall a couple more, the best my memory can help
24 me here, yes.

25 Q Do you recall statements by Dr. Ian Nesbitt of the

1 Audubon Society?

2 A Yes, sir.

3 Q What do you recall that he said?

4 MR. CARLSON: Objection, hearsay.

5 THE COURT: Sustained.

6 MR. RUNNING:

7 Q Did anything that Dr. Ian Nesbitt of the Audobon
8 Society said to you lead you to believe that
9 Monsanto's conduct was outrageous, or indifferent, or
10 negligent, in need of change?

11 A No, it was just the opposite.

12 Q Have you ever heard of the Isaac Walton League?

13 A Yes, I have.

14 Q Who are they?

15 A As I understand it, that's a group of ardent
16 fishermen who are also environmentalists, interested
17 in providing clear streams and propagation of sports
18 fishing.

19 Q Did you have communications with a representative of
20 the Isaac Walton League concerning Monsanto's PCB
21 program?

22 A Yes.

23 Q Did anything that that representative told you lead
24 you to believe that Monsanto's conduct was
25 outrageous, indifferent, negligent, or for any other

1 reason in need of change?

2 A No. In fact, it was complimentary.

3 MR. CARLSON: Wait. Wait. Wait. Wait.

4 THE COURT: That last phrase is stricken
5 as being nonresponsive.

6 MR. RUNNING: Leaving in the answer "no,"
7 Your Honor?

8 THE COURT: Correct.

9 MR. RUNNING: Thank you.

10 THE COURT: By the way, just so there is
11 no misunderstanding, "McCormick On Evidence"
12 indicates that that objection is only available to
13 the questioner, but I have never followed that. And
14 because I don't know what somebody in Mr. Carlson's
15 position does when somebody blurts out an answer
16 that's nonresponsive.

17 MR. CARLSON: I have always suffered with
18 that problem with judges that weren't as enlightened.

19 MR. RUNNING:

20 Q Mr. Papageorge, can you identify Defendant's Trial
21 Exhibit 1010?

22 A You wish me to identify it?

23 Q Well, let's back up. First of all, was this letter
24 sent out using the same procedures you've identified
25 for the February, 1970, mass mailing?

1 A Yes.

2 Q And is this letter addressed to "Office of the
3 President, Stroh Die Casting Company"?

4 A Yes.

5 Q Is it dated August 27, 1970?

6 A Yes.

7 Q And signed by Norman Johnson, Marketing Manager,
8 Industrial Fluids?

9 A Yes.

10 MR. RUNNING: I move for the admission of
11 this exhibit, Your Honor.

12 MR. CARLSON: I have no objection.

13 THE COURT: So received.

14 MR. RUNNING:

15 Q Is this the mailing label that was found in
16 Monsanto's files, Mr. Papageorge?

17 A It is.

18 Q There has been previous testimony that's the correct
19 address for Stroh Die Casting?

20 A Yes.

21 Q Were you involved in the writing of this letter, Mr.
22 Papageorge?

23 A I saw the drafts as it was being put together, and I,
24 of course, saw the final version before the mailings.

25 Q Now, Mr. Carlson has asked several witnesses if they

1 see -- if they saw in the February, 1970, letter a
2 statement that Pydraul had contained polychlorinated
3 biphenyls. Do you see a statement to that effect in
4 this letter, Mr. Papageorge?

5 A I do.

6 Q "Pydraul F-9 has been formulated with polychlorinated
7 biphenyls." Is that the first sentence of the second
8 paragraph of this letter?

9 A It is.

10 Q Do you see the reference in the first paragraph, "In
11 February we advised you of the newspaper and magazine
12 articles indicating that polychlorinated biphenyls
13 have been discovered at some points in some marine,
14 aquatic and wildlife environments."

15 Q Would a person receiving this letter have been
16 referred back to an earlier letter?

17 A Certainly.

18 Q Why was a decision made to reformulate Pydraul F-9?

19 A Pydraul F-9 had in it Aroclor 1248. It wasn't as
20 biodegradable-resistant as the Aroclor 1254 and 60,
21 but it was not as degradable as the Aroclor 1242.
22 And since it fell between the two, it was decided to
23 go ahead and treat it as though it was similar to the
24 Aroclor 1254 types of Pydrauls.

25 Q Was there any prioritization given to the

1 reformulation program? Were some chosen to be
2 reformulated first and others later?

3 A Yes, those that had the higher chlorinated types of
4 PCBs, the 1254 and the 60, were reformulated first,
5 followed by F-9, for example, which had Aroclor 1248,
6 and later on we picked up the 1242 types.

7 Q There is, "This formulation," referring to the new
8 formulation, "is completely compatible with the old
9 formulation and does not contain polychlorinated
10 biphenyls." What did that mean, Mr. Papageorge?

11 A It means that this material can be added to the
12 equipment without affecting the -- all the fluid in
13 the system and creating problems with the operation
14 of the system. It's very much like adding oil to
15 your automobile engine, you can top it off without
16 damaging the equipment.

17 Q The comment "does not contain polychlorinated
18 biphenyls," what does that mean?

19 A That means that the formula now offered for F-9-A
20 does not contain PCBs as an ingredient.

21 Q Is the method for making terphenyls analogous at all
22 to the method for making biphenyls?

23 A The methods are virtually identical except for the
24 starting material.

25 Q What are the differences in starting material?

1 A In making PCBs, the process starts with biphenyl. In
2 making the chlorinated terphenyls it starts with
3 terphenyl, which is three benzene rings as compared
4 to two.

5 Q Is it possible to get a hundred point zero, zero,
6 zero, zero percent terphenyl mixtures when you make
7 terphenyls as your starting ingredient?

8 A Is it possible that -- Under research conditions it's
9 possible, but commercial and industrial conditions,
10 not probable.

11 Q Are there small amounts of biphenyls -- I am sorry --
12 yeah, are there small amounts of biphenyl in the
13 triphenyl raw ingredient?

14 A Yes. We found that out.

15 Q You found that out when?

16 A Sometime after the date of this letter. I just don't
17 recall when. Six months later or so.

18 Q We may run into it.

19 A Okay.

20 Q How much? Is it 50 percent biphenyl and 50 percent
21 triphenyl?

22 A No. No. No. It's a low percent. 1 percent is the
23 best I recall.

24 Q Okay. Now, what happens with that less than 1
25 percent of biphenyl in the triphenyl mixture when

1 it's chlorinated?

2 A It becomes a chlorinated biphenyl. And then when the
3 analyst looks at the chlorinated terphenyl, they see
4 this contaminant, which is a chlorinated biphenyl.

5 Q Were polychlorinated biphenyls an intentional
6 ingredient in Pydraul 312A -- I am sorry, Pydraul
7 F-9-A?

8 A No.

9 Q Referring to the next paragraph, it says, "During the
10 next 90 days, as inventory is depleted in warehouses
11 around the country, the new formulations will be
12 shipped to fill your orders." I just want to be
13 clear on the chronology. Were the letters informing
14 of the reformulation, informing the customers of the
15 reformulation, were they sent before or after the
16 switch was actually made to the new product?

17 A They were made while the new product was being
18 manufactured and put in drums and then distributed to
19 the warehouses.

20 Q As a customer, would I receive the letter telling me
21 about the reformulation -- here it's August 27,
22 1970 -- would I receive it before the inventories of
23 the old product had been sold out?

24 A It depends on which area you're in and whether the
25 warehouse that distributes the material in your area

1 still had some of the older inventory.

2 Q Let's talk about the inventories.

3 A Um-hum.

4 Q How were -- What -- How was it decided how much
5 inventory of the old product would be kept?

6 A Under the normal conditions of sale and
7 replenishment, and so on?

8 Q Yes.

9 A That is decided by the pattern that the warehouse
10 experiences through the years. They know that they
11 can handle ten drums a month, or some such number,
12 and they like to have a certain number of drums in
13 their warehouse to make sure they can meet the orders
14 as they come in.

15 Q Mr. Papageorge, let's not talk about a particular
16 regional warehouse. Using your background in
17 manufacturing, is the size of an inventory in part a
18 function of the economies of scale of production?

19 A Yes.

20 MR. CARLSON: I object. It's leading.

21 THE COURT: The answer is stricken.

22 MR. RUNNING:

23 Q Mr. Papageorge, explain the relationship between the
24 economies of scale of production and the size of the
25 inventory for a given product.

1 A The ease with which a particular product can be
2 manufactured, the availability of the equipment in
3 which it is manufactured are important factors in
4 determining when a particular product will be made
5 and how much will be made at a time, and this is
6 further influenced by the degree of business
7 involved. If it's an active kind of product, of
8 course you schedule production more often, and if
9 not, you just wait a while until the inventory
10 reaches a low point, and then the production planner
11 schedules additional production.

12 Q I am going to try to illustrate this with a simple
13 example. Say to activate a production line, produce
14 a widget, a product -- Let's say there is two
15 production lines. Line 1 is Production Line A that
16 makes Widget A, and the other is Production Line B,
17 and it makes Widget B. And let's say Production Line
18 A costs \$10,000 every time you activate it,
19 Production Line B costs you a thousand dollars every
20 time you activate it. Just with those facts, if
21 that's all you know about Widget A and Widget B, or
22 Product A and Product B, which is likely to have the
23 bigger inventory?

24 A The one that costs the \$10,000.

25 Q And why is that?

1 A It just makes good economic sense. If you can avoid
2 these high expenditures by scheduling the production
3 less frequently, but make enough inventory, you do
4 so. But you have to weigh the cost of the inventory
5 against that also. So there is a balance that's
6 eventually reached that's the optimum.

7 (Switch in reporters.)
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1 Q Did Monsanto use this kind of thinking in deciding
2 how big its inventory of products should be?

3 MR. CARLSON: Object, lack of foundation.

4 MR. RUNNING: He was involved in
5 production, Your Honor.

6 MR. CARLSON: I don't think production has
7 anything to do with marketing.

8 MR. RUNNING: This isn't marketing.

9 THE COURT: No, it's production.

10 MR. CARLSON: I understand that.

11 THE WITNESS: Yes, they did.

12 THE COURT: I never did rule, but I will
13 overrule the objection.

14 MR. RUNNING:

15 Q I just assumed. Sorry. Mr. Papageorge, using the
16 simple examples of Product A and Product B, the
17 \$10,000 cost of activating Production Line A, and
18 the thousand dollar cost of activating Production
19 Line B, could you describe what the production
20 arrangements were for Pydraul products?

21 A The Pydraul products could be relatively easy to
22 blend and formulate. The facility in which they
23 were produced was a very flexible arrangement of
24 tanks and pumps and drumming equipment and storage.

25 Therefore, there was no need to build a huge

1 inventory of any one of the particular Pydrauls, so
2 that we were able to keep a minimum number of drums
3 to meet the normal demand, and if the inventory got
4 to a low point, which had been determined from
5 experience and economics, we would schedule another
6 blending run, and produce, say, a hundred drums of
7 the material and put it in the warehouse.

8 Q If I'm a customer, say I'm Stroh Die Casting
9 Company, and I've received this letter on or about
10 August 27, 1970, and I see there is going to be a
11 new product, Pydraul F-9A, and I'm thinking about
12 ordering some new Pydraul from Monsanto, if I decide
13 I want to wait for the new product and not order the
14 old, would that have been accepted by Monsanto?

15 A Certainly.

16 Q I show you Defendant's Trial Exhibit 1106. Can you
17 identify this as minutes of the meeting of the
18 corporate management committee of September 14,
19 1970?

20 A I do.

21 MR. RUNNING: I move for the admission of
22 this document, Your Honor.

23 MR. CARLSON: Give me a second. No
24 objection.

25 THE COURT: So received.

MR. RUNNING:

Q Mr. Papageorge, we were talking this morning about Dr. Kelly's memo to you and the decision to terminate the sales of PCBs used in coatings of silos. Do you see a reference that sales of plasticizer applications have been terminated? Do you see that reference?

A I do, I see it.

Q Does that refer to the same thing we were talking about in connection with Dr. Kelly's memorandum?

A Yes.

Q Let's go to the next page. Item 4 reads, "Replace non-biodegradeable chlorinated biphenyls, hydraulic application. 40 percent phase out will be accomplished by November 1. By year end we'll reduce from 14 million pounds to 5 million pounds annually, leaving only 1242 being used for this purpose." Does that refer to Aroclor 1242?

A Yes.

Q "An additional three months will be required to remove all PCBs from Pydraul 300 to accomplish a 90 percent phase out when 1242B is available."

First of all, is that a typographical error?

Is there such a thing as Pydraul 300?

A No, that should have been 312.

1 Q Okay, and what is this reference to 1242B?

2 A 1242B refers to the PCB mixture that starts out as
3 Aroclor 1242 and which has been distilled, and the
4 five chlorine and higher PCBs have been removed, and
5 the B was intended to stand for biodegradeable
6 version of Aroclor 1242.

7 Q This would be removing the 7 percent of 5 chlorine
8 and higher molecules that were in 1242?

9 A That is correct.

10 Q Now, there is a reference to an additional three
11 months will be required to remove all PCBs from
12 Pydraul 300, meaning 312. What is the reference of
13 three months?

14 A This was dependent on the installation of equipment
15 at the manufacturing plant which was capable of
16 distilling the Aroclor 1242 to make the Aroclor
17 1242B.

18 Q I see. "The division requests three months
19 extension to achieve a 90 percent phase out of the
20 use of nondegradeable PCBs and hydraulic fluid
21 applications, when the new 1242B product will be
22 available for substitution.

23 "Conclusions. The president commended the
24 division for the excellent progress made on its
25 program. The three months extension requested for

1 phasing out of products with hydraulic fluid was
2 approved with a caution that the division continue
3 to exert pressure to move this program as fast as
4 possible. Further progress in the program should be
5 reviewed with the committee in the first quarter of
6 1971."

7 Mr. Papageorge, as of the date of this meeting,
8 September of 1970, had Monsanto changed its mind
9 about Aroclor 1242?

10 A As of the date of this meeting?

11 Q Yes.

12 A No. It still considered Aroclor 1242 as one of the
13 degradable types of PCBs not in the same class as
14 the Aroclor 1254 and 1260, but at the same time they
15 decided that if an acceptable substitute was
16 available that was more promising in terms of not
17 having the objectionable types of PCBs, it would
18 work on it and use it.

19 Q Was the distilled version of Aroclor 1242 ultimately
20 used as a replacement for the old Aroclor 1242 and
21 Pydraul 312?

22 A No, it was never used.

23 Q Why not?

24 A Because the program for developing a phosphate ester
25 which gave good fire resistant properties was moving

1 faster than expected, and it was decided that since
2 this phosphate ester was working so well in the
3 laboratory, that that is the one we should
4 concentrate on for introduction into the commercial
5 fluids and get it approved for that purpose.

6 Q Mr. Papageorge, we spoke a moment ago about the
7 differences between PCTs and PCBs. Do you recall
8 that polychlorinated terphenyls were used as an
9 interim substitute product between the new phosphate
10 ester and the old PCB?

11 A True.

12 Q And why was the decision made to use polychlorinated
13 terphenyl as an interim substitute product?

14 A It was primarily intended to help us phase out the
15 use of PCBs, even though it was only 7 percent of
16 the mixture was the objectionable types of PCBs, and
17 that the PCTs offered an opportunity to produce an
18 acceptable product, as we talked earlier this
19 morning, with less chloride, and the intent there
20 was to tide us over until the phosphate ester was
21 demonstrated to be acceptable.

22 Q Mr. Papageorge, let me show you Defendant's Trial
23 Exhibit 1107. Can you identify this as an October
24 6, '70 memorandum you prepared to Mr. Marsh and
25 others regarding the "PCB Environmental Problem,

1 September status report"?

2 A Yes.

3 MR. RUNNING: Move for the admission of
4 this exhibit, Your Honor.

5 MR. CARLSON: No objection.

6 THE COURT: So received.

7 MR. RUNNING:

8 Q Did you prepare monthly reports on the activities
9 regarding PCBs during this time period?

10 A I did.

11 Q What was the purpose of the monthly status report?

12 A The intent was to inform the managers of this
13 product group, as well as the participants in the
14 PCB task force that was helping me, to get a good
15 review of what transpired the previous month.

16 Q I don't want to go through this whole report. Turn
17 to Page 5, "Industrial Hydraulics." Let me read you
18 the second paragraph.

19 "It will be desirable to make the hydraulic
20 fluid application into a closed-loop system. We
21 cannot expect to stop leaks, but we can expect to
22 minimize contamination of water by; 1, minimizing
23 runoff to sewers; 2, treating contaminated water by
24 absorption. Anniston had no detectable PCB after
25 passing through a limestone bed.

1 Three, recycling absorbents to remove Aroclor
2 by squeezing, by extraction, or by devolatilization
3 - destruction."

4 What did you mean when you were saying that it
5 would be desirable to make the hydraulic fluid
6 application into a closed-loop system?

7 A It's the same meaning we had as discussed earlier,
8 about accounting for these fluids in such a way that
9 we are assured they're not getting into places we
10 don't want them to get into.

11 Q This is something you were advocating in 1970?

12 A Yes.

13 Q Would it be easier or harder to achieve the
14 closed-loop system you describe here if there were
15 no floor drains on the factory floor that led to the
16 municipal sewer?

17 A Certainly it's easier.

18 Q Would it be easier or would it be harder to achieve
19 the closed-loop system you refer to here if there
20 were a trench system in place that would channel
21 hydraulic spills to a central area for collection?

22 A That would make the task much easier.

23 Q Would it be easier or would it be harder to achieve
24 the closed-loop system you've referred to here if
25 there was a means of collecting the hydraulic spills

1 into a central containment tank?

2 A It would be easier.

3 Q Would it be easier or would it be harder to achieve
4 the closed-loop system you've referred to here, if
5 the cooling water system for the machinery in
6 question was a non-contact cooling water system that
7 had its own piping system?

8 A Easier.

9 Q I show you Defendant's Trial Exhibit 1253. Can you
10 identify this as a January 25, '71 memorandum
11 prepared by N.T. Johnson to several Monsanto
12 managers regarding Pydraul reformulation letters to
13 customers?

14 A Yes.

15 MR. RUNNING: I move for the admission of
16 this exhibit as a business record, Your Honor.

17 MR. CARLSON: Do you have the attached
18 distribution list that is referenced on here?

19 MR. RUNNING: It's right here.

20 MR. CARLSON: I have no objection to the
21 document, Your Honor.

22 THE COURT: Received without objection.

23 MR. RUNNING:

24 Q Is this a cover sheet for the memorandum?

25 A Yes, it is.

1 Q Mr. Papageorge, the first paragraph of this
2 memorandum reads, "On February 1, a letter will be
3 sent to all Pydraul 312, 135, Pydraul 230, Pydraul
4 540A, and Pydraul A200 customers announcing the new
5 formulations containing no polychlorinated
6 biphenyls. A copy of this letter is attached." It
7 gives the designations of the new products.

8 We are bringing in raw materials to the Queeny
9 plant now and will initiate production as soon as
10 all old raw materials are consumed. The exact
11 change over date on each formulation will vary by
12 product. Every effort must be made by yourself,
13 your sales correspondent, and the current operating
14 COP system to move the old formulations first. We
15 will have some inventory of Pydraul F-9, Pydraul AC,
16 and Pydraul 625 -- these must be moved in the next
17 60 days."

18 Mr. Papageorge, how much inventory was there of
19 these products?

20 A I don't recall the exact amount, but it was less
21 than 50 drums of material throughout the country.

22 Q Why didn't Monsanto incinerate the old product
23 instead of selling it to customers?

24 A There was no need to, as long as the product was
25 used properly as we had advised, there just wouldn't

1 -- it wouldn't have made any sense to destroy those
2 50 drums. That would not help anything.

3 Q If a customer disagreed with you, Mr. Papageorge,
4 upon receiving the letter and didn't want the old
5 product, would you have respected his wishes?

6 A Certainly.

7 Q Does Mr. Johnson say that in his memorandum there
8 will be exceptions, but they must be minimized?

9 A Yes, that is the exceptions. They expected some
10 people not to want the old.

11 Q If you had wanted to make sure that every customer
12 would get the old product whether he liked it or
13 not, could you have just delayed sending out the
14 letter announcing the reformulation?

15 A Certainly.

16 Q Did you do that?

17 A No.

18 Q I hand you Defendant's Trial Exhibit 1011. Mr.
19 Papageorge, was this letter, the February 1, 1971
20 letter, sent according to the same procedures that
21 you previously testified to for the other mass
22 mailings?

23 A It was.

24 MR. RUNNING: Move for the admission of
25 this letter, Your Honor, including the mailing

1 label.

2 MR. CARLSON: No objection.

3 THE COURT: So received.

4 MR. RUNNING:

5 Q Mr. Papageorge, is that the mailing label found in
6 Monsanto's files?

7 A Yes.

8 Q There is testimony that is the correct address of
9 Stroh Die Casting Company. Do you see the checkmark
10 again?

11 A I do.

12 Q Is this the letter that was put in the envelope that
13 was addressed to Stroh?

14 A It is.

15 Q Mr. Johnson's memorandum saying that he wanted to
16 sell out the inventory of the old product was dated
17 January 25 of '71, is that correct?

18 A That is correct.

19 Q This letter was sent out just 7 days later, is that
20 right?

21 A That is right.

22 Q Is the first paragraph similar to the first
23 paragraph in the letter that was sent to Pydraul F-9
24 customers, when that product was reformulated?

25 A Yes.

1 Q So your testimony would apply to that paragraph as
2 well?

3 A Yes.

4 Q The second paragraph reads, "Pydraul 312, Pydraul
5 135, Pydraul 230, Pydraul 540A, and Pydraul A200
6 have been formulated to a polychlorinated biphenyl,"
7 is that right?

8 A That is correct.

9 Q Is that something that Monsanto is trying to hide?

10 A No, sir.

11 Q The next paragraph says, "During the next 60 days,
12 as inventory is depleted in warehouses around the
13 country, the new formulations will be shipped to
14 fill your order. If we can be of further assistance
15 or answer any questions you might have, please
16 contact your local representative or me in St.
17 Louis."

18 Mr. Papageorge, if Stroh, having received this,
19 letter, didn't want to buy any more Pydraul 312,
20 would you have respected their wishes?

21 A Certainly.

22 Q Mr. Papageorge, let me show you Defendant's Trial
23 Exhibit 1012. Can you identify this as an April 15,
24 1971 letter that was sent according to the same
25 procedures as you've previously testified to?

1 A I can, yes.

2 Q Is the first page of this exhibit a mailing letter
3 to Stroh Die Casting Company?

4 A Yes.

5 MR. RUNNING: I move for the admission of
6 this exhibit, Your Honor.

7 MR. CARLSON: No objection.

8 THE COURT: So received.

9 MR. RUNNING:

10 Q Is this the mailing letter that was in Monsanto's
11 files, Mr. Papageorge, for this letter?

12 A Yes.

13 Q And is this the letter that was put in that
14 envelope?

15 A Yes.

16 Q The first paragraph reads, "Over the past year or
17 so, we have written you several letters concerning
18 polychlorinated biphenyls and have urged that care
19 be taken to prevent the escape of hydraulic fluids
20 containing PCBs into the environment.

21 Certain Pydraul hydraulic fluids did contain
22 PCBs, taking advantage of the excellent
23 characteristics of that material for certain
24 industrial applications, however, in view of the
25 questions which have been raised concerning possible

1 environmental effects, Monsanto launched a program
2 to develop alternative products without using PCBs."

3
4 Is the information in that paragraph accurate,
5 Mr. Papageorge?

6 A Yes, it is.

7 Q If a person reading this letter had for some reason
8 misplaced or accidentally thrown out the previous
9 letters, and they called Monsanto and asked for
10 copies, would they have been provided?

11 A Oh, certainly.

12 Q So if a secretary had accidentally thrown out the
13 letters thinking they were junk mail, would Monsanto
14 have been willing to provide extra copies?

15 A Certainly. As many as they want.

16 Q Did you ever hear of any customer who complained
17 that they hadn't received these letters?

18 A No.

19 Q Refer to the postscript, Mr. Papageorge. It reads,
20 "Would you please circulate this letter to all
21 departments in your operation that are concerned
22 with hydraulic fluids and/or maintaining a clean
23 environment." Why was that postscript added?

24 A We wanted to make certain that the information
25 contained in that letter wasn't kept in a file where

1 it would be of no help to the people who actually
2 used the material out in the plant.

3 There have been some experiences where it would
4 go into, say, the buyer's file, and the operating
5 people didn't get to see it, and the intent here is
6 to make certain that those who worked with the
7 material at least knew this much about it.

8 Q Mr. Papageorge, I'm going to hand you Defendant's
9 Trial Exhibit 1113. Can you identify this as the
10 July 16, 1971 memorandum that you prepared and sent
11 to Mr. S. Uneno concerning the incinerator?

12 A Yes.

13 MR. RUNNING: Move for the admission of
14 this document, Your Honor.

15 MR. CARLSON: No objection.

16 THE COURT: So received.

17 MR. RUNNING:

18 Q Mr. Papageorge, this memorandum states that the
19 scrap liquid incinerator was placed into operation
20 in May, referring to May of '71. It gives the
21 performance characteristics of the incinerator. Is
22 the memo accurate?

23 A Yes.

24 Q Was the incinerator successful?

25 A Yes.

1 Q Was it successful in destroying PCBs through high
2 temperature incineration?

3 A Yes.

4 Q Incidentally, was this the first successful
5 operating high temperature incinerator for PCBs?

6 A Yes.

7 Q In the world?

8 A In the world.

9 Q Mr. Papageorge, let me show you Defendant's Trial
10 Exhibit 1254. Can you identify this document?

11 A Yes.

12 Q Would you do so?

13 A This is a copy of comments that I made before a
14 group of Monsanto's customers who purchased PCB
15 products for use in electrical equipment.

16 Q Approximately when -- I take it this was a speech?

17 A I guess you'd call it a speech. I sat down at a
18 table and others sat around a big table, and I read
19 off my notes to them.

20 Q Was it like a seminar then?

21 A Somewhat, yes.

22 Q When was it given, approximately?

23 A This is about September, '71, as best I recall.

24 MR. RUNNING: I move for the admission of
25 this document, Your Honor.

1 MR. CARLSON: I'm going to have to wait
2 just a little bit on this one, Your Honor.

3 THE COURT: All right. It's time to take
4 a break right now. That will give you a chance to
5 look at it.

6 (Switch in Reporters.)
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1 THE COURT: All right. We'll resume the
2 direct examination of Mr. Papageorge.

3 MR. RUNNING: Mr. Carlson had been asked
4 to review the exhibit. Do you object to it?

5 MR. CARLSON: I suppose I have to make up
6 my mind, don't I. I guess, Your Honor, I am going to
7 not object to the document as a business record.
8 However, to the extent that -- I don't object to it.

9 THE COURT: Received without objection.

10 MR. RUNNING:

11 Q Mr. Papageorge, are these -- is this the notes you
12 used in giving the seminar or speech to the
13 electrical manufacturers?

14 A Yes.

15 Q This was about in September of 1971?

16 A Yes.

17 Q Mr. Carlson quoted from this speech in his opening
18 argument in this case.

19 MR. CARLSON: Statement.

20 MR. RUNNING:

21 Q His opening statement. I want to direct your
22 attention to the portion, although not the -- more
23 than just the words -- Mr. Carlson -- but the portion
24 begins, "Other major uses include the use in
25 hydraulic fluids which are fire-resistant. Monsanto

1 marketed these fluids under its trademark Pydraul. I
2 am sure some of you remember the Livonia, Michigan,
3 fire? This was a disastrous fire in terms of
4 property damage and was really a high mark in terms
5 of convincing industry that there was a need for
6 fire-resistant hydraulic fluids."

7 This is the part that Mr. Carlson read.
8 "But the application is not the type that is
9 maintained to a degree where everything is leakproof.
10 Many of these connections leak, hoses burst, and the
11 tendency is to keep producing by adding more fluid.
12 So it is conceivable that many of these hydraulic
13 fluids ended up in the sewer. I do not intend to
14 criticize the customers of our products. From the
15 knowledge that we had at that time of the material,
16 the practice was considered acceptable." Did you
17 make those remarks in September 1971?

18 A I did.

19 Q Were they true?

20 A Yes, as I understood them.

21 Q Do you stand by those words today?

22 A Yes.

23 Q Mr. Papageorge, when you say, "It is conceivable that
24 many of these hydraulic fluids ended up in the
25 sewer," what are you referring to?

1 A I guess the best way to describe that is by
2 describing a typical situation where a leak occurs in
3 a system and no attempt is made to repair it quickly,
4 there would be expected to be an accumulation of the
5 liquid underneath that leaking point.

6 Now, I don't want to give the impression
7 that all of that is a river of fluid flowing down the
8 sewer into the environment. What I'm referring to is
9 that after a proper cleanup of that fluid, with a
10 squeegee, or sawdust, or whatever ways to take up the
11 free fluid, there is still an amount of fluid, almost
12 like a big stain on the floor, like I have under my
13 car in my garage, and the idea is to -- what was
14 happening then is that on occasion that floor would
15 be washed down, sometimes using detergent, sometimes
16 just hot water and whatever it took, and that's the
17 amount of material containing PCBs that I visualize
18 going down the sewer.

19 Q You said, "I do not intend to criticize the customers
20 of our products." In 1971 would you have criticized
21 customers who were dumping Pydraul hydraulic fluid
22 out on their backyard?

23 A In '71, certainly.

24 Q Would you have criticized them for that practice in
25 1965?

1 A Backyard, certainly, yes.

2 Q Now, if the factory floor in question didn't have
3 drains that led to the municipal sewer, but instead
4 had trenches that led to a central collection system,
5 would this problem arise?

6 A I don't see how it could, no. It doesn't allow entry
7 into the sewer.

8 Q Mr. Papageorge, let me show you Defendant's Exhibit
9 1115. Can you identify this as an October 28, 1971,
10 memorandum from Dr. Keller to Dr. Richard concerning
11 alleged dioxins and benzofurans and PCBs, inputs for
12 report?

13 A I do.

14 Q Is this a Monsanto business record?

15 A Yes.

16 MR. RUNNING: I move for its admission,
17 Your Honor.

18 MR. CARLSON: No objection.

19 THE COURT: So received.

20 MR. RUNNING:

21 Q Dr. Keller was the head of the Analytical Program?

22 A Yes, he was.

23 Q And Dr. Richard was the head of the Functional Fluids
24 Research Program?

25 A Yes, he was.

1 Q Reading the second paragraph, "Overall we should be
2 able to meet predicted regulatory agency maximum
3 permissible levels of chlorodibenzofurans in our
4 PCB/PCT products. Data in hand show that Aroclor
5 1242, 1254, 1260 and MCS 1016 contain no detectable,
6 less than two parts per million, furans or
7 chlorodibenzo-p-dioxins. Aroclor 5442 contains no
8 detectable, less than five parts per million,
9 furans." Was this the finding of the research group
10 at the time?

11 A Yes.

12 Q Was it the best information Monsanto had available
13 about the content of its PCB and PCT products?

14 A As it relates to these contaminants, yes.

15 Q Mr. Papageorge, do you have a copy of Plaintiff's
16 Exhibit 40 in front of you? It should be right over
17 there.

18 A I have it.

19 Q Okay. This is a November 17, 1971, memorandum from
20 Mr. Bradford and Mr. Johnson to Mr. Gossage.

21 MR. RUNNING: It's in evidence, Your
22 Honor, as Plaintiff's Exhibit 40.

23 MR. RUNNING:

24 Q Mr. Papageorge, I want to direct your attention to a
25 paragraph in this document that's been read several

1 times by Mr. Carlson. Would you turn to Page 3 of
2 the memorandum and read the paragraph to yourself. I
3 want to go back to it, but I want to refer to a
4 couple things first. If you could just read the
5 paragraph so that you can be in a position to answer
6 my question.

7 A I have read it.

8 Q Okay. Now, you were not here for Mr. Carlson's
9 opening statement, but I want to direct your
10 attention to his comments about the paragraph I have
11 just referred you to. Do you see in the box that I
12 have highlighted in green Mr. Carlson quoted verbatim
13 from the paragraph from the Bradford memorandum?

14 A I do.

15 Q And then he said, "In the area" --

16 MR. CARLSON: Wait. Wait. What is this?

17 MR. RUNNING: This is the transcript of
18 your opening statement.

19 MR. CARLSON: Your Honor, that's not
20 proper direct examination of this witness.

21 MR. RUNNING: Your Honor, I'm entitled to
22 direct the witness's attention to the comments
23 counsel has made about this document and then ask him
24 to respond.

25 MR. CARLSON: It's not in evidence.

1 THE COURT: He can make -- I don't think
2 there is any question that he can ask questions about
3 comments made by a lawyer in opening statement.

4 MR. CARLSON: I don't have any problem
5 with that. It's the subject matter.

6 MR. RUNNING: I want to refer him to his
7 very words so the witness can respond.

8 THE COURT: No question about it.

9 MR. CARLSON: About using a --

10 THE COURT: Opening statement comments,
11 sure.

12 MR. CARLSON: Okay.

13 MR. RUNNING:

14 Q After reading verbatim from the memo, Mr. Carlson
15 said, "And Monsanto did embark on a course to find
16 out how to put their fluids on top of the PCBs so
17 that the PCBs could be lost to the environment,
18 knowing what it was causing." Now, do you have that
19 in mind, Mr. Papageorge?

20 A I do, yes.

21 Q I want to show you something else Mr. Carlson and
22 another witness said about this paragraph. This is
23 from the direct examination of Dr. Richard Peterson.
24 You see in the box that I have highlighted in green
25 that Dr. Peterson read this paragraph to the Court

1 and to the jury. Do you see the green box?

2 A I do.

3 Q That's verbatim, the box that I highlighted from the
4 memorandum. And do you see at the bottom in the part
5 I have highlighted in blue --

6 A I see it.

7 Q -- Mr. Carlson asked on Line 21 the question:

8 "And do you have an opinion as to the
9 suitability of that advice?

10 A I thought that was outrageous advice.

11 Q Thank you. Why?

12 A Because of the fact that this paragraph
13 is acknowledging the fact that by doing
14 that, by topping off, as they referred to
15 it, the PCBs in these machines that use
16 hydraulic fluids with PCTs, that would
17 mean that the old PCBs that were there
18 would still be gradually lost to the
19 environment, and for that reason I
20 thought this was outrageous advice."

21 Do you have Dr. Peterson's testimony on
22 this subject and Mr. Carlson's opening statement on
23 this paragraph in mind, Mr. Papageorge? You have
24 just -- have had -- now had a chance to review those
25 two --

1 A I believe I have, yes.

2 Q -- pieces of evidence in the trial? I direct your
3 attention to the statement that Mr. Carlson has been
4 reading several times in this trial.

5 "This of course would mean gradual loss
6 to the environment of all PCTs and PCBs in our
7 current customer systems," and there is a reference
8 to "20 million pounds."

9 Mr. Papageorge, was that the basis for
10 any decision that you made while at Monsanto
11 concerning the reformulation of polychlorinated
12 biphenyl or polychlorinated-terphenyl-containing
13 products?

14 A Absolutely not. That's -- That statement makes no
15 sense.

16 Q Why doesn't it make any sense, Mr. Papageorge?

17 A Well, the 20 million pounds ending up into the
18 environment is hard to imagine. It's a bit like -- I
19 am going to use an exaggerated example to make my
20 point with you. It's a bit like a tornado hitting
21 each and every site where hydraulic fluids are used
22 and scattering that PCB-containing material all over
23 the environment, on the ground, in the area, down the
24 creeks and into the rivers. That just doesn't fit
25 the real world. There was better control of those

1 systems than that.

2 Q Well, wait a minute, Mr. Papageorge. You'll
3 acknowledge, won't you, that hydraulic lines
4 sometimes leak?

5 A Oh, they do leak. That doesn't mean that they're out
6 of control.

7 Q Why not? If they leak, doesn't that mean the fluid
8 will get into the environment?

9 A Not necessarily.

10 Q Why not?

11 A Unless it's carelessly handled. There is always a
12 bucket you can put it in, or a pan, or sawdust to
13 soak it up, and so on.

14 Q Did you ever hear any Monsanto manager say in any
15 meeting when this subject was addressed that the
16 consequence of Monsanto's decision would be that all
17 of the PCT or all the PCB hydraulic fluid would
18 eventually be lost to the environment?

19 A That was never a topic of consideration.

20 Q You didn't consider that?

21 A That all 20 million pounds would end in the
22 environment?

23 Q What about 19 million pounds?

24 A Even that. It was hard to imagine how that could
25 realistically happen. It would have to be sheer

1 carelessness on the part of thousands of users,
2 neglecting to pay attention to any of the information
3 we shared with them. We just could not ever imagine
4 that happening.

5 Q What were you expecting your customers to do with
6 this fluid?

7 A To collect any material that got out of their system,
8 to -- We encouraged the use of our incinerator for
9 the liquid itself, and if there were other materials
10 that contained it, like the sawdust I have mentioned
11 several times, they could be taken -- they should be
12 taken to a properly authorized chemical landfill.
13 Not a garbage-type landfill. There are differences.
14 Those were the two acceptable disposal practices at
15 that point in time.

16 Q Don't you think you were asking a little bit much of
17 your customers to contain the hydraulic fluid in
18 their plants?

19 A No, I find -- I cannot say yes to that. My
20 experience with manufacturing and liquids and piping
21 systems, over 20 years of it, I know that it's
22 possible to control liquids of this type.

23 Q Does that mean you have to prevent leaks from
24 hydraulic lines?

25 A Prevent leaks? I don't know that you can prevent

1 them, but you can manage them once they occur.

2 Q How?

3 A You try to buy the best hoses you can get, and buy
4 the best flanges, and the best gaskets, and the best
5 pumps, and then you maintain those as best you can.

6 Q Well, what if some leakage occurs? Weren't you
7 asking too much?

8 A Then I would trap it, catch it, don't let it get away
9 from me.

10 Q And how would you do that?

11 A As I've described several times, with the necessary
12 containment tanks, trenches, drip pans, that kind of
13 collection system.

14 Q When were these kind of containment and collection
15 systems first available?

16 A That's so common in industry. I would suggest in the
17 1900s. That's old technology. It's not space age
18 technology.

19 Q Mr. Papageorge, do you have any explanation for this
20 sentence? If it doesn't mean that all the old PCB
21 fluid would eventually get into the air, land and
22 water, what could it mean?

23 A In the absence of well-designed incinerators, enough
24 of them to handle what could possibly be generated in
25 the way of waste liquids, the only other acceptable

1 disposal practice was the use of landfills. Now,
2 it's very likely, and many of us also think this -- A
3 landfill is still part of the environment. Although
4 the material is contained, it's monitored, it's in
5 the right geological conditions, it's still part of
6 the environment. Now, that could well explain how
7 the 20 million pounds eventually might be in the
8 environment. That doesn't mean they're out of
9 control in the environment.

10 Q If Monsanto had required that its customers drain out
11 all of the PCB fluid from their machines in 1971,
12 would there have been adequate incineration capacity
13 in 1971 to handle that fluid?

14 A No.

15 Q So where would the fluid have had to have gone?

16 A It would have to go in storage facilities, whether
17 they be tanks, or stacks of drums out in open lots,
18 and those systems, of course, would be subject to
19 wear and tear and leaks in themselves, and they would
20 have to be monitored. There just was no other good
21 way to dispose of all of that material that quickly.

22 Q This material still have a useful life in it?

23 A Very much so, yes.

24 Q Did Monsanto subsequently make an incineration
25 service available?

1 A Yes, they did.

2 Q And as the useful life of the fluid was over, did the
3 customer have the option of using this incineration
4 service?

5 A They did.

6 Q As time went on, was there more or less incineration
7 capacity in the United States?

8 A Oh, as time went on, there were companies that went
9 into the business of incinerating PCBs. I recall the
10 Rollins-Pearl (phonetic) unit that was installed just
11 outside Philadelphia. That was about 1972. And
12 about six months or so later there was another unit
13 up near Niagara, New York. Then there was another
14 one just south of Chicago in northern Illinois.
15 There were commercial units being installed that
16 could handle the PCBs.

17 Q Now, you have testified that Monsanto pioneered the
18 development of PCB incineration facilities; is that
19 correct?

20 A That is correct.

21 Q Did Monsanto try to patent that technology or prevent
22 others from using it?

23 A No, we did not.

24 Q Mr. Papageorge, let's do a simple calculation. I
25 direct your attention to -- Dr. Peterson referred

1 several times to an estimate by the U.S.
2 Environmental Protection Agency. Dr. Peterson relied
3 on a statement from the U.S. Environmental Protection
4 Agency to the effect that, quote, "From hydraulic
5 systems an annual amount of about one ton of PCBs may
6 be released according to the EPA." He goes on, "So
7 every year about one ton of PCBs is released into the
8 environment from hydraulic systems." And then he
9 testified the significance of that statement to him
10 was that "these hydraulic fluids cannot be contained
11 for the particular use that they have in industry,
12 and if they contain PCBs, which I feel to be -- to be
13 dangerous chemicals, that they will be released into
14 the environment."

15 This was in his cross-examination. He
16 said, "It was not difficult for me to form the
17 opinion -- that opinion" -- Let me read the question.
18 My question to him was, "It was difficult for you to
19 form opinions about the risk of releases of hydraulic
20 fluid into the environment because you had never
21 visited a die casting plant before your deposition in
22 this case; isn't that true?" Answer, "It was not
23 difficult for me to form that opinion after reading
24 the literature, no. It stated about one ton on an
25 annual basis of hydraulic fluid is released. It was

1 shown on one of my overheads. One ton per year."

2 I said, "That's in the entire country;
3 isn't it?" He says, "That's estimated by the U.S.
4 Environmental Protection Agency for Pydraul or
5 hydraulic fluids." Question, "In the entire United
6 States?" Answer, "Yes. Apparently. I'm not sure."

7 And the Court asks, "One ton of fluid or
8 one ton of PCBs?" The witness says, "One ton of
9 hydraulic fluid containing PCBs."

10 And then we agreed that one ton is equal
11 to 2,000 pounds. And I used the assumption that a
12 gallon of hydraulic fluid weighs about ten pounds. I
13 just want to go through a quick calculation, Mr.
14 Papageorge. How much does a gallon of Pydraul weigh,
15 about?

16 A It's about ten pounds to the gallon.

17 Q Okay. And this -- this one paragraph that has been
18 referred to by Mr. Carlson and Dr. Peterson refers to
19 an amount of fluid involved being 20 million pounds;
20 is that correct?

21 A That is correct.

22 (Switch in reporters.)
23
24
25

- 1 Q So we have according to this paragraph, we have 20
2 million pounds, Mr. Papageorge?
- 3 A Yes, sir.
- 4 Q And we have according to the EPA and Dr. Peterson,
5 we have a ton a year loss or 2,000-pound loss in the
6 entire country? You saw that testimony?
- 7 A I saw that, but I'm a little confused whether that
8 was referring to PCBs or total fluid.
- 9 Q Okay. Well, let's -- Dr. Peterson's response to the
10 Court's question said total fluids, so let's act on
11 that, all right? This is using Dr. Peterson's
12 number. If you divide 20 million pounds by 2,000
13 pounds a year, what do you get, Mr. Papageorge?
- 14 A 10,000. 10,000 years.
- 15 Q 10,000 years. In other words, if the interpretation
16 that Mr. Carlson gave to the paragraph were true,
17 how long would this so-called gradual loss take
18 before it equaled 20 million pounds?
- 19 A The 10,000 years that you calculated.
- 20 Q What is the useful life of Pydraul hydraulic fluid,
21 Mr. Papageorge?
- 22 A The life will vary on the condition of use, but
23 normal proper use of the fluid, it should last five
24 to ten years in the system.
- 25 Q The useful life of hydraulic fluid is not 10,000

1 years, is it?

2 A Oh, no.

3 MR. RUNNING: Your Honor, I'm going to
4 mark this as Defendant's Exhibit 1257. I move for
5 its admission as a summary of Mr. Papageorge's
6 testimony.

7 MR. CARLSON: I have no objection.

8 THE COURT: So received. What was it, 10
9 what?

10 MR. RUNNING: 1257.

11 MR. RUNNING:

12 Q Mr. Papageorge, let me show you Defendant's Trial
13 Exhibit 1119. Can you identify this as a progress
14 report from the Organic Chemicals Division dated
15 January 13, 1972?

16 A I do.

17 Q And were you a copied recipient of this report?

18 A Yes.

19 MR. RUNNING: I move for the admission of
20 this report, Your Honor.

21 MR. CARLSON: No objection.

22 THE COURT: So received.

23 MR. RUNNING:

24 Q Mr. Papageorge, why are research reports marked
25 confidential sometimes?

1 A They're marked confidential by the authors when they
2 perceive that there is some information in that
3 report that might be of value to Monsanto and
4 harmful, if the competition is aware of it and gets
5 its hands on it.

6 Q Is it something that is done almost as a matter of
7 routine?

8 A Yes. You will note the form already contains a
9 reference to confidential information. The form is
10 already preprinted that way, and this is just an
11 additional entry.

12 Q The date of this is January 13, '72. I've put an
13 arrow where the date is. Mr. Papageorge, were
14 biodegradation tests performed on polychlorinated
15 terphenyl that was used in Pydraul 312A?

16 A Yes.

17 Q And what were the findings of this research report
18 on the ultimate conclusion of those studies?

19 A I'll have to read it to refresh my memory.

20 Q Why don't I just to speed things up, I'll read you
21 what I've highlighted. Under summary, "Aroclor 5432
22 would be classified as resistant with respect to
23 biodegradeability."

24 A Yes, that's correct.

25 Q Was that the bottom line finding?

1 A Yes.

2 Q Aroclor 5432 is what?

3 A It's a chlorinated terphenyl which has 32 percent by
4 weight of chlorine.

5 Q Is that the terphenyl that was used in Pydraul 312A?

6 A It was.

7 Q Now, is resistant the worst classification that a
8 product can get under this scheme?

9 A That is a sort of a non-scientific word. Another
10 word that has been used is refractory, which I think
11 is the worst case. This is maybe the second worst.

12 Q Okay. This was not a good report?

13 A That's correct. Well, I don't know what you mean by
14 good report. It's a good scientific report. The
15 information was unfortunately disappointing.

16 Q It could have been worse, but it was still
17 disappointing?

18 A In a way, yes.

19 Q Did Monsanto do something about this?

20 A Certainly.

21 Q I show you Defendant's Trial Exhibit 1016. Can you
22 identify this as a letter that was sent using the
23 same procedures as the other letters to Monsanto's
24 customers?

25 A Yes.

1 Q And this letter was sent on January 31, 1972?

2 A Yes.

3 Q And the mailing label is to director of purchasers,
4 Stroh Die Casting Company?

5 A Yes.

6 MR. RUNNING: I move for the admission of
7 this exhibit, Your Honor, 1016.

8 MR. CARLSON: No objection.

9 THE COURT: So received.

10 MR. RUNNING:

11 Q This one is not as legible as the others, but the
12 label says director of purchasing, Stroh Die Casting
13 Company.

14 Mr. Papageorge, first of all, let's compare the
15 dates. Do you see I've got the two arrows, I put
16 the two documents on top of each other. Do you see
17 the research report date?

18 A Yes.

19 Q January 13, 1972?

20 A Yes.

21 Q What is the date of this letter?

22 A January 31st, '72.

23 Q Same month?

24 A Yes.

25 Q Had a decision been reached about polychlorinated

1 terphenyls in Pydraul fluids between the date of the
2 research report and January 31 of 1972?

3 A Yes.

4 Q What was the decision?

5 A The decision was that since these materials were not
6 as biodegradeable as we would like them to be, let's
7 reformulate and remove them from the product.

8 Q Now, I take it you didn't develop this new product
9 in two weeks?

10 A Oh, no. It was being reviewed back in the
11 laboratory for several months.

12 Q What was the new product?

13 A It's this long-named phosphate ester we talked about
14 earlier. Nenophenyl, comophenyl. I forgot all of
15 the words.

16 Q The new phosphate ester that Monsanto had developed?

17 A That's true.

18 Q Does the second sentence of this letter inform the
19 customer that polychlorinated terphenyls had been a
20 component of Monsanto's fluids?

21 A Yes, it did.

22 Q And the next sentence says, "Our new fluids will
23 contain no chlorinated components," correct?

24 A It does.

25 Q Does that include both biphenyls and terphenyls?

1 A Yes.

2 Q They're both chlorinated components?

3 A Yes.

4 Q The next paragraph reads, "In order to make a smooth
5 transition to the new Pydraul fluids, we'll continue
6 to manufacture fluids with the current formulation
7 until early in the second quarter of 1972. At that
8 time we'll begin phasing in the new formulations and
9 phasing out the old. We expect to complete this
10 transition well before June 30, 1972."

11 Mr. Papageorge, if I'm Stroh Die Casting
12 Company, and I don't want the old fluid, and I want
13 the new fluid that doesn't contain any chlorinated
14 components, could I have specified that in my next
15 order?

16 A Certainly, you could.

17 Q Was there any plan to deceive customers into buying
18 the old PCT-based product until the new was
19 available?

20 A Did you say deceive?

21 Q Deceive?

22 A No, there was no such thought.

23 Q If you had that thought, would you have sent the
24 letter before you changed the fluids?

25 A Certainly not.

1 Q Would you have given the customer six-months notice
2 that you were going to change the fluids?

3 A Not if you want to be deceptive.

4 Q The last sentence says, "We would like to work out
5 with you the details of this transition so that it
6 best satisfies your needs."

7 If I'm at Stroh Die Casting Company, and I have
8 questions about this transition, would there have
9 been somebody to answer them?

10 A Certainly.

11 Q Is this the only letter you sent about the
12 conversion in 1972?

13 A No. There were others.

14 Q I show you Defendant's Exhibit 1017. Can you
15 identify this as a February 28, 1972 letter sent
16 according to the same procedures you previously
17 testified to?

18 A It was.

19 Q And is the cover page of this document a mailing
20 label to director of purchases, Stroh Die Casting
21 Company, Incorporated?

22 A Yes.

23 MR. RUNNING: I move for the admission of
24 this exhibit, Your Honor.

25 MR. CARLSON: No objection.

1 THE COURT: So received.

2 MR. RUNNING:

3 Q Then the mailing label. Now, Mr. Papageorge, I want
4 you to assume that this is the only letter that
5 Stroh Die Casting Company was able to find in its
6 files, the only letter from Monsanto in this time
7 period.

8 If you are reading the first sentence of this
9 letter, would you have any questions about whether
10 prior letters have been sent? The question is --
11 the first sentence says, "In early February, we
12 notified you that the Pydraul fluids were being
13 reformulated to remove all chlorinated components."
14 Does that sentence refer to a prior letter?

15 A It certainly does.

16 Q Did you get any communications from customers
17 telling you that they were curious about the first
18 sentence of this letter, because they hadn't
19 received the prior letter?

20 A I didn't receive any.

21 Q There wasn't some mix up, and the first letters
22 never went out?

23 A Not that I'm aware of, no.

24 Q The second paragraph reads, "The new Pydraul product
25 will be compatible with the present formulations,

1 and no draining, cleaning, or changing of seals in
2 your systems is necessary. You need only to add the
3 new products as makeup to your present systems."

4 Was that an accurate statement of the
5 compatability of the new product?

6 A It was.

7 Q Why was that paragraph included in the letter?

8 A This is to assure the customer that continued use of
9 the existing liquid in the system, as long as it was
10 properly controlled, was appropriate, and that this
11 new material, when added to the system, would not
12 damage the system in any way.

13 Q Now, Mr. Papageorge, if I knew that my factory was
14 designed so poorly or my workers were so poorly
15 trained or my equipment was so bad or whatever the
16 reason might be, unique to my own plant, that I
17 couldn't contain the hydraulic fluids in my plant,
18 would Monsanto have assisted me in draining and
19 flushing the fluid?

20 A Certainly. We would help as much as we could,
21 depending on how much we knew of the system.

22 Q Does that mean Monsanto would have paid for it?

23 A That I don't know. That depends on the sales
24 contract negotiated between the buyer and the
25 seller.

1 Q If I had a new factory that had been built in the
2 1960s with trenches, a collection system with no
3 municipal sewer connections on the floor, would that
4 have been appropriate, the second paragraph?

5 A Very much so, yes.

6 Q Why?

7 A Well, the system you describe is such that
8 controlled entering into the environment is
9 relatively easy, so why change out a fluid that is
10 performing in an excellent way, superior to any
11 product, including the replacement product that
12 Monsanto designed, and as long as it was doing the
13 job well and not harming the environment, there is
14 absolutely no need to drain the system.

15 Q Will you have to drain it some day?

16 A Some day when the fluid is -- let me call it
17 exhausted. It no longer has the properties required
18 to do a good job. Then you change it out. Just
19 like you change the oil in your automobile.

20 Q And your estimate is that would be five to ten years
21 in the typical case?

22 A Something like that, yes.

23 Q But until the useful life is over, what is your
24 opinion about the safety of the fluid, the PCB or
25 PCT-based fluid?

1 A When it's properly controlled, it's perfectly safe.

2 Q What do I do with the fluid then when its useful
3 life is over, when the five to ten years have passed
4 by?

5 A Incineration is the answer.

6 Q I show you Defendant's Trial Exhibit 1018. Can you
7 identify this as a March 15, 1972 letter sent
8 according to the same procedures as you've
9 previously testified to?

10 A I see two letters here. Okay. It's the same letter
11 on a different typewriter, I'm sorry. Yes, this
12 letter was sent out following the procedure followed
13 in previous letters.

14 MR. RUNNING: Your Honor, just for the
15 record, this letter, the version that had the Stroh
16 mailing label -- let me first move for its admission
17 into evidence. Then I'll explain it. I move for
18 the admission of this document into evidence.

19 MR. CARLSON: I object, lack of
20 foundation.

21 MR. RUNNING:

22 Q Mr. Papageorge, was this mailed in the same
23 procedure as you previously testified to?

24 MR. CARLSON: Object, lack of foundation.

25 There is no testimony he was involved with this

mailing at all.

MR. RUNNING:

Q Were you involved with this mailing Mr. Papageorge?

A Yes.

MR. RUNNING: Move for the admission of this exhibit.

MR. CARLSON: I'd like to have a description of his involvement, Your Honor.

THE COURT: All right. Qualify the gentleman.

MR. RUNNING:

Q What was your involvement on this mailing, Mr. Papageorge?

A I saw a draft of the letter proposed by Mr. Bergen, who was my superior, my boss. I was able to comment. I was involved with the draft, and I knew, I actually saw the secretaries perform the final drafts and the mailing procedure that we had described earlier.

Q Was this another mass mailing?

A No, this was -- remember, this was only to the Pydraul customers, so the volume was not as great as that mass mailing I described with the very first letter.

Q Were you involved in a supervisory capacity in the

1 mailing of this letter? I realize you didn't lick
2 the envelopes.

3 A I know that. I don't know that I would correctly
4 call it supervising. The supervisors of the
5 secretary were there. I monitored the activities to
6 make certain that things were being done and that
7 the records were properly assembled.

8 MR. RUNNING: I move for the admission of
9 this exhibit.

10 MR. CARLSON: Could I just ask one
11 question, Your Honor?

12 THE COURT: Sure.

13 MR. CARLSON:

14 Q Did that occur in your office where you were
15 working?

16 A In an area about as big as this courtroom, right
17 outside my office.

18 MR. CARLSON: Okay. No objection.

19 MR. RUNNING: Your Honor, the
20 clarification I wanted to make was this -- first --

21 THE COURT: Let me receive Exhibit 1018
22 without objection.

23 MR. RUNNING: Just for the record, I want
24 this to be clear. The letter refers to an
25 attachment. The version that we had in the files

1 that had the Stroh mailing label did not have the
2 attachment with it.

3 We had another copy of the letter elsewhere in
4 Monsanto's files, which was also produced to Stroh,
5 which did have the attachment, so what we've done
6 for this exhibit is just staple the two together and
7 Mr. Papageorge was commenting on the fact that there
8 were two identical letters in the exhibit. That is
9 the reason why. I make that representation.

10 MR. RUNNING:

11 Q Mr. Papageorge, is this the mailing label that was
12 used for this letter?

13 A Yes.

14 Q This is the third letter that was now sent on the
15 PCT reformulation in 1972? One was sent in January,
16 one was sent in February, and now one was sent in
17 March?

18 A Correct.

19 Q And the time for the reformulation is getting
20 closer, I take it?

21 A Yes.

22 Q Now referencing 30 to 60 days as opposed to the end
23 of June?

24 A That is correct.

25 Q So if I was Stroh Die Casting Company, this is the

1 third notice I would have received that there would
2 be a reformulation of my products in the coming
3 months?

4 A Yes.

5 Q And the first sentence says, "Confirming our
6 previous letters." If this was the first letter
7 that happened to reach my desk, could I have called
8 Monsanto and obtained copies of the prior letters?

9 A Certainly.

10 Q If my secretary had thrown them out as junk mail,
11 could I have done that?

12 A Yes.

13 Q Is this the attachment to the letter, Mr.
14 Papageorge?

15 A It is.

16 Q Does this identify which products are being
17 converted?

18 A It does.

19 Q Pydraul F-9A is included on the list?

20 A Yes.

21 Q And Pydraul 312A is included on the list?

22 A It is.

23 Q Mr. Papageorge, I believe you have the original up
24 here. It's Plaintiff's Exhibit 37?

25 A I do.

1 Q This exhibit is in evidence, "Industrial Hydraulic
2 Fluids Transition Plan." Let me refer you to a page
3 that Mr. Carlson is having some of his witnesses
4 read and was referred to in the opening statement.
5 "Policy on returned fluids. All customers should be
6 discouraged from draining present fluids from their
7 machines. It is very costly to refill machines, and
8 returned fluids will add to our already overwhelming
9 inventory of fluids for incineration."

10 Is it true there was a large inventory of
11 fluids for incineration in 1972?

12 A Yes.

13 Q Why was that?

14 A The incinerator at Monsanto began operating in about
15 the middle of 1971. Prior to that, Monsanto had
16 accumulated a large inventory of unusable PCB liquid
17 from many sources, including the industrial fluid,
18 the Pydraul systems, as well as the electrical
19 systems and heat transfer systems and so on, so
20 while the unit was attempting to catch up with this
21 inventory, additional material was being delivered
22 to the plant, so we were reaching a peak in our
23 backlog.

24 Q Were other companies building incinerators for
25 commercial use?

1 A Yes. In 1972, as I mentioned, the Rollins-Pearl
2 unit was starting up in --

3 Q We don't have to go through all of the details. I
4 just wanted to establish the timeframe.

5 Notwithstanding the fact that the incineration
6 facility was still being constructed throughout the
7 country, what is shown under procedure?

8 A The procedure addresses the steps to be taken when a
9 customer wishes to return to Monsanto unusable
10 liquid fluids for incineration disposal.

11 Q Let's go through the scenario. Let's assume that
12 Stroh Die Casting Company has made the decision that
13 they want to drain their machine of the PCB fluids
14 and have it incinerated by Monsanto, all of it.

15 What reasons would the Monsanto salesmen have
16 been instructed to give to try to discourage them or
17 convince them not to do that? What reasons could
18 have been offered not to do that?

19 A Well, the reasons include such things as you've got
20 a good product that has performed well in your
21 system. It continues to perform well in your
22 system. You have the facilities that provide for
23 good control, so the material doesn't get into the
24 environment or affect your employees. There just is
25 no logical reason to drain the system, and as long

1 as you continue these good practices and the fluid
2 hasn't been spent and can do the job well, it
3 doesn't make sense to drain the system at this time.

4 Q Would it have to be drained some day?

5 A Some day, yes.

6 Q Was it likely that there would be more or less
7 incineration capacity in the future than there was
8 in 1972?

9 A Oh, there is more likely to be more incinerator
10 capacity.

11 Q I want you to assume that the useful life, the
12 economic life of Stroh's fluids went from the date
13 of this policy up until 1980, when they decided that
14 it was no longer economical to continue to use the
15 fluids. Was there more or less incineration
16 capacity in 1980 than there was in 1972?

17 A More. Much more.

18 Q With proper controls in the die casting plant, do
19 you have an opinion as to whether or not the fluids
20 could have been used safely from 1972 to 1980?

21 A I do have an opinion.

22 Q What is your opinion?

23 A I think it can be used safely.

24 Q Was that a factor in your decisions at Monsanto in
25 1972?

1 A It was.

2 Q But notwithstanding whatever reasons Monsanto's
3 representative could have offered, if I at Stroh Die
4 Casting insist that I want that fluids returned by
5 Monsanto for incineration, was there a procedure in
6 place for the Monsanto field representative to
7 accomplish that task?

8 A There was.

9 Q Is that procedure outlined on this page?

10 A It is.

11 Q Mr. Papageorge, let me show you Defendant's Exhibit
12 1020. Can you identify this as an August 3rd, 1973
13 letter sent by Monsanto to Pydraul customers using
14 the providers you've previously testified to?

15 A I do.

16 Q Were you personally involved in this mailing?

17 A Yes. As in the others.

18 Q Is the first page of this document the mailing label
19 addressed to the director of purchases, hydraulic
20 fluids, Stroh Die Casting Company?

21 A It is.

22 (Switch in Reporters.)

23

24

25

1 Q And is this a business record of Monsanto Company?

2 A It is.

3 MR. RUNNING: I move for the admission of
4 Exhibit 1020, Your Honor.

5 MR. CARLSON: No objection.

6 THE COURT: So received.

7 MR. RUNNING:

8 Q Again the mailing label to Stroh. Is this it, Mr.
9 Papageorge?

10 A Yes.

11 Q And is this the letter that was included in the
12 envelope with the mailing label?

13 A Yeah, that's the first page of the letter, yes.

14 Q Does this letter have anything of relevance to a die
15 caster?

16 A Well, there are -- there is some information -- You
17 are speaking only of the letter or the attachments
18 with it?

19 Q Letter and the attachments.

20 A There is some information in the attachments that
21 would be of relevance.

22 Q Well, let's -- What about the last paragraph of the
23 first page? If I am a die caster, should I be
24 concerned about that information?

25 A Certainly.

1 Q When you wrote this letter, did you expect die
2 casters to throw it out because there was a reference
3 to the Food & Drug Administration?

4 A Well, I would hope not. Since there is other
5 information in there that is useful.

6 Q Let's refer to the last paragraph on the first page.

7 "Proper disposal of chlorinated materials requires
8 high temperature incineration. Monsanto has
9 installed a facility at its Sauget, Illinois, plant
10 and has made this service available to its customers.
11 Information relating to this service is attached to
12 help you should you decide to dispose of such
13 materials in this manner." Was that of relevance to
14 a die casting company like Stroh?

15 A It certainly is.

16 Q And the last paragraph of the letter says, "I hope
17 this information is useful to you. If I can be of
18 further service, please let me know. Cumming Paton,
19 Product Manager, Fluids." If I had a question about
20 this letter, whether it was applicable to me, and I
21 called Monsanto, would there have been somebody to
22 answer the question?

23 A Yes.

24 Q Is this an attachment to the letter? Referring to
25 the page titled, "Pydraul Fluids Which Contain

1 Chlorinated Ingredients."

2 A It is.

3 Q Now, the letter said that fluids containing

4 chlorinated ingredients should be incinerated; is

5 that right?

6 A That is correct.

7 Q And this is the list of the products that should be

8 incinerated when their useful life was over; is that

9 correct?

10 A Those that contain the chlorinated ingredients?

11 Q Yes.

12 A Yes.

13 Q So when I was ready to dispose of this material, when

14 its useful life was over, I could consult this list

15 to see if it should be incinerated or not; is that

16 right?

17 A That is correct.

18 Q Is Pydraul F-9 on that list?

19 A Yes.

20 Q Is Pydraul F-9-A on that list?

21 A Yes.

22 Q Is Pydraul 312 on that list?

23 A Yes.

24 Q Is Pydraul 312A on that list?

25 A Yes.

1 Q Was this also an attachment to the letter?

2 A It is.

3 Q It's titled "Incineration Service For Pydraul

4 Fluids." Does it give the procedures for returning
5 drums of waste Pydraul to Monsanto for incineration?

6 A It does.

7 Q Now, it says in the line I have highlighted,

8 "Incineration charges for Pydraul fluids are five
9 cents per pound." Was this service for free, Mr.

10 Papageorge?

11 A No, it was not.

12 Q Was Monsanto making a killing on this service?

13 A No, Monsanto lost money on this service.

14 Q How could Monsanto lose money on this service?

15 A We found out that the charges of -- for example, five
16 cents per pound, were not enough to pay for the
17 increasing energy costs that were occurring at that
18 period of of time as well as the -- it did not pay
19 for the deterioration of the unit because of the high
20 temperatures involved.

21 Q Explain very briefly how an incinerator operates.

22 Just a minute or so, if you can.

23 A Well, the unit is brought up to high temperature

24 using either natural gas or oil. The fluid

25 containing PCBs is introduced into the burner right

1 where the gas or oil flame is, with a stream of steam
2 to give it pressure. If the temperature of the oil
3 or natural gas is high enough, the PCBs themselves
4 will start burning, and they in turn will create
5 higher temperatures to the point where the approved
6 level is reached, which is over 1,600 degrees
7 Fahrenheit. So the units were usually run at 2,000
8 or 2,400, just to make sure that the temperatures
9 were high enough.

10 Q And the energy costs you're referring to are the
11 natural gas costs of running the incinerator?

12 A That is right.

13 Q Was this program designed to make a profit from the
14 outset?

15 A It was never intended to make a profit.

16 Q This is the last page of the attachment. It says,
17 "Solids such as sawdust, rags or dust, and aqueous
18 fluids cannot be handled in our incinerator." Why
19 couldn't aqueous fluids be handled in the
20 incinerator?

21 A Aqueous, of course, refers to water.

22 Q Yes.

23 A Excuse me. Introducing water into that system tends
24 to put out the flame. It's just -- You can't keep
25 the temperature up where it should. It snuffs out

1 the flame, so it gives difficult operating problems.

2 Q Does that mean -- If I mix a lot of water in with my
3 waste Pydraul fluid, does that mean I can't
4 incinerate it?

5 A Well, it depends on the amount.

6 Q Let me ask you this question, Mr. Papageorge. Were
7 there means available in 1972 or '73 to separate out
8 oil from water?

9 A Oh, certainly.

10 Q How long had that technology been available?

11 A God, for generations. It's a case of two layers
12 forming, and with PCB-type oils, they're the heavier
13 layer, they will be at the bottom of a tank or a
14 drum, and the water can be removed and disposed of
15 separately from the oil. The oil can't burn, even
16 with some moisture in it.

17 Q Did Monsanto's technical bulletins contain
18 information on separating oil from water, Pydraul
19 oil?

20 A Yes. Yes.

21 Q Mr. Papageorge, can you identify Defendant's Exhibit
22 1124?

23 A I believe I can.

24 Q Okay. Just to speed things up, is this an inventory
25 of the customers availing themselves of Monsanto's

1 incineration service?

2 A It is.

3 Q Is this a Monsanto business record?

4 A Yes.

5 Q Was it prepared and retained in the ordinary course
6 of business by Monsanto?

7 A Yes.

8 MR. RUNNING: I move for the admission of
9 this exhibit, Your Honor.

10 MR. CARLSON: No objection.

11 THE COURT: So received.

12 MR. RUNNING:

13 Q Mr. Papageorge, did many customers avail themselves
14 of Monsanto's incineration service?

15 A Yes, they did.

16 Q Did some Pydraul customers avail themselves of
17 Monsanto's incineration service, take advantage of
18 it?

19 A Yes.

20 Q Have you looked through this exhibit to see if you
21 could find Stroh Die Casting Company anywhere on it?

22 A I have looked through, and I do not find Stroh Die
23 Casting Company listed.

24 Q So Stroh Die Casting Company never took advantage of
25 this offer?

1 A That's what the record would indicate.

2 Q Mr. Papageorge, let me show you Defendant's Trial
3 Exhibit 1131.

4 MR. RUNNING: I believe this is already
5 in evidence, Your Honor, as a plaintiff's exhibit,
6 but I would ask that it be received separately as a
7 Defendant's exhibit as well. It's a sales summary.

8 MR. CARLSON: I have no objection.

9 THE COURT: So received.

10 MR. RUNNING:

11 Q Mr. Papageorge, what's the last year that Monsanto --
12 that Monsanto sold any hydraulic fluid to Stroh Die
13 Casting Company according to this summary?

14 A 1976.

15 Q And that year it sold 2,340 pounds?

16 A Yes.

17 Q That would be about 234 gallons?

18 A About four drums.

19 Q Four drums of fluid?

20 A Um-hum.

21 Q 200 and some odd gallons?

22 A Yes.

23 Q Then that was not a PCB-based fluid, obviously. Was
24 that a phosphate ester fluid?

25 A Yes.

1 Q When did Monsanto stop selling PCT or PCB-based
2 hydraulic fluids?

3 A 1972.

4 Q After 1972 did Monsanto continue to manufacture PCBs
5 and sell them for other purposes?

6 A Yes.

7 Q Now, at the start of your testimony we briefly
8 addressed dielectric fluids. Do you recall that
9 testimony?

10 A I do.

11 Q I don't want to go into, again, all the purposes of
12 dielectric fluids. What was the primary applications
13 for which PCBs continued to be sold after 1972?
14 Without a long description, if you could just
15 identify the primary business?

16 A The primary application -- I hesitate because -- I
17 would say as a dielectric fluid, but that could be
18 further broken down as capacitors and transformers.

19 Q Okay. Without doing that, why did Monsanto continue
20 to sell PCB-based dielectric fluids after 1972?

21 A Because there was no known substitute material that
22 was fire-resistant and also an insulator for
23 electrical purposes.

24 Q In the ensuing years were substitutes developed?

25 A Yes.

1 Q When were they developed?

2 A About 19 -- 1977, as best I recall.

3 Q Could you describe, for example, the substitute that
4 was developed for transformer fluids, very briefly?

5 A The substitute that was developed that was
6 fire-resistant was a silicone-based fluid.

7 Q Was that silicone based fluid available in 1972 on
8 the market?

9 A It was, but it was not tested for transformer use
10 until later.

11 Q The use -- Its usefulness for transformer purposes
12 hadn't been discovered yet?

13 A It was not established until 1976.

14 Q Okay. When did Monsanto stop producing PCBs for any
15 purpose?

16 A Producing them? July, 1977. I am sorry -- Yes,
17 July, 1977.

18 Q Almost 14 years ago?

19 A Yes.

20 Q And has it been 19 years since Monsanto stopped
21 selling PCT or PCB-based hydraulic fluid?

22 A Yes.

23 MR. RUNNING: I have no further
24 questions, Mr. Papageorge. Thank you.

25 THE COURT: Well, it would be kind of

1 ridiculous to start cross-examination at three
2 minutes to 5:00.

3 MR. CARLSON: Can I ask one question?

4 THE COURT: Sure.

5 MR. CARLSON: Okay.

6 CROSS-EXAMINATION

7 MR. CARLSON:

8 Q Mr. Papageorge, all the material that we went through
9 when you talked about deception -- Do you remember
10 that as a subject? Mr. Running asked you whether or
11 not you intended to deceive anybody. Would you point
12 me to one document in which you told your customers
13 that 312 Pydraul hydraulic fluid had the
14 five-chlorinated PCB that was damaging the
15 environment? Just one document that you sent to your
16 customers that told them that?

17 MR. RUNNING: Had the what? Highest?

18 MR. CARLSON:

19 Q That had the five-chlorinated PCB that was damaging
20 the environment. Can you point out one document that
21 you sent to your customers that told them that
22 information?

23 A There is no such document.

24 MR. CARLSON: Thank you. We'll start
25 tomorrow.

1 THE COURT: Okay. 8:45.

2 MR. RUNNING: Just -- Well -- We need to
3 start tomorrow morning with Dr. Harbison because he's
4 only available tomorrow.

5 THE COURT: Yeah, I understand that.
6 He's going to be on. Okay. See you tomorrow.

7 (At 4:58 p.m. the proceedings were
8 adjourned.)
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