

MONTANA TENTH JUDICIAL DISTRICT COURT, FERGUS COUNTY

MARTY PAULSON, WILLIAM J.)
 HAUGEN, HARRY FELTON, RAY)
 ROBINSON AND WARD BURLEIGH,)
 PRESIDENT; BURLEIGH ANGUS)
 RANCH, INC., INDIVIDUALLY)
 AND FOR ALL PERSONS)
 SIMILARLY SITUATED,)

PLAINTIFFS,)

) CAUSE NO. DV-2004-55

vs.)

) HON. KURT KRUEGER

MONSANTO CHEMICAL COMPANY)
 N/K/A PHARMACIA, MONTANA)
 DEPARTMENT OF FISH, WILDLIFE)
 AND PARKS, AND JOHN DOE PAINT)
 COMPANIES AND DISTRIBUTORS I)
 THROUGH X,)

DEFENDANTS.)

VIDEOTAPED DEPOSITION OF WILLIAM PAPAGEORGE
 TAKEN BY TORGER S. OAAS, ESQ.
 ON BEHALF OF THE PLAINTIFFS
 JUNE 27, 2006

VOLUME I

REPORTED BY CHRISTOPHER C. WIEGERS
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Page 6 1 (deposition Exhibit Nos. 1 through 30 were 2 marked for identification.) 3 THE VIDEOGRAPHER: This is the videotaped 4 deposition of William Papageorge in the case Burleigh 5 Angus Ranch, Inc., et al., vs. Monsanto Chemical 6 Company, et al., Cause No. DV-2004-55 in Montana Tenth 7 Judicial District Court, Fergus County. 8 Today is June 27, 2006. The time is 9 approximately 9:00 a.m. My name is Mark Dryer with 10 Rankin Legal Video. The court reporter is Chris 11 Wiegers. 12 Will the court reporter please swear in the 13 witness? 14 (Wherein, the witness was placed under 15 oath.) 16 EXAMINATION 17 BY MR. OAS: 18 Q. Sir, would you state your name, please? 19 A. William Papageorge. 20 Q. Mr. Papageorge, my name is Torger Oas. Can 21 you hear me okay? 22 A. Yes. 23 Q. Okay. I am down here with Bill Berger and 24 Craig Buehler to ask you some questions about a case 25 that's going on in Montana.	Page 8 1 sure for the record that you feel that you're mentally 2 and physical -- mentally and physically capable of 3 having your deposition taken today for four hours? 4 A. Well, I'm bias, but I do feel that I'm 5 capable. 6 Q. Okay. Good. All right. Do you know 7 anything about the case in Montana, Mr. Papageorge? 8 A. A little bit. I -- I don't remember the 9 names of the attorneys and the entities that are 10 involved. 11 Q. Just tell me what you know about it. 12 A. I understand it has something to do with 13 people who have property bordering some waters that are 14 contaminated with materials referred to as PCBs, and 15 that's all I know at the moment. 16 Q. That's about the sum of it? 17 A. Yes. 18 Q. Okay. Now, I've handed your attorney a 19 stack of documents, and we're going to be spending most 20 of the deposition time looking at those documents, as 21 many as we can, and if you -- I've marked them 22 sequentially by number and -- with the blue tag. Do 23 you see the blue tag on the bottom there? 24 A. I do. 25 Q. If you would just -- if you wouldn't mind
Page 7 1 Now, let's just discuss a few prelim -- 2 preliminary things. I under -- I've been told you're 3 83, and we're going to be taking your deposition for 4 about four hours today, is that correct? 5 A. Yes. 6 Q. Okay. How often would you like to take a 7 break? 8 A. Oh, I can't predict that. 9 Q. Okay. Would one -- once an hour be fine? 10 A. Is 90 -- 11 THE WITNESS: Did you say 90 minutes? 80 12 minutes? 13 Q. (By Mr. Oas) Okay. Well, just -- I 14 just -- 15 A. That's about -- 16 Q. -- want to let you know if you need to take 17 a break at any time, let us know and we'll stop and -- 18 and let you take a break. All right? 19 A. At my age, I may need a quickie. 20 Q. Okay. That's -- that's fine. We'll -- 21 we'll try to work -- we'll try to work -- accommodate 22 you as much as possible. All right? 23 A. Thank you. 24 Q. All right. Now, we've never -- never met 25 before, and -- and given your age, I just want to make	Page 9 1 taking a look at the first one marked Exhibit 1. Is 2 that a -- your Curriculum Vitae? 3 A. Yes. 4 Q. Okay. Is it -- is it accurate? 5 A. Only one flaw, and it's a minor one. On the 6 1a -- on the second page, the listing of my current 7 address and telephone number, the area code should be 8 321 -- 9 Q. All right. 10 MR. MILLER: 314. 11 A. -- I mean, 3 -- 314. I'm sorry. 12 Q. (By Mr. Oas) All right. That's okay. 13 Okay. And I -- I take it I don't have to explain 14 anything about the deposition process to you, 15 Mr. Papageorge? 16 A. That doesn't mean I know anything, so there 17 might be a few items that we could touch on as we go. 18 Q. Okay. You understand you're testifying 19 under oath? 20 A. Yes. 21 Q. That's all I want to know really. 22 A. Yes. 23 Q. Okay. Now, Deposition Exhibit No. 1 24 indicates that you first went to work for Monsanto 25 in -- I think in 1951, would that be correct?

Page 10 1 A. That is correct. 2 Q. Okay. And it -- it appears that you worked 3 your way up through the company until you became the 4 General Superintendent of Manufacturing at the W.G. 5 Krummrich plant in 1964? 6 A. 1954? Did you say '54 or '64? 7 Q. '64? 8 A. '64. 9 Q. Yeah. 10 A. Yes, that is correct. 11 Q. Okay. And where is that plant located at? 12 A. I hesitate because they've changed the names 13 of the -- 14 Q. Okay. 15 A. -- community which was associated with it, 16 but the last address I remember is Sauget, Illinois, 17 S-a-u-g-e-t, Illinois. 18 Q. Okay. And Sauget would be the name of the 19 town that -- that the plant was located in? 20 A. Yes. 21 Q. Okay. And then following your position at 22 that company, then you went to work in Anniston, 23 Alabama, I believe? 24 A. Yes. 25 Q. Okay. And you were the -- at least your	Page 12 1 the Anniston plant? 2 A. I would describe that as the position that 3 is sometimes referred to as the buck stops here. 4 Everything -- 5 Q. Okay. 6 A. -- reports up to the plant manager position. 7 Q. All right. And then following your stint as 8 Plant Manager, your resume indicates that you became 9 the Manager of Environmental Control for the Organic 10 Division at St. Louis? Am I reading that correctly? 11 A. That is correct. 12 Q. And that position was from 1970 to '73? 13 A. Yes. 14 Q. And what were your job duties and 15 responsibilities as Manager of Environmental Control 16 for Monsanto, Mr. Papageorge? 17 A. It involved -- or required me to be very 18 familiar with particular products produced by Monsanto 19 and the effect, if any, on the environment. 20 Q. Okay. In -- in that position, did you -- 21 did you deal with PCBs? 22 A. Yes. 23 Q. Okay. And then you -- then you went on to 24 be the manager of product acceptability for Monsanto 25 Industrial Chemical Company in 1973, I think your
Page 11 1 resume indicates you were the Plant Manager there? 2 A. Yes. 3 Q. Okay. Now, what kind of plant did Monsanto 4 operate in Anniston, Alabama? 5 A. I don't know how to describe the kind -- 6 it's just a general chemical plant. 7 Q. Okay. 8 A. Various products produced in different 9 areas. 10 Q. Okay. Was one of the products produced 11 there something known as PCBs? 12 A. Yes. 13 Q. Okay. Did -- at that time, at the time you 14 were the Manager in Anniston between 1965 and 1970, did 15 Monsanto manufacture PCBs at any other place besides 16 Anniston? 17 A. Yes. 18 Q. And where would that be? 19 A. It was at the plant referred to in this 20 exhibit as W.G. Krummrich Plant. 21 Q. The plant at Sauget, Illinois? 22 A. Yes. 23 Q. Okay. All right. And would you just 24 briefly describe what your duties and responsibilities 25 would have been as the Plant Manager for Monsanto at	Page 13 1 resume indicates, is that correct? 2 A. That is correct. 3 Q. What did -- what was -- what did that 4 position entail, sir? 5 A. It kept the duties I referred to earlier and 6 picked up other products, additional products, produced 7 by Monsanto. 8 Q. Okay. So as Manager of Product 9 Acceptability, you were at least in part dealing with 10 environmental concerns relating to PCBs? 11 A. Yes. 12 Q. Okay. And then you went on to be Manager of 13 Product Acceptability with Monsanto Chemical -- 14 Chemical Intermediates Company starting in 1977? 15 A. Yes. 16 Q. And what was your job -- what was that 17 position? 18 A. The position is identical to the previous 19 one. It's -- the company reorganized and named its 20 units differently, and that's what that entry -- 21 Q. Okay. 22 A. -- reflects. 23 Q. And your job title was Director of 24 Environmental Operations? 25 A. Yes.

1 Q. Okay. The title changed, but basically,
2 your job duties and responsibilities were the same as
3 you previously discussed?

4 A. It picked up an additional area which we
5 referred to as Industrial Hygiene Worker Exposure --

6 Q. Okay.

7 A. -- Situations.

8 Q. Okay. And then you became the Director of
9 Environmental Operations for Monsanto Industrial
10 Chemical Company in 1983, correct?

11 A. Yes.

12 Q. Okay. And again, you would be dealing at
13 least in part with the environmental concerns of PCBs?

14 A. Yes.

15 Q. Okay. And then you became the Manager of
16 Occupational Health for Monsanto Chem -- Chemical
17 Company in 1986?

18 A. Yes.

19 Q. And that's the last position you held before
20 your retirement?

21 A. That is correct.

22 Q. And what did that position entail as far as
23 your job duties and responsibilities, sir?

24 A. It centered primarily on worker exposure to
25 occupational conditions for the whole company really.

1 Q. All right. Did it have anything to do with
2 PCBs?

3 A. Of course if the subject did come up -- in
4 1986, the issue was behind us primarily. No -- no
5 particular discussions relating to PCBs came up during
6 that period.

7 Q. Okay. Okay. As I understand it, Monsanto
8 had ceased manufacturing PCBs by that time?

9 A. Oh yes.

10 Q. All right. Okay. If you'd set that exhibit
11 aside, Mr. Papageorge, and go to the next one, please.

12 Deposition Exhibit No. 2 is a document that
13 we received from Monsanto's lawyers, and it has
14 references to, at least I believe, the amounts of
15 production of PCBs during the time Monsanto made them?

16 MR. MILLER: Let me object to the form.
17 It's leading, and also, you haven't established whether
18 Mr. Papageorge has any familiarity with this document.
19 There's no foundation.

20 Q. (By Mr. Oaas) Okay. I just want you to
21 take a minute and just review the -- the document.

22 A. I have scanned it, yeah.

23 Q. Okay. Have you ever seen that document
24 before?

25 A. I don't remember it.

1 Q. Okay. Well, I'm just trying to get a handle
2 on how much PC -- how many -- how much PCBs Monsanto
3 produced during the time that it made them, and maybe
4 we can start with a date. Let's get a time reference,
5 Mr. Papageorge. Can you tell us when Monsanto began to
6 make PCBs?

7 A. As I understand it, it was -- in 1929, they
8 bought out a company that made PCBs, and Monsanto
9 started being involved with PCB production.

10 Q. Okay. Do you recall the name of that
11 company? In my reading, I think I came across the name
12 Swan Chemical Company.

13 A. Swan. That's it.

14 Q. Okay. And was that located here in
15 St. Louis?

16 A. No. It was in, as I remember it, two
17 plants, Anniston and some plant up in the east --
18 northeast.

19 Q. Okay. Okay. It started in -- in the -- in
20 the 1930s approximately -- late 1930s? Would that be
21 fair -- would that be a fair statement?

22 A. Well, when you use the word late, it
23 might -- might have -- sometime during 1930.

24 Q. All right. Okay. And when did Monsanto
25 stop manufacturing PCBs?

1 A. As best I remember, 1971.

2 Q. Okay. Now, during that time -- time
3 frame -- and that's what I'm trying to get a handle
4 on. In reference to this Exhibit No. 2, the exhibit
5 indicates that as far as U.S. sales go, there were 1253
6 million pounds of PCBs sold during that period of
7 time. Do you see the -- the number in the second box
8 down from U.S. production?

9 A. I see it.

10 Q. Okay. And do you see the first box up on
11 top, U.S. production was 1400 million pounds?

12 A. Yes.

13 Q. Okay. Now, correct me if I'm wrong, but
14 it's my understanding that during the time frame 19 --
15 late 1930s -- and I understand that's just an
16 approximate date -- to 1971, that -- that Monsanto was
17 the sole producer of PCBs in the United States?

18 MR. MILLER: Object to the form, leading.

19 MR. Oaas: I know it's leading.

20 A. As best as I recall, Monsanto was the sole
21 producer --

22 Q. (By Mr. Oaas) Okay. All right.

23 A. -- unless you include the material
24 imported.

25 Q. And I'm not counting imports. Just --

1 A. This is just --
 2 Q. Just made in the United States.
 3 A. -- made in the United States. All right.
 4 Q. All right. Now, do you have any knowledge
 5 that you gained during your -- your employment with
 6 Monsanto concerning the -- the numbers mentioned in
 7 this exhibit, total U.S. production of 14 (sic) million
 8 pounds, total U.S. sales of approximately 1200 million
 9 pounds? Do you have any information that you can say
 10 whether or not those are reasonably accurate numbers?
 11 A. I do not.
 12 Q. Okay. Assuming that they are, the bottom
 13 chart indicates -- app -- appears to indicate the
 14 disposition of the PCBs that were manufactured during
 15 that period of time?
 16 A. That's the way I understand this chart.
 17 Q. Okay. It seems to indicate that there was
 18 approximately 150 million that -- the box says soil,
 19 water, air sediment, do you see that, Mr. Papageorge?
 20 A. I do.
 21 Q. Okay. The next box over seems to indicate
 22 290 millions pounds in landfills and dumps?
 23 A. It does.
 24 Q. Okay. Do you have any independent knowledge
 25 gained from your employment at Monsanto that those

1 numbers would be reasonably accurate?
 2 A. I have no specific knowledge, no.
 3 Q. Okay. And then how about the farthest box
 4 over in the lower left, currently in service? About
 5 three quarters of a billion -- three quarters of a
 6 million pounds currently in service?
 7 A. I do not know where that number came from.
 8 Q. All right. Okay. If you go on to
 9 Exhibit -- can you go on to Exhibit 3 then,
 10 Mr. Papageorge. And just for your information, I'll --
 11 I'll tell you that this is a -- a document taken from
 12 the inter -- interdepartment -- interdepartmental task
 13 force report that was done in 1972. I -- I think
 14 you're familiar with that task force in some respects?
 15 A. Yes.
 16 Q. Okay. And contained in that report were
 17 some production figures for certain years, and
 18 Deposition Exhibit No. 3 appears to be part of that
 19 information. Have you ever seen this exhibit before,
 20 Mr. Papageorge?
 21 A. It seems familiar, but it's so typical of
 22 reports of this nature that I cannot recall it
 23 specifically --
 24 Q. Okay.
 25 A. -- and I note that it's continued, so this

1 is part of --
 2 Q. That's just part, yeah.
 3 A. -- another report.
 4 Q. And I'm just using this exhibit because I
 5 wanted to focus on the years 1969 and 1970, which by
 6 your testimony would have been the last two or three
 7 years that Monsanto was producing PCBs, correct?
 8 A. Yes.
 9 Q. Okay. In the -- if you're looking at the
 10 column under 1969, this exhibit indicates that the
 11 total U.S. production was approximately 76 million
 12 pounds?
 13 A. I see it.
 14 Q. Do you see that?
 15 A. Yes.
 16 Q. Does that number sound reasonably accurate
 17 to you?
 18 A. I have no way of -- determine its accuracy.
 19 I -- I did not memorize such numbers.
 20 Q. Okay. How about for the domestic sales?
 21 Would your answer be the same to the 67 million figure?
 22 A. Yes.
 23 Q. Okay. And for 1970, how about the 85
 24 million figure? Does that figure sound reasonable?
 25 A. Again, I have no -- no way of evaluating its

1 accuracy.
 2 Q. Okay. Let me ask you this question,
 3 Mr. Papageorge.
 4 A. Uh-huh.
 5 Q. What -- in the time frame 1969-1970, what's
 6 your estimation as to how many pounds of PCBs Monsanto
 7 was producing?
 8 A. I don't even know how to approach that
 9 number. I never really concentrated on the total
 10 production.
 11 Q. Okay. How about at Anniston during the time
 12 you were Plant Manager?
 13 A. I used to know that number, but I've
 14 forgotten it now.
 15 Q. Would it be in the tens of millions of
 16 pounds?
 17 MR. MILLER: Object to the form. You're
 18 asking him to speculate now.
 19 A. Tens of millions of pounds each year?
 20 Q. (By Mr. Oaas) Each year.
 21 A. Well, that seems a little high to me now,
 22 but again, I have no background to support that.
 23 Q. Okay. While you were the Manager at
 24 Anniston, I -- I take it that the Anniston plant was
 25 running at full capacity as far as the manufacture of

1 PCBs was concerned?
 2 A. Yes, it -- when you say full capacity, it --
 3 generally, it did, but there were times when it, for
 4 many reasons, would reduce the production --
 5 Q. Sure.
 6 A. -- or terminate it either for repair or lack
 7 of sales or storage or -- several reasons --
 8 Q. Okay. I think I --
 9 A. -- to control that activity.
 10 Q. All right. Would the same be true at the
 11 Krummrich Plant while you were the General
 12 Superintendent there?
 13 A. Yes.
 14 Q. Okay. Now, let's go on to Exhibit -- the
 15 next exhibit, Exhibit 4, Mr. Papageorge, please. You
 16 can take as much time and look through that to see if
 17 you can identify it, please.
 18 A. I have scanned this exhibit, and it looks
 19 familiar to me.
 20 Q. Thank you. The heading it -- as indicated,
 21 it's titled Monsanto's PCB Program, and then your name
 22 appears under the heading, is that correct?
 23 A. That is correct.
 24 Q. And it says presented at the ANSI Committee
 25 C-107 Meeting, September 14, 1971. Do you see what I

1 just read there, sir?
 2 A. Yes.
 3 Q. Okay. And do you recall making a
 4 presentation at the ANSI Committee in September of
 5 1971?
 6 A. I do.
 7 Q. Okay. And do you recall what the purpose of
 8 that presentation was?
 9 A. It was my attempt to summarize for the
 10 committee which was meeting the program followed by
 11 Monsanto in responding to all information that was
 12 available to Monsanto to properly manage the PCB issue.
 13 Q. Okay. Let me just take a minute and back up
 14 for a minute just to get some fundamental definitions
 15 on the record and -- why don't you just tell me what
 16 your understanding of what a PCB is?
 17 A. PCB expression describes many chemicals
 18 produced when a chemical called biphenyl is exposed to
 19 chlorine and the chlorine attaches itself to this
 20 biphenyl group in many ways, and there are, as I
 21 remember, 11 positions where chlorine could attach
 22 itself, and under conditions of amount of chlorine and
 23 temperature and time, the amount of chlorine that
 24 attaches itself varies.
 25 Q. Okay. Are you -- are you finished with your

1 answer? I didn't mean to cut you off.
 2 A. I think I did.
 3 Q. Okay. Thank you. And I understand that PCB
 4 is an acronym for Polychlorinated Biphenyls, correct?
 5 A. That is correct.
 6 Q. Okay. Now, what's the significance of the
 7 term Aroclor?
 8 A. That was Monsanto's registered trademark
 9 describing a -- a group of chemicals which were
 10 chlorinated biphenyls and chlorinated terphenyls.
 11 Q. Okay. What's the difference between a
 12 biphenyl and a terphenyl?
 13 A. A terphenyl has a -- another benzene ring
 14 attached to the two that the biphenyls have.
 15 Q. Okay. Now, can you just generally describe
 16 what Monsanto -- well, strike that.
 17 What -- what uses were made of PCBs during
 18 the time Monsanto manufactured them, just in general
 19 terms?
 20 A. In general, there were two predominant types
 21 of uses. One of them was referred to as the
 22 plasticiser applications, and the other was the group
 23 referred to as functional fluids.
 24 Q. Okay. Can you give me some examples -- some
 25 concrete examples of plasticiser uses for PCBs?

1 A. Well, it's an ingredient in paint, the kind
 2 that was used on highway lane marks.
 3 Q. For instance?
 4 A. For instance, yes. It was used in so many
 5 different chemicals to give them pliability rather than
 6 being brittle.
 7 Q. Okay. Can you give me some -- some examples
 8 of uses in the functional fluids category?
 9 A. Yes. It was used as an insulating liquid
 10 inside an electrical transformer to control the arcing
 11 and what have you that would have gone on internally,
 12 to also help keep the transformer from getting
 13 overheated. It's a cooling ingredient. Another use
 14 was in hydraulic fluids used to operate pressure
 15 equipment.
 16 Q. And I -- I think we have some exhibits that
 17 mention a product called Pydraul. Is that -- would
 18 that be one of the products used in that particular
 19 field?
 20 A. Yes.
 21 Q. Okay. How about for heat tra -- any heat
 22 transfer equipment? Was it used in -- in that category
 23 of uses, too?
 24 A. Yes, it was.
 25 Q. Can you give me a concrete example of that,

1 too, please?

2 A. The use in heat transferring equipment was
3 really to transfer heat to an operation where, of
4 course, the heat was required. For example, to
5 pasteurize something, you'd have the PCB inside of
6 tubes that would heat the material it was pasteurizing.

7 Q. The example that keeps coming to my mind is
8 fre -- McDonald's french fries. I mean, are you
9 talking about -- are you talking about a heating
10 unit -- something that would be used to heat another
11 substance, is that what we're talking about?

12 MR. MILLER: Object to the form and the --
13 and the description.

14 A. Well, the -- the McDonald's one involves
15 exposing something to the hot oil itself.

16 Q. (By Mr. Oaas) Okay.

17 A. In this case, the oil is contained in a
18 closed system, is heated at one location where the use
19 of gas flames or other sources of heat is permissible,
20 and the heated liquid is then sent to another location
21 where -- for, say, safety conditions. The hot liquid
22 performs the heating function, and then is returned to
23 be re-heated.

24 Q. Okay. Thank you. Let's go back to Exhibit
25 4 now if we could.

1 A. Yes.

2 Q. If you would turn to page 114 of that
3 exhibit, please.

4 A. I'm looking at the number at the lower
5 right-hand corner.

6 Q. Lower right-hand corner. You've got it.
7 You're -- you're with me. Okay.

8 And I just want to go to the middle of the
9 second paragraph. I think we covered this point, but
10 if you can find the sentence that starts in this
11 country Monsanto, as sole producer.

12 A. I found it, yes.

13 Q. Okay. And I -- it's -- it -- the sentence
14 reads in full, in this country Monsanto, as sole
15 producer, has attempted to improve the situation by
16 limiting the applications to which these materials are
17 used. We've already covered this, but again, as far
18 as -- excluding imports, Monsanto was the sole producer
19 of PCBs in the United States?

20 A. To the best of our knowledge, yes.

21 Q. All right. Okay. And then if you just go
22 one page back to 113, Mr. Papageorge. And I -- I just
23 want to direct your attention to the top of that page,
24 the first paragraph, and I -- I have some questions
25 about the first paragraph, and I just want to read it

1 into the record. It says a thought we must all keep in
2 mind, too, is that we've got to live with the PCBs we
3 introduced into the environment for the past 40 years.
4 They have not disappeared overnight. They will not
5 disappear overnight. We do not have any tests that
6 tell us how long it will take. We can only make an
7 educated guess and we might say they will be out there
8 for another generation 25 to 30 years yet. Hopefully,
9 it will be a decreasing amount as time goes on. Did I
10 read that correctly?

11 A. Yes.

12 Q. Okay. Those were your words that you spoke
13 to the ANSI Committee in 1971?

14 A. Yes.

15 Q. Okay. And that was when you were -- you
16 were employed by Monsanto as the Manager of
17 Environmental Control?

18 A. Yes.

19 Q. Okay. Now, in reference to that paragraph,
20 too -- excuse me -- in reference to that paragraph, I
21 have a couple of questions. It says a thought we must
22 all keep in mind, too, is that we've got to live with
23 the PCBs. I was just curious as to your frame of mind
24 as to who you -- who you meant when you said we've.
25 Who is the -- the we in we've?

1 A. Well, at the time it was the audience I was
2 speaking to.

3 Q. Okay. Okay. And then when you say live
4 with the PCBs we introduced into the environment, who
5 were you referring to with the we in that sentence?

6 A. I'm sorry. Would you repeat that?

7 Q. Okay. It says a thought we must all keep in
8 mind, too, is that we've got to live with the PCBs we
9 introduced into the environment, and I'm just wondering
10 if you re -- can recall who's the we we're -- we're
11 referring to in that statement. Were you referring to
12 Monsanto or somebody else or can you recall?

13 A. Again, it's the group I was speaking to --

14 Q. Okay.

15 A. -- which included Monsanto and its
16 customers.

17 Q. All right. The group you were speaking to,
18 who did that -- what did -- who did that consist of, do
19 you recall, sir?

20 A. You mean by individual names?

21 Q. No, no. Just by -- just by --

22 A. Well, this is Monsanto certainly, and
23 General Electric, Westinghouse. I can't remember all
24 of the customers that were represented by individuals
25 in this committee.

1 Q. Okay. And I -- I understand ANSI stands for
2 the National Standards Institute, is that correct?
3 A. That is correct. American National
4 Standards Institute.
5 Q. And I may have asked you all this -- this
6 already, and excuse me if I have, but do you recall why
7 this meeting was held and why you were speaking at it?
8 A. As best as I recall, Monsanto and its
9 customer's employees involved with PCBs --
10 Q. Okay.
11 A. -- wanted to establish some sort of -- I'm
12 going to call them ground rules which all of us could
13 be guided, and the thought occurred -- and I don't know
14 who brought it up -- that maybe we should go to the
15 American National Standards Institute which sets
16 standards of all kinds so that it could be monitored by
17 others other than just this self-serving group and make
18 sure that what is proposed in their standards is
19 appropriate and based on the best information
20 available.
21 Q. Okay. Did you fin -- I didn't mean to cut
22 you off. Did you -- were you finished?
23 A. That was the intent of the group.
24 Q. Okay. I have a bad habit sometimes of
25 cutting people off before they finish their answers, so

1 if I do that, you let me know, and I'll let you finish
2 your answer. All right?
3 A. All right.
4 Q. All right. Now, what -- I take it here that
5 you were speaking on behalf of Monsanto when you made
6 this presentation?
7 A. Well, yes. I was describing Monsanto's
8 understanding of what the issues were, and I shared
9 with the audience what we had done up to this point in
10 time.
11 Q. All right. Now, let's go back to Exhibit
12 No. 2 just for a minute, sir, if we could.
13 A. I have it.
14 Q. Okay. Now, I understand your testimony.
15 You haven't seen this document. You're not -- you
16 can't testify as to whether or not these production
17 figures are accurate, but just assuming that they
18 are -- and just for the record again, this was a
19 document that Monsanto gave us during discovery. And
20 I'm just trying to get a han -- a handle on amounts of
21 PCBs that we're dealing with, and when I -- I look at
22 your presentation to the ANSI Committee and I see that
23 your statement is that we've got to live with the PCBs
24 we introduced into the environment for the -- for the
25 past 40 years, if these numbers are accurate, then --

1 then what you were telling the committee was that
2 they're going to have to live with about 150 million
3 pounds of PCBs that are in the soil -- that are already
4 in the soil, water, air, or sediment as is indicated on
5 the bottom row there in Exhibit 2?
6 MR. MILLER: Let me object to the form of
7 the question. You're asking to -- him to make
8 assumptions that he's not got foundation to --
9 MR. OAAS: Yeah.
10 MR. MILLER: -- to make?
11 And there's no indication that these
12 documents are -- are at all contemporaneous.
13 A. The use of the words soil, water, and
14 sediment is quite broad, and I am in no position to
15 know that the parts per trillion of PCBs in the water
16 here and another parts per trillion there all add up to
17 150 million. I just -- there's --
18 Q. (By Mr. Oaas) And I'm not either. I'm just
19 going by the number on this document. And I'm just
20 asking -- let's just assume for the sake of my question
21 that this is an accurate number. Okay?
22 A. Assume it's an accurate number at some point
23 in time --
24 Q. Right.
25 A. -- and as this is put together, some of

1 those PCBs are deteriorating.
2 Q. I understand.
3 A. They're fading from the picture in a way.
4 Q. Okay. Well, let me ask the question this
5 way. When you were talking to the ANSI Committee, when
6 you made the statement that we've got to live with the
7 PCBs we introduced into the environment for the past 40
8 years, whatever that amount is your referring to is
9 what we've got to live with, would that be a fair
10 statement?
11 A. Yeah, whatever --
12 MR. MILLER: Wait, wait.
13 Let me object to the form of the question.
14 I -- I think it was incomprehensible, but if you can
15 somehow answer that question, go -- go ahead and do it.
16 A. Well, the intent of my statement was to
17 impress on the audience that PCBs are long, long
18 lasting. They're like pebbles on the beach. Unless
19 you step on it, it won't hurt you, so --
20 Q. (By Mr. Oaas) They're going to be there --
21 they're going to be there for a long time?
22 A. For a long time, but on the other hand, many
23 of the PCBs sold through the -- that period of time --
24 Q. Uh-huh.
25 A. -- disintegrate. They disappear. So I

Page 34 1 wanted to impress on the audience that time to get rid 2 of all of them is going to be many decades. By all of 3 them, I mean the hard to -- 4 Q. And whatever amount is out there, it's going 5 to -- going to take time? 6 A. And -- 7 Q. Whether it's 150 million pounds or 1 million 8 pounds or 5 million pounds or -- or a pound, it's going 9 to take time? That's all I'm trying to get at. 10 MR. MILLER: Let me object to the form. 11 A. That is true. 12 Q. (By Mr. Oaas) All right. I've got another 13 question about this bottom row of boxes here in this 14 document we got from Monsanto. The box in the left 15 hand corner, the currently in service box, do you see 16 that, Mr. Papageorge? 17 A. I see that. 18 Q. It indicates that the vast majority of PCBs 19 that were produced and sold during the time frame, you 20 know, at -- at the top of the -- the document, 1930 to 21 1975 are still -- were still currently in service at 22 that time? 23 A. Well, it depends how you define currently in 24 service. 25 Q. Well, currently in use, for instance. Like	Page 36 1 A. That's what that tells me. 2 Q. All right. Okay. Let's move on to Exhibit 3 5, if we could, sir. If you would take a minute to 4 look at that, please. 5 A. I have read it. 6 Q. Okay. Have you ever seen this particular 7 document before? 8 A. I don't remember it. 9 Q. Okay. Again, I'll represent to you that 10 this is a document that was given to -- to us by 11 Monsanto. Do you see the date on it? We're -- we're 12 digging up some older documents here, but it appears 13 the date is October 11th of 1937? 14 A. I do. 15 Q. Okay. Do you recall whether that would have 16 been before or after Monsanto purchased Swan Chemical 17 Company? 18 A. First what? I'm sorry. 19 Q. Do you recall whether that date of October 20 11, 1937 would have been before or after Monsanto 21 purchased Swan Chemical? 22 A. Oh. It was after. 23 Q. After? 24 A. Yes. 25 Q. All right. Now, I'm going to read the first
Page 35 1 being used in Pydraul, being an ingredient in paint, 2 not having escaped into the environment yet or 3 destroyed or put in a landfill. 4 MR. MILLER: Let me object to the form. I 5 don't think that's the meaning of currently in service 6 at all. I think it refers to in capacitors and 7 transformers, but -- and he has no -- no foundation for 8 this document. 9 Q. (By Mr. Oaas) What does it mean to you, 10 sir? That -- just that -- what does it mean to you, 11 the phrase currently in service? 12 MR. MILLER: Let me also object. He's got 13 no foundation for this document, so currently does 14 not -- is not a defined term in the context of when 15 this document may have been produced. 16 MR. OAAS: Okay. 17 Q. (By Mr. Oaas) I'm still going to ask you 18 the question, sir. What does it mean to you? 19 A. To me, currently in service -- reading this 20 without understanding the background, how it was 21 developed, I look at the date, '75, and I see currently 22 in service, and I associate the two, and that tells me 23 that currently in service is the known use of PCBs in 24 electrical equipment, transformers primarily. 25 Q. Okay.	Page 37 1 three paragraphs into the record, and see if I can get 2 them correctly. The first paragraph -- it -- it says 3 experimental work in animals shows that prolonged 4 exposure to Aroclor vapors involved at high 5 temperatures or by repeated oral ingestion will lead to 6 systemic toxic effects. Did I read that correctly, 7 sir? 8 A. Yes. 9 Q. Now, the word Aroclor is what strikes me in 10 this case. Now, what -- what is -- again, what was 11 the -- what's the significance of the word Aroclor? 12 Are we talking about PCBs there? 13 A. Some of the Aroclors are PCBs. 14 Q. Okay. How about Aroclor 1254? Is that a 15 PCB? 16 A. Yes. 17 Q. Okay. What -- what are some of the other 18 Aroclors that are PCBs? 19 A. 1221, 1254, 1260. I can't think of anymore 20 right now -- 21 Q. Okay. 22 A. -- but there's -- there are more than that. 23 About double what I gave you. 24 Q. Okay. That's fine. And I'm -- I'm mostly 25 concerned with Aroclor 1254 because that's what's been

1 identified as being in the paint in the -- in the case
 2 in Montana, so we can establish for the record that at
 3 least by your testimony that Aroclor 1254 is a PCB?
 4 A. Yes.
 5 Q. Okay.
 6 MR. MILLER: Well --
 7 Are you finished with your answer?
 8 THE WITNESS: Huh?
 9 MR. MILLER: Are you finished with your
 10 answer?
 11 THE WITNESS: Yes.
 12 MR. MILLER: Okay. I'm just going to move
 13 to strike the portion of your question that had the
 14 narration associated with what you believe was found in
 15 Montana.
 16 MR. OAAS: All right.
 17 Q. (By Mr. Oaas) And the second paragraph
 18 reads, I believe, repeated bodily contact with liquid
 19 Aroclors may lead to an acne-form skin eruption. Did I
 20 read that correctly?
 21 A. Yes, you did.
 22 Q. Okay. And then the third paragraph reads
 23 suitable draft ventilation to control the vapors e --
 24 evolved at elevated temperatures, as well as protection
 25 by suitable garments from extensive bodily contact with

1 the liquid Aroclors, should prevent any untoward
 2 effects.
 3 A. Yes.
 4 Q. Is that correct?
 5 A. Correct.
 6 Q. Okay. What's a liquid Aroclor as opposed
 7 to, I take it, a solid Aroclor?
 8 A. I'm sorry, a liquid --
 9 Q. What's a -- what's a -- is there a
 10 difference between a liquid Aroclor and something else
 11 like a solid Aroclor?
 12 A. Well, then -- that varies again with the
 13 degree of chlorination and the temperature that the
 14 material is exposed to.
 15 Q. What I'm trying to get it at -- there -- is
 16 there a liquid Aroclor and a solid Aroclor?
 17 A. There was a -- there was a -- it wasn't
 18 called Aroclor. There was a material called Montar,
 19 M-o-n-t-a-r, which is the material left over after they
 20 distilled off the usable Aroclor and they were left
 21 with this tar-like material.
 22 Q. Okay. So Aroclors were -- were manufactured
 23 and sold as a liquid? That's -- that's -- that's all
 24 I'm trying to establish.
 25 A. Yes.

1 Q. Okay. All right. And then the last
 2 paragraph says in talking with Dr. Kelly -- now, do --
 3 do you know who -- who they were referring to there,
 4 Dr. Kelly?
 5 A. Yes.
 6 Q. All right. And who is he?
 7 A. He was Monsanto's doctor/physician, the
 8 corporate physician.
 9 Q. For Monsanto?
 10 A. For Monsanto.
 11 Q. For many years?
 12 A. Oh yes. I don't know how many.
 13 Q. All right.
 14 A. Many years.
 15 Q. Okay. You knew him personally?
 16 A. Yes.
 17 Q. Okay. Now, in reference to Aroclor 1254,
 18 what's the significance, if anything, of the nu -- of
 19 the numbers 1254?
 20 A. The 54 is a percent by weight. That -- that
 21 represents the chlorine content of that particular
 22 Aroclor.
 23 Q. What about the no. 12?
 24 A. The no. 12 describes the biphenyl --
 25 Q. All right.

1 A. -- 1, 2.
 2 Q. So the higher the -- the last two numbers,
 3 the higher chlorine content?
 4 A. Yes.
 5 Q. Okay. And would -- would it be proper to
 6 describe Aroclor 1254 as a higher chlorinated bi --
 7 Polychlorinated Biphenyl?
 8 A. Again, it's a matter of what do you compare
 9 it to. If you compare it to 1268, it's not higher, but
 10 if you compare it to 1221, it is higher.
 11 Q. Okay. What's the highest chlorinated
 12 content PCB?
 13 A. I think 1268 is the best I can recall.
 14 Q. Okay. And where does 1254 fit into that
 15 regime? Was it the second highest, third highest?
 16 A. Of the commercial materials, it's -- I would
 17 say that 54 is about third from the top.
 18 Q. All right. Now, let's go to -- on to
 19 Exhibit No. 6, if we could, sir. Just take a minute
 20 and look at that, please.
 21 A. I have finished reading it.
 22 Q. Okay. It appears to be a letter from, I
 23 believe, the person we just identified, Dr. Kelly,
 24 to -- to somebody named Louis Spolynr -- if I'm
 25 pronouncing it correctly -- dated February 14, 1950?

1 A. Yes.
 2 Q. Is that a correct description of what you're
 3 looking at?
 4 A. Yes.
 5 Q. Okay. And I just wanted to draw your
 6 attention to the last sentence in the second paragraph,
 7 but before I do that, maybe you can identify the person
 8 who is on the BCC at the bottom, Mr. Paul -- and you
 9 better pronounce that for me because I'll probably
 10 butcher it.
 11 A. Paul Benignus.
 12 Q. Benignus?
 13 A. Yes.
 14 Q. Okay. B-e-n-i-g-n-u-s. Okay. Benignus?
 15 A. Correct.
 16 Q. All right. And if I could just draw your
 17 attention to the last sentence in the sec -- second
 18 paragraph where Dr. Kelly is -- is stating I suspected
 19 the possibility. Do you see -- do you see that
 20 sentence there, Mr. Papageorge?
 21 A. Yes.
 22 Q. I suggested (sic) the possibility that the
 23 Aroclor fumes might have caused liver damage, but was
 24 unable to obtain this information over the phone. I
 25 was also unable to contact the employee's physician.

1 Did I read that correctly, sir?
 2 A. You did.
 3 Q. And again, the significance of the word
 4 Aroclor is a reference to PCBs?
 5 A. It's not specific to the PCBs. It might
 6 have been the PCTs.
 7 Q. Okay. But it might also refer to the PCBs?
 8 We don't know for sure exactly?
 9 A. That's true.
 10 Q. Anyway, the word Aroclor is used?
 11 A. Aroclor.
 12 Q. All right. Okay. Let's go on to Exhibit
 13 7. If you would take a minute and review that, please.
 14 A. I have finished reading.
 15 Q. Okay. Could you identify the author of that
 16 letter? It appears to be Elmer P. Wheeler. Was he a
 17 Monsanto employee?
 18 A. Yes.
 19 Q. As -- as I -- as I understand it, and
 20 correct me if I'm wrong, he was a -- he worked under
 21 Dr. Kelly?
 22 A. Yes.
 23 Q. Would that be correct?
 24 A. Yes.
 25 Q. Okay. Was he also a physician, do you know?

1 A. No.
 2 Q. No?
 3 A. He was not.
 4 Q. Okay. And then the letter was written to a
 5 Mr. E. Mather. Are you -- do you know who that is?
 6 A. Yeah. Mr. Mather is a Monsanto employee in
 7 Ruabon, Wales, in England.
 8 Q. Okay. Why don't we talk about that for a
 9 minute just so -- it's going to come up later. I've
 10 seen references to MCL and MCC which I presume mean
 11 Monsanto Chemical London, and MCC being Monsa --
 12 Monsanto Chemical Company United States, and I don't
 13 know if that's right or not, but would you tell me what
 14 you know about the Monsanto facilities in Lon -- in
 15 England?
 16 A. They were very typical of chemical plants in
 17 the U.S.
 18 Q. Okay.
 19 A. I don't know how to describe them.
 20 Q. Did -- did -- did Monsanto own and operate a
 21 PCB manufacturing operation in England?
 22 A. Yes.
 23 Q. Okay. And where was that located?
 24 A. I'm having a hard time separating the
 25 research facility at Ruabon --

1 Q. Okay.
 2 A. -- with a producing facility that I think
 3 was in York.
 4 Q. All right.
 5 A. That's the best of my memory.
 6 Q. Okay. And -- and from your association with
 7 Monsanto, do you know where -- the PCBs that were
 8 produced in England, where were they marketed?
 9 MR. MILLER: What period of time are you
 10 referring to?
 11 MR. OAAS: Any period of time.
 12 A. They were marketed, of course, in Great
 13 Britain and in Europe, competing with the European
 14 producers.
 15 Q. (By Mr. Oaas) Okay. Okay. In reference to
 16 this -- this particular letter -- and I'm referring to
 17 the -- why don't we go to the sec -- first sentence of
 18 the second paragraph. And it -- this letter appears to
 19 be dated September 1, 1953, is that correct, sir?
 20 A. That is correct.
 21 Q. Okay. And it -- the first sentence
 22 indicated as -- as I am sure you know, Aroclors cannot
 23 be considered nontoxic. Do you see what I read there?
 24 A. Yes.
 25 Q. And again, we're using the word Aroclor in

Page 46 1 the -- in the plural. I assume that would include 2 PCBs? 3 A. Yes. 4 Q. Okay. And if you go down to the bottom 5 paragraph of that letter, I believe it reads as you 6 indicated, we are watching the use of Aroclors as -- as 7 plasticisers in emulsion paints. We do not recommend 8 that they be used in paints which might be applied in 9 confined or unventilated areas, particularly if the 10 paints might be used on heated surfaces. Did -- did I 11 read that correctly? 12 A. Yes. 13 Q. Okay. Based upon your employment and 14 association with Monsanto, what were the concerns that 15 are being referenced there, if -- if you know? 16 A. The concern is related to the concern that 17 is associated with Monsanto employees manufacturing, 18 producing the PCBs, and the PCBs from the very early 19 days that were shipped had wording on the labels 20 regarding breathing exposure of people working with 21 PCBs. 22 Q. Well -- are you -- are you finished? 23 A. Yes. 24 Q. My question re -- though, reflects -- re -- 25 reflects the concerns with using Aroclors as	Page 48 1 9:58 a.m. 2 (A short break was taken.) 3 THE VIDEOGRAPHER: We are back on the record 4 at 10:10 a.m. starting tape no. 2. 5 Q. (By Mr. Oaas) Mr. Papageorge, are you ready 6 to continue? 7 A. Yes. 8 Q. Okay. Let's go to Exhibit No. 8, if we 9 could, please. Would you just take a minute to look at 10 that, please? 11 A. I have read it. 12 Q. Okay. I just have a few questions about 13 it. First of all, is the date over in the -- there's 14 some handwriting on the document up in the upper right- 15 hand corner, and it appears to be a date, 1954, but 16 it's not real clear, but is that -- is that what it 17 appears to you to be, 1954? 18 A. That's what it appears to be, yes. 19 Q. Okay. 20 MR. MILLER: Well, hold on. Do you know 21 whose handwriting that is? 22 THE WITNESS: I do not know. 23 MR. MILLER: Or when it was put there? 24 THE WITNESS: I do not know. 25 Q. (By Mr. Oaas) Have you ever seen this
Page 47 1 plasticisers in emulsion paints. 2 MR. MILLER: Object to the form. 3 Q. (By Mr. Oaas) And again, I'm specifically 4 asking about whether or not you knew what those 5 concerns were with the use of Aroclors in paints? 6 MR. MILLER: Let me object to the form. 7 You're mischaracterizing the document. It's relating 8 to the use of those paints on highly heated surfaces in 9 closed environments where they're being applied to 10 heating surfaces. That -- that's what the document 11 refers to. 12 Q. (By Mr. Oaas) And I was talking -- and I 13 wanted to know what concerns -- if you knew what 14 concerns were being referenced there? 15 A. The concerns that I associate this with are 16 the affect of high temperatures on PCB products where 17 the material is introduced into the environment because 18 of the high temperatures, and that environment is 19 similar to the environment the Monsanto employee might 20 be exposed to when he's manufacturing that material. 21 Q. Okay. 22 MR. MILLER: We've been going about an 23 hour. Why don't we take a break if that's all right? 24 MR. Oaas: That's fine with me. 25 THE VIDEOGRAPHER: We are off the record at	Page 49 1 exhibit before, sir? Have you ever seen this exhibit 2 before? 3 A. No. 4 Q. Okay. It's entitled seven workers develop 5 Chloracne in plant using Aroclor. Would you tell me 6 what Chloracne is, and maybe I'm -- am I pronouncing 7 that correctly, Chloracne? 8 A. That's my pronunciation. 9 Q. Okay. Can you tell me what that is, please? 10 A. It's a form of a skin disorder similar to 11 teenage acne, black heads, pimples, and it's -- it's a 12 skin problem. 13 Q. Okay. And what's the significance of 14 Chloracne and its use around PC -- in its -- strike 15 that. 16 What's the significance of Chloracne in 17 con -- connection with PCB exposure? 18 A. It's just so rare it -- it doesn't have any 19 significance. 20 Q. Okay. Okay. I want to direct your 21 attention to the last two paragraphs of this exhibit, 22 and I apologize for the copy, but this is the best -- 23 best I could do, but I believe it says an unusual 24 feature of this outbreak of dermatitis was the long 25 period of exposure before any cases were recognized.

Page 50 1 Sudden recognition of seven cases after 19 months was a 2 result of the especially careful examination of the 3 exposed employees after discovery of the first case. 4 Of 14 exposed or potentially exposed, seven developed 5 Chloracne. Did I read that correctly? 6 A. You did. 7 Q. Okay. Then the last paragraph reads, I 8 believe, the fact that air tests, even in the presence 9 of vapors, showed only negligible amounts of 10 chlorinated hydrocarbons -- chlorinated hydrocarbons -- 11 are they PCBs? 12 MR. MILLER: Object to the form. 13 A. Chlorinated hydrocarbon -- well, PCBs are 14 members of that family. 15 Q. (By Mr. Oaas) Okay. Then it goes on to say 16 indicates that this type of intermittent but fairly 17 long continued mild exposure is not innocuous. The low 18 concentration of the chlorinated diphenyl might account 19 for the development of lesion in only 50 percent of 20 those involved. Did I read that correctly? 21 A. Yes, you did. 22 Q. Okay. Have you ever heard of this incident 23 before reading this exhibit today? 24 A. I have trouble identifying -- where did it 25 occur?	Page 52 1 MR. OAAS: Just in general. 2 MR. MILLER: Let me object to the form. 3 A. In general, Monsanto -- if I understood your 4 question, you asked to terminate recommending its use? 5 Q. (By Mr. Oaas) At some point -- it's my 6 understanding -- and correct me if I'm wrong -- that at 7 some point in time Monsanto ceased to recommend the use 8 of PCBs as plasticisers for indoor paints? 9 MR. MILLER: Are you referring to Lustrex 10 Latex paints that were used solely in -- 11 MR. OAAS: No. I'm referring it to all 12 indoor paints. 13 MR. MILLER: That presumes there was ever a 14 recommendation that it should be used for indoor 15 paints -- 16 MR. OAAS: Well, we'll get to that -- 17 MR. MILLER: -- in non-industrial 18 applications. 19 MR. OAAS: We'll get to that in a minute. 20 A. As best I remember, the use in paints was 21 terminated when Monsanto withdrew from the plasticiser 22 applications in the '70s. 23 Q. (By Mr. Oaas) Okay. In 19 -- in the early 24 1970s? 25 A. Yes.
Page 51 1 Q. Yeah, the -- there's no -- there's nothing 2 in the -- in the exhibit itself. I'm just asking for 3 your mem -- your memory if you recall where this 4 occurred. 5 A. I just have no idea where it occurred. 6 Q. All right. Okay. If we could go on to 7 Exhibit 9 then, please. It's a three-pager, so take as 8 much time as you need to look through it. 9 A. I have read the exhibit. 10 Q. Thank you. Can we just identify the people 11 involved in the creation of this exhibit. It appears 12 to be authored by a D.V.N. Hardy. Do you know who that 13 is, Mr. Papageorge. It's signed by D.V.N. Hardy. 14 A. As I remember, he's a member of the Monsanto 15 team in Great Britain. 16 Q. Okay. And it was sent to a Dr. J.W. 17 Barrett. Do you know who that is? 18 A. Yes. He is also in Great Britain. 19 Q. All right. Now, it's my understanding -- 20 and correct me if I'm wrong, but at some point in time 21 Monsanto ceased to recommend the use of PCBs as 22 plasticisers for indoor paints, is that -- is that 23 correct? 24 MR. MILLER: Are you referring to this 25 document or in general?	Page 53 1 Q. Okay. All right. Let's take a look at 2 the -- the front -- first page of this exhibit. I'm 3 going to read just the -- the first paragraph into the 4 record. It says further to my memo of 9th August, I 5 propose to summarize the present position on Aroclor 6 vapor toxicity as an essential background to our policy 7 and to our consideration of the Battelle proposal for a 8 program of tox -- toxicological work. 9 And the second paragraph goes on to say I 10 have indicated in my summary of the two reports by The 11 Kattering Laboratory that prolonged exposure, 12 parentheses, seven hours a day for 150 days to Aroclor 13 1254 vapor at 1.5 micrograms per cubic meter caused 14 slight but positive signs of injury in test animals and 15 that similar experiments with the Aroclor 1250 -- 1242 16 gave negative results at 1.9 micrograms per cubic 17 meter. Did I -- did I read that correctly? 18 A. Yes. 19 Q. Okay. Let -- can you identify The Kattering 20 Laboratory that's mentioned in that -- 21 A. I've heard of Kattering, but I've never 22 personally worked with him, so -- 23 Q. Are they locate -- where are they located, 24 do you know? 25 A. I don't know.

Page 54 1 Q. Okay. Are you familiar with the -- the 2 reports by The Kettering Laboratory referred to in that 3 second paragraph about the vapor toxicity of Aroclor 4 1254? 5 A. I am not. 6 Q. Okay. And then let's go on down to the 7 third paragraph, the last paragraph on the -- that 8 letter, the first sentence. During the near future, at 9 any rate, our consideration of the suitability of 10 Aroclors for specific applications must be governed by 11 this finding that prolonged exposure to Aroclor vapor 12 at 1.5 micrograms per cubic meter can produce damage to 13 the liver and kidneys of test animals. And -- did -- 14 do you believe that that's a correct statement? 15 A. I have no way to judge it -- its 16 correctness. 17 Q. Okay. And then if we could go on to page 2 18 of the exhibit, sir. If you -- I'm going to read from 19 the first sentence in the -- the first full paragraph 20 where it starts with our own analytical work. Do you 21 see that, where I'm at? 22 A. I do. 23 Q. Our own analytical -- analytical work with a 24 room painted with Aroclor 1248 plasticised Lustrex 25 Latex paint affords evidence that Aroclor	Page 56 1 paint. It now seems possible that a hazardous 2 concentration could be obtained in a room in which a 3 large area is painted with Aroclor-containing paint. 4 Certainly we must say that these paints must not be 5 used on hot surfaces such as radiators and hot water 6 pipes. Would that also be new information to you? 7 A. Yes. 8 Q. Okay. So I -- I take it from your 9 testimony, it's your understanding in your work with 10 Monsanto that Monsanto had never ceased to recommend 11 the use of PCBs as plasticisers in indoor paints? 12 MR. MILLER: Object to the form. That's not 13 the testimony that Mr. Papageorge has given. 14 MR. OAAS: Okay. I'll let it stand. I'll 15 withdraw the question. 16 Q. (By Mr. Oaas) Let's go on to the next 17 exhibit, Exhibit 10. 18 A. I have read it. 19 Q. Okay. And again, can you identify J.W. 20 Barrett, the author of this document -- appears to be 21 the author of this document? 22 A. He's a Monsanto employee in Great Britain. 23 Q. Okay. And can you tell me who Mr. H.K. 24 Nason is, N-a-s-o-n? 25 A. I don't know how to describe the man. He
Page 55 1 concentrations of the order of 0.5 micrograms per cubic 2 meter can prevail for a month. Would that be new 3 information to you? 4 A. I -- first time I've seen that. 5 Q. All right. Okay. Then let's go down to the 6 last two paragraphs on that -- on this document. The 7 next to last paragraph reads if the argument I have 8 presented above is accepted, then we must now line up 9 with MCC -- MCC stands for Monsanto Chem -- Chemical 10 Company, correct? 11 A. That is my understanding. 12 Q. Okay -- in withdrawing our recommendation 13 that Aroclors be used as plasticisers in Lustrex -- 14 Lustrex Latex paints. As regards to the use of 15 Aroclors in PVA paints, we have so far made no 16 measurements of Aroclor concentrations in painted 17 rooms, but I see no reason for believing that 18 materially reduced concentrations would be found. 19 Would that be new information to you, also? 20 A. Yes. 21 Q. And then the next paragraph reads we have 22 still to examine the position of Aroclors in ordinary 23 paints. Here I have argued that the rate of 24 volatilization will be greatly reduced and probably 25 governed by the rate of migration within the dry	Page 57 1 originally came from the Great Britain operations and 2 was assigned to work in the St. Louis area with 3 Monsanto employees. 4 Q. Okay. And the date of this letter appears 5 to be September 8, 1955? 6 A. Yes. 7 Q. And again, directing your attention to the 8 second paragraph on the first page and in reference to 9 the Kettering Laboratory again. If I read the first 10 sentence correctly it says recently received through 11 Dr. Kelly the findings of the Kettering Laboratory, 12 which as far as we were concerned included entirely new 13 data. In particular, the toxicity of Aroclor 1254 was 14 demonstrated with a range of animals at a level of 1.5 15 micrograms per cubic meter. Do -- do you see -- did I 16 read that correctly? 17 A. Yes. 18 Q. And -- and again, the Kettering Laboratory 19 appears to be the same laboratory we referred to in the 20 previous exhibit that you weren't very familiar with, 21 correct? 22 MR. MILLER: Let me object. That calls for 23 speculation, but you -- you can answer. 24 A. That's my understanding. 25 Q. (By Mr. Oaas) Sure. And again -- but

1 Dr. Kelly would -- would be the same Dr. Kelly who
 2 is -- you've id -- previously identified --
 3 A. Yes.
 4 Q. -- as a Monsanto employee?
 5 A. Yes.
 6 Q. And he was the Head of the Medical
 7 Department at Monsanto?
 8 A. Yes.
 9 Q. Okay. All right. Can we go on to the next
 10 exhibit then, please, sir, Exhibit 11.
 11 A. I have finished reading it.
 12 Q. Okay. And again, it appears to be
 13 Dr. Kelly, the Head of the Medical Department
 14 corresponding with Dr. J.W. Barrett in London?
 15 A. Yes.
 16 Q. Okay. And -- and the -- the date of this
 17 exhibit is 9/20 of '55?
 18 A. Yes.
 19 Q. Okay. Just directing your attention to
 20 the -- the last paragraph on the first page. I believe
 21 it reads MCC's position can be summarized in this
 22 fashion. We know Aroclors are toxic, but the actual
 23 limit has not been precisely defined. It does not make
 24 too much difference, it seems to me, because our main
 25 worry is what will happen if an individual develops any

1 type of liver disease and gives a history of Aroclor
 2 exposure. I'm sure the juries would not pay a great
 3 deal of attention to MACs. Did I read that correctly?
 4 A. Yes.
 5 Q. And again, MCC -- the reference to MCC in
 6 the first part of that paragraph appears to refer to
 7 Monsanto Chemical Company?
 8 A. Yes.
 9 Q. Okay. Let's go on to Exhibit 12, if we
 10 could, please. I'm not going to ask you to read
 11 through that entire exhibit. I just have some
 12 questions about specific pages, but if you could just
 13 take a minute to look through it and see if you can
 14 identify the general nature of the Exhibit.
 15 A. I have scanned the exhibit.
 16 Q. Exhibit 12, have you ever seen this document
 17 before, sir?
 18 A. I don't remember ever seeing it.
 19 Q. Okay. Do you recognize -- the author
 20 appears to be E. Mather, and the date of the document
 21 April 1955, and I'm referring to the first page. Would
 22 that be the -- the same Mr. Mather that was Dr. Kelly's
 23 assistant in the medical department --
 24 A. Yes.
 25 Q. -- that we identified earlier?

1 A. Yes.
 2 Q. Okay. And the title of the document is
 3 Process for the Production of Aroclors, Pyranols,
 4 etc.?
 5 A. It is.
 6 Q. Okay. What -- what -- what's Pyranol?
 7 A. Pyranol?
 8 Q. Right.
 9 A. As I recall, it's a General Electric
 10 trademark for a PCB mixture.
 11 Q. Okay. All right. Let's go to page 49 of
 12 the exhibit, which -- and I'm referring to the numbers
 13 down in the right-hand corner. It's really the fourth
 14 page, but it -- for some reason it's numbered 49.
 15 A. I have it.
 16 Q. Okay.
 17 MR. MILLER: It's numbered 49 because you
 18 don't have a complete copy of the document.
 19 MR. OAAS: All right.
 20 Q. (By Mr. Oaas) And I'm -- I'm drawing your
 21 attention to the Roman Numeral 11 at the top of the
 22 page -- Roman numeral 11 titled hazards and subtitle
 23 toxicity. Do you see where I'm referring to?
 24 A. I -- yes, I do.
 25 Q. Okay. And I believe it reads there are many

1 literature references to harmful effects of the type of
 2 Chloracne resulting from exposure to chlorinated
 3 diphenyls, especially in cases where people working
 4 with small electrical components have been exposed to
 5 the fumes of hot, highly chlorinated Aroclors.
 6 Chloracne is sometimes accompanied by gastric troubles,
 7 and there are literature references to liver troubles.
 8 Did -- did I read that correctly?
 9 A. Yes.
 10 Q. Okay. And then if we could move to page 51,
 11 and I'm referring to the second paragraph that begins
 12 there is need therefore to give warning. Do you -- do
 13 you see what I'm referring to, Mr. Papageorge?
 14 A. Yes, I do.
 15 Q. There is need therefore to give warning.
 16 For the toxicity of these compounds has been repeatedly
 17 demonstrated both from the standpoints of their
 18 absorption from the inspired air as well as from
 19 effects in producing a serious and disfiguring
 20 dermatitis when allowed to remain in contact with the
 21 skin. Since these effects have been repeatedly
 22 observed, industrial hygienists have taken care to see
 23 that the proper controls have been established wherever
 24 these products are used. For example, the maximum
 25 allowable concentration of the chlorinated --

Page 62 1 chlorinated diphenyl for an eight-hour working day is 2 one milligram per cubic meter of air. Did I read that 3 correctly? 4 A. Yes. 5 Q. Now, drawing -- drawing on your experience 6 as the Plant Manager in Anniston, were there controls 7 in effect from an industrial hygienist's point of view 8 as -- as far as controlling the amount of Aroclor that 9 would get into a work room? 10 MR. MILLER: Do you mean vapor or liquid? 11 MR. OAAS: Vapor. 12 Q. (By Mr. Oaas) Aroclor -- were there -- I'm 13 just asking -- let's just start again. Okay. Let's go 14 back to the days of your being a plant manager at the 15 plant in Anniston. Okay? 16 A. Yes. 17 Q. Were there any controls in effect at the 18 plant from an industrial hygiene point of view with 19 respect to Aroclor vapors, PCB vapors? 20 A. Well, there were ventilating systems to pick 21 up any vapors that evolve out of an open tank, and they 22 were picked up by this ventilating system and sent to 23 scrubbing tanks where the vapor was processed to remove 24 anything it contained, and they also went through 25 filters. And the other controls were -- respirators	Page 64 1 A. Plant B? 2 Q. Yeah. Why was Plant B rated a toxic 3 department? 4 A. Well, Plant B is the Krummrich plant that we 5 talked about previously. 6 Q. Okay. 7 A. I have no idea that they ever rated any 8 department as toxic. 9 Q. Okay. All right. Let's continue on with 10 that paragraph. Each operator is provided with a 11 complete set of clothing comprising of hat, coat, 12 trousers, combination underclothes, socks, and rubber 13 shoes. A clean change of clothing except shoes is 14 placed in the operator's locker in time for the 15 following shift. Men working extra shifts are given a 16 clean set of clothing. Canvas gloves and goggles are 17 provided and, quote, Ply, end quote, hand barrier cream 18 is available for use when necessary. Now, are they 19 describing the operations at Krummrich there in terms 20 of safety clothing that was given to the employees? 21 A. They are -- yes, they are. 22 Q. Okay. 23 A. And that's part of their union contract. 24 Q. Okay. And were the -- these same safety 25 measures taken at -- at the plant in Anniston when you
Page 63 1 were provided to the workers to wear when the fumes got 2 a little -- to the point where they couldn't tolerate 3 any more. 4 Q. Okay. Anything else? 5 A. Not that I can think of. 6 Q. And maybe I -- maybe the word controls was a 7 bad -- a bad -- poor choice of words, but what I was 8 trying to get at -- were there any limits -- any limits 9 set by any government agency, self-imposed limits by 10 Monsanto, or by any -- any group of an industrial 11 hygienist's recommendation for limits as to how much 12 Aroclor vapor workers at the Annistor -- Anniston plant 13 could be exposed to for an eight-hour workday? 14 A. There was no such guideline. 15 Q. All right. Let's go on to the next page 16 then, page 52. And I think you touched on this. This 17 is what I was going to ask about next. We'll go -- 18 start down at the paragraph about halfway down where it 19 at -- at St. Louis. 20 A. I see it. 21 Q. Okay. At St. Louis, Plant B, the Aroclors 22 building is rated a toxic department. Do you know what 23 that meant, Mr. Papageorge? 24 A. What meant? What part of that? 25 Q. This part.	Page 65 1 were the manager there? 2 A. I hesitate because there were changes made 3 while I was there. 4 Q. Okay. 5 A. When I first arrived, it was at the option 6 of the operator -- 7 Q. Okay. 8 A. -- to take advantage of what was available. 9 Following a union contract negotiation and settlement, 10 I provided changes of clothing, and it even got down to 11 where I provided a towel for them to take their shower. 12 Q. Okay. 13 A. So there was a -- an emphasis on cleanliness 14 while working if material got on them, and also an 15 emphasis on when you leave the plant, you will leave 16 clean. 17 Q. Okay. Are you finished? 18 A. Yes. 19 Q. Okay. And I think -- I think you just 20 touched on what I was going to read next. I'm just 21 following on with the next paragraph. It says twenty 22 minutes paid time is allotted for bathing at the end of 23 the shift, but again, no record is kept that baths are 24 actually taken. Theoretically, food is not allowed to 25 be eaten within the Aroclors building. Instructions

1 are issued that hands and face should be washed well
2 before eating. Employees in toxic departments are
3 given an annual medical examination and a lung x-ray
4 every three years. Did I read that correctly?

5 A. Yes.

6 Q. The phrase employees in toxic departments,
7 what -- what -- do you know what is being referenced
8 there as -- as far as the term toxic departments?

9 MR. MILLER: Let me object to the form.
10 It's been asked and answered and there's no foundation
11 for Mr. Papageorge's comment on this document.

12 Go ahead if -- if -- if you know what that
13 means, Mr. Papageorge. You can respond.

14 A. Yes, I know, but I don't have a list. There
15 were departments described with the word toxic to
16 separate them from departments such as the receiving
17 dock that's getting supplies for the plant. There were
18 some departments that shipped out chemicals produced at
19 the plant, properly labeled, properly sealed, and
20 shipped out. So those departments were not considered
21 incidences where exposure would result, unless there
22 was a serious accident. So there were two types of
23 departments, and the word toxic was used to describe
24 those situations where chemicals could be released and
25 should be controlled.

1 Q. (By Mr. Oaas) And would -- and your use of
2 the word chemicals in that answer, would that include
3 PCBs?

4 A. Yeah.

5 Q. Okay. Well, let's go to the next to the
6 last page of that exhibit, page 55. And I'm reading
7 from the third paragraph down where it starts with
8 Mr. Benignus. Did I pronounce that correctly?

9 A. Very good.

10 Q. How about that?

11 Mr. Benignus of St. Louis -- what was his
12 position with the company at that time in the mid
13 1950s, if you know?

14 A. In the 1950s, Mr. Benignus was the technical
15 supporter located in St. Louis to advise the marketing
16 people throughout the world really that worked for
17 Monsanto on a given set of products, and in this case
18 PCBs is one of them.

19 Q. Okay. Now, this paragraph -- graph reads
20 Mr. Benig -- Benignus, of St. Louis, September 1953,
21 discussed the dangers of using Aroclors in indoor
22 paints. Now, can you tell me what he would have been
23 referring to, Mr. Papageorge?

24 MR. MILLER: Object to the form.

25 A. At the time it had to do with indoor paints

1 on hot surfaces.

2 Q. (By Mr. Oaas) Okay. Would these be indoor
3 paints that were -- that were being sold to consumers
4 in the United States that contained PCBs?

5 MR. MILLER: Object to the form. Consumers
6 being whom?

7 MR. OAAS: Any consumers.

8 MR. MILLER: Industrial consumers? Object
9 to the form. Your -- your analogies --

10 Q. (By Mr. Oaas) Is it -- I'll re -- try to
11 rephrase it if you didn't understand it.

12 A. I'm confused now.

13 Q. Okay. When he's -- this paragraph refers to
14 a discussion about the dangers of using Aroclors in
15 indoor paints. Is he referring to indoor house paints,
16 if you know?

17 A. No. It's all paints containing PCBs on hot
18 surfaces, whether it's house or industrial.

19 Q. Any kind of use whatsoever?

20 A. Correct.

21 MR. MILLER: Object to the form. He just
22 said on hot surfaces.

23 A. Hot sur --

24 MR. MILLER: Not any use whatsoever.

25 MR. OAAS: Okay. Any kind of use whatsoever

1 on hot surfaces. How about that?

2 Q. (By Mr. Oaas) Let's go to Exhibit 13.

3 A. I have read it.

4 Q. Okay. Now, it's my -- again, it -- this
5 letter references Pydraul. Can you tell me what
6 Pydraul is, Mr. Papageorge?

7 A. Pydraul is a fluid used in hydraulically
8 operated equipment.

9 Q. Okay. Does it contain PCBs?

10 A. Yes.

11 Q. It's my understanding -- and again, correct
12 me if I'm wrong -- that the Navy -- United States Navy
13 refused to become a Pydraul customer in the late
14 1950s. Is -- is that a correct statement?

15 A. I don't know.

16 Q. Do you know anything about any of that?

17 A. No.

18 Q. Okay. All right. Let's go on to the next
19 exhibit?

20 MR. MILLER: Do you have a copy of that? It
21 wasn't in my stack.

22 MR. HOVEN: I don't have a copy of it.

23 MR. BROWN: I don't either. 14?

24 MR. OAAS: Exhibit 14.

25 MR. MILLER: Yeah, we don't have 14.

Page 70 1 MR. OAAS: Okay. Do you want to take a 2 minute and get a copy? 3 MR. MILLER: That's all right. 4 MR. BROWN: I can get it at the next break. 5 A. I have read the exhibit. 6 Q. (By Mr. Oaas) I can't understand the -- 7 there's handwriting on there that I'm not asking you 8 to -- to under -- can you -- can you read the printed 9 portion? 10 A. Yes. 11 Q. Okay. And again, it appears to be from 12 Dr. Kelly, the Head of the Medical Department -- 13 A. Yes. 14 Q. -- to a Mr. Rich -- to a Mr. Richard Davis. 15 Do you know who he is? 16 A. Richard Davis. No, I don't remember -- I 17 don't remember him. 18 Q. Okay. This exhibit appears to say 19 yesterday, Mr. Allen of the subject company called and 20 stated that he had two employees nauseated from 21 exposure to a leak in a heat transfer unit that used 22 Aroclor 1248. Now, Aroclor 1248, that's a -- that's a 23 PCB, is it not? 24 A. Yes. 25 Q. Okay. One individual was under the care of	Page 72 1 writing to the National Dairy Research and Development 2 Division? 3 A. Yes. 4 Q. Okay. And -- and just drawing your 5 attention to the second paragraph because I have a 6 question about that. I'm just going to read it into 7 the record. Although we have limited toxicity 8 screening data on several of the compounds making up 9 this series, chronic toxicity information on only two, 10 Aroclors 1242 and 1254. Although the experiments 11 conducted on those two compounds relate to effects of 12 Aroclor vapors if inhaled, it is our opinion that the 13 systemic injury exhibited by the animals at higher 14 dosage levels represents the type of injury which would 15 result from chronic ingestion of effective doses. Did 16 I read that correctly? 17 A. Yes. 18 Q. Okay. Again, Aroclor 1254, that's a PCB, 19 correct? 20 A. Yes. 21 Q. And Aroclor 1254, that's a PCB, correct? 22 A. I thought you asked that before. 23 Q. Did I ask that? Okay. 24 Aroclor 1254 is a PCB? 25 A. Yes.
Page 71 1 a physician, and the physician suspected liver damage, 2 although no jaundice could be seen, parentheses, 3 patient a negro, closed parentheses and was not 4 hospital -- hospitalized. I told Mr. Allen to call me 5 or have a doctor call me if they needed any further 6 information. It might be that you will want to alert 7 the New York office about this case. Did I read that 8 correctly? 9 A. Yes. 10 Q. Okay. And the date of that letter is 11 February 2, 1268 (sic), is that correct? 12 MR. MILLER: Excuse me? 13 Q. (By Mr. Oaas) The date of the letter is 14 February 2, 1961. 15 A. '61. 16 Q. Excuse me. 17 A. Yes. 18 Q. I think I misspoke. 19 All right. Let's go on to Exhibit 15. 20 A. I have read the exhibit. 21 Q. Okay. I just have a few questions. Again, 22 it appears to be authored by Elmer Wheeler, the 23 assistant to Dr. Kelly, correct? 24 A. Yes. 25 Q. Okay. And it appears that Mr. Wheeler is	Page 73 1 Q. Okay. Now, what's your understanding of 2 what is said in that paragraph? 3 MR. MILLER: If you know. 4 Object to the form. 5 You may not have any foundation with this 6 document. You're asking -- 7 A. What is my understanding? 8 Q. (By Mr. Oaas) Uh-huh. 9 A. Mr. Wheeler is implying that vapors of PCBs 10 may not be invited -- involved, and it appears, in his 11 opinion, that these dosages, which are higher than the 12 vapor might create, are coming from another source. 13 Q. Okay. Let's go on to the next exhibit. 14 A. I have read it. 15 Q. All right. Again, it appears to be authored 16 by Elmer P. Wheeler? 17 A. Yes. 18 Q. Dated November 12, 1962? 19 A. Yes. 20 Q. And I just have a few questions about this 21 exhibit, Mr. Papageorge. And the -- and the first 22 paragraph reads attached are two summaries of toxicity 23 and safe handling data. One for Pydraul F-9 and one 24 for -- one for Pydraul 150. What is Pydraul F-9, if 25 you know?

1 A. It's one of the --
 2 MR. MILLER: Hold on. Hold on just a
 3 second.
 4 Let me object. There's no foundation for
 5 Mr. Papageorge's responses to a document that was
 6 authored in 1962. You haven't -- you haven't laid any
 7 foundation with this or many of the other documents.
 8 Q. (By Mr. Oaas) Can you tell --
 9 MR. OAAS: All right. Are you finished?
 10 MR. MILLER: Yeah.
 11 Q. (By Mr. Oaas) Can you tell me what Pydraul
 12 F-9 is, sir?
 13 A. I can describe it generally.
 14 Q. Sure.
 15 A. It's a -- it's a liquid containing PCBs --
 16 and I don't know which type -- that is used in
 17 equipment that requires the presence of a hydraulic
 18 fluid to function.
 19 Q. All right. How about Pydraul 150? Do you
 20 know what that is?
 21 A. It's -- it's another version of the
 22 hydraulic fluid containing a different recipe of
 23 ingredients for use in hydraulic systems.
 24 Q. Okay. And it -- it also contains PCBs?
 25 A. Yes.

1 Q. Okay. Then this exhibit goes on to say I
 2 doubt that these will persuade the National Coal Board
 3 to take a favorable view of the use of the Pydrauls in
 4 underground mines. Do you see that?
 5 A. Yes.
 6 Q. Okay. Now, have you -- have you ever seen a
 7 summary of toxicity and safe handling data for Pydraul
 8 F-9 or for Pydraul 150?
 9 A. I don't remember any.
 10 Q. Okay. How about for Aroclor 1254, in
 11 general?
 12 A. Again, I know there was data, but I don't
 13 remember it specifically?
 14 Q. Okay. And I want to go on to the bot -- the
 15 last paragraph in this exhibit. It says more
 16 important, the components of Pydrauls can be absorbed
 17 through the unbroken skin with the danger of subsequent
 18 systemic effects. Do you agree with that statement?
 19 A. That's what it -- that's what it says.
 20 MR. MILLER: Let me -- let me object to the
 21 form, lack of foundation with respect to a conclusion
 22 that he's not an expert in reaching.
 23 Q. (By Mr. Oaas) We would hesitate to
 24 recommend the use of these -- these fluids where
 25 workmen would be exposed day in and day out to skin

1 contamination such as is normally the experience of a
 2 mechanic repairing automobiles in the typical garage.
 3 Perhaps this is not a good analogy but it is the best I
 4 can offer. Did I read that correctly?
 5 A. Yes.
 6 Q. Do you think that's a good analogy?
 7 MR. MILLER: Object to the form. Lack of
 8 foundation.
 9 A. I don't know that I'm qualified to even
 10 consider whether it's good or not.
 11 MR. OAAS: All right. Do you want to take a
 12 break?
 13 MR. MILLER: Yeah, that's fine.
 14 THE VIDEOGRAPHER: We are off the record at
 15 10:57 a.m. ending tape no. 2.
 16 (A short break was taken.)
 17 THE VIDEOGRAPHER: We are back on the record
 18 at 11:11 a.m. starting tape no. 3.
 19 Q. (By Mr. Oaas) All right. Mr. Papageorge,
 20 we're about halfway done with our session today. Are
 21 you ready to continue?
 22 A. Yes.
 23 Q. All right. I'd have you look at Exhibit 17,
 24 please.
 25 A. I have read the exhibit.

1 Q. Mr. Papageorge, Exhibit 17 appears to be an
 2 article published in Poultry Science dated January of
 3 1962 by a man named McCune, a man named Savage, and a
 4 man named O'Dell. Have you ever seen this article
 5 before today?
 6 A. I have not.
 7 Q. Have you ever heard about this article
 8 before today?
 9 A. I have not.
 10 Q. Okay. At any time in your stint as manager
 11 at -- Plant Manager at Anniston, did you ever hear
 12 about the article published in 1962 by these
 13 gentlemen?
 14 A. No.
 15 Q. How about at any -- any time during your
 16 tenure as the Manager of Environmental Control? Did
 17 you ever come across this article -- show this -- did
 18 somebody show you this article, heard about this
 19 article?
 20 A. I did not.
 21 Q. Okay. How about your stint as Director of
 22 Environmental Operations? Same question. Did you
 23 ever -- ever --
 24 A. First time I've seen it.
 25 Q. First time you've seen it. Okay.

Page 78 1 It appears from my reading of the article 2 that these gentlemen felt that chicks, baby chickens -- 3 chicks were taken ill because they ate paint that 4 contained PCB. Would that be a fair characterization 5 of the article? 6 MR. MILLER: Let me object to the form. 7 There's no foundation. Are you -- are you asking 8 whether they were fed this as part of a -- a laboratory 9 experiment? 10 MR. OAAS: No. 11 A. Well, I read a summary here, but I don't 12 find any statement in that summary that supports the 13 contention that chlorinated biphenyls were the cause 14 for the symptoms. 15 Q. (By Mr. Oaas) Okay. I'm just going to read 16 the summary into the record. Chicks fed fractions of 17 an epoxy-resin paint developed hydropericardium and 18 ascites. These symptoms were similar to those observed 19 in the toxic fat syndrome. The toxicity was found to 20 be caused by a chlorinated biphenyl product used as a 21 plasticiser in the paint. Chlorinated biphenyl was 22 moderately toxic when fed at a level of 0.02 percent 23 and caused high mortality and extensive pathology 24 within four weeks at a dietary level of 0.04 percent. 25 Gross pathology included hydropericardium,	Page 80 1 Floor Top paint? 2 A. I have not. 3 Q. Okay. Let's go to then Exhibit 18? 4 MR. MILLER: Wait a minute. For -- for 5 completeness, don't you want to refer to the top of 6 page 299 where it reads it is possible that the toxic 7 component of the chlorinated biphenyl product used here 8 is a contaminant rather than the major component? 9 MR. OAAS: No. I'm just reading the 10 summary. This is my deposition, and that's what I'm 11 going to do, and we're going to keep it that way. 12 MR. MILLER: I'm surprised you don't want to 13 have the witness look at -- 14 Q. (By Mr. Oaas) Can we go on to the next 15 exhibit, No. 18, Mr. Papageorge? 16 MR. MILLER: You don't have a rule of 17 completeness in Montana? 18 MR. HOVEN: We do have a rule on misleading, 19 though. 20 MR. OAAS: We certainly haven't been 21 misleading anybody. And if you want to get into an 22 argument on the record, we can have it out right now, 23 so -- you know -- 24 MR. HOVEN: I'm just talking to him. 25 MR. OAAS: Yeah. Well, let's just keep that
Page 79 1 hydroperitoneum, enlarged heart, liver and kidneys, and 2 hemorrhage of internal organs. Microscopic -- 3 microscopically, the kidneys showed marked tubular 4 dilation and numerous casts. Did I read that 5 accurately? 6 A. Yes. 7 Q. Okay. 8 MR. BROWN: Can you refer to that page 9 number you're reading from? 10 MR. MILLER: 299. 11 MR. HOVEN: 399. 12 MR. OAAS: 299. Excuse me. 13 Q. (By Mr. Oaas) And then if we go to page 14 295, Mr. Papageorge, in a footnote reference to the 15 paint that these authors thought made these chickens 16 ill. It says the paint, parentheses, Epo floor Top, 17 close parentheses, was obtained from the Steelcote 18 Manufacturing Company, St. Louis, Missouri. Do you see 19 that? 20 A. I do. 21 Q. Do you recognize Steelcote Manufacturing 22 Company as a PCB customer of Monsanto? 23 A. I don't remember seeing Steelcote 24 Manufacturing on any listing. 25 Q. Okay. Have you ever heard of the paint Epo	Page 81 1 stuff off the record. If you've got an objection to 2 make, go ahead and make it. 3 MR. MILLER: How about this? With respect 4 to Exhibit 17, I'll make a broad objection that the 5 portions read into the record by Mr. Oaas were 6 misleading in that it failed to include other relevant 7 and complete portions of Exhibit 17 including the 8 portion that I read into the record, but if Mr. Oaas 9 would prefer not to be complete about the documents 10 that he's using, that's his prerogative at this point. 11 MR. BROWN: My version of this only has odd 12 numbered pages. 13 MR. OAAS: I might have miscopied it. 14 MR. BROWN: Okay. The one the witness has 15 has all of the pages? 16 MR. OAAS: Yeah. 17 MR. MILLER: Are you -- you know, I didn't 18 realize that either. 19 So do you want to substitute at some point a 20 full version of Exhibit 17? 21 MR. OAAS: Sure. Exhibit 17 should have 22 been -- 23 MR. MILLER: I've got only odd pages, also. 24 MR. OAAS: Okay. I see that's a mistake. I 25 can certainly correct that.

Page 82 1 MR. MILLER: Can you do that by tomorrow so 2 that if there's a need to correct -- 3 MR. OAAS: Sure. 4 MR. MILLER: -- or conduct a -- 5 MR. OAAS: Yeah. 6 MR. MILLER: -- redirect, I can have it. 7 MR. OAAS: I'll have it faxed down here. 8 MR. MILLER: I know you want to be cautious 9 about not misleading anyone. 10 MR. OAAS: I think 17 -- his 17 is complete. 11 MR. MILLER: Are we on 18 now? 12 MR. OAAS: Uh-huh. 13 MR. MILLER: Is his 17 -- was his 17 14 complete? 15 A. I have read the article. 16 Q. (By Mr. Oaas) Okay. Mr. Papageorge, have 17 you ever seen this article before? 18 A. No. 19 Q. It appears to be an article, again, 20 published in Poultry Science dated November 1965 by a 21 gentleman by the name of Flick, a gentleman by the name 22 of O'Dell, and a gentleman by the name of Childs. Do 23 you see -- does that -- does that appear to be 24 accurate? 25 A. Virginia is a gentleman?	Page 84 1 summary into the record on page 1464 where it says 2 chlorinated biphenyl, parentheses, CBP, close 3 parentheses, fed to S.C. White Leghorn cockerels at 200 4 or 400 ppm in a practical type of ration for three 5 weeks, produced signs which partially simulated those 6 of chick edema disease factor, a chlorinated aromatic 7 hydrocarbon. CBP feeding was accompanied by growth 8 depression in direct proportion to the dietary level. 9 Edema for -- formation in the pericardial sac and in 10 the abdominal and subcutaneous areas was pronounced 11 only at the 400 ppm level of CBP. Transient changes in 12 blood glucose, hemoglobin, and hema -- I'll spell it -- 13 h-e-m-a-t-o-c-r-i-t levels accompanied by CBP feeding 14 particularly at the 400 ppm level. Patholo -- 15 pathological changes observed were as follows in 16 decreasing order of incidence: Cream-colored pancreas, 17 enlarged hemorrhagic kidney, enlarged adrenal, small 18 spleen, dermatitis, and de-feathering. Relationships 19 between the toxic nature and relative potency of CBP 20 and the chick edema factor are discussed. Did I read 21 that accurately, Mr. Papageorge? 22 A. Yes. 23 Q. Now, is your testimony the same with all of 24 my -- with regard to all of my questions with respect 25 to the 1962 article? Is it your testimony here today
Page 83 1 Q. Well, the authors appear to be -- on the 2 second page appear to be Flick, O'Dell -- excuse me -- 3 and Ms. Childs. All right. Thanks for correcting me 4 on that. I appreciate it. 5 A. Yeah. I'm just -- 6 Q. Okay. Those were the authors? 7 A. Yes. 8 Q. Okay. And again, does it appear to be an 9 article reporting on the illness of chickens that were 10 fed PCBs? 11 MR. MILLER: Object to the form. There's no 12 foundation. 13 A. It's entitled that way, yes. 14 Q. (By Mr. Oaas) Okay. And do you see on page 15 1460 at the bottom footnote 1 where it says the 16 chlorinated biphenyl sold as Aroclor 1242 was obtained 17 from Monsanto Chemical Company, St. Louis, Missouri? 18 A. I do. 19 Q. You see that. So if -- if -- if that was, 20 in fact, the biphenyl that was fed to the chick -- 21 chickens as reported in this article, they were, in 22 fact, fed a PCB that was manufactured by Monsanto 23 Chemical Company, correct? 24 A. Correct. 25 Q. Okay. And again, I just want to read the	Page 85 1 that this is the first time you've seen this article? 2 A. Yes. 3 Q. The first time you've ever heard of this 4 article? 5 A. Yes. 6 Q. Okay. You've never heard of this article in 7 any capacity as the Manager of Environmental Control, 8 Manager of Product Acceptability, or Director of 9 Environmental Operations with Monsanto, would that be 10 correct? 11 A. Yes. 12 MR. MILLER: And for completeness, this -- 13 Mr. Papageorge, the researchers here were with the 14 Nutrition Research Branch, Division of Nutrition, Food 15 and Drug Administration, Washington, D.C., is that 16 correct? 17 THE WITNESS: That is correct. 18 MR. MILLER: So these people were with the 19 United States Government and specifically with the FDA, 20 is that right? 21 THE WITNESS: Yes. 22 Q. (By Mr. Oaas) Okay. Let's go on to Exhibit 23 19. 24 A. I have read the article. 25 Q. Okay. Do you know who William Hunt is, the

1 author of the letter?
 2 A. Yes.
 3 Q. And who is he?
 4 A. He's a toxicologist reporting to the medical
 5 director.
 6 Q. Okay. Is he an employee of Mon -- was he an
 7 employee of Monsanto?
 8 A. Yes.
 9 Q. Okay. And the date of this exhibit is
 10 October 21, 1971?
 11 A. Yes.
 12 Q. And it appears to be a report of an
 13 experiment being done by a Dr. Verrette con --
 14 concerning the effects on the legs of chicks that were
 15 fed Aroclors 1221, 1242, 1254, and 1260?
 16 A. Yes.
 17 Q. Okay. And on the fourth paragraph of the --
 18 the letter Mr. Hunt reports to Mr. Wheeler she,
 19 apparently referring to Dr. Verrette, told me that the
 20 affects on the legs of the chicks were very similar to
 21 that produced by dioxin, name -- namely, slipped
 22 tendons and short legs. This was seen across the board
 23 for the Aroclors. She is going to look grossly at the
 24 livers of the birds that they are saving as well as the
 25 newly hatched birds. There is hydropericardia in the

1 embryo -- em -- embryos. Did I read that correctly?
 2 A. Yes.
 3 Q. And have you ever seen this -- this letter
 4 before, Mr. Papageorge?
 5 A. I don't remember it specifically, but it's
 6 typical of the kinds of correspondence I would
 7 eventually see copies of.
 8 Q. In your capacity as Manager of Environmental
 9 Control or Director of Environmental Operations?
 10 A. In '71, yes.
 11 Q. Okay.
 12 MR. MILLER: And for completeness,
 13 Mr. Papageorge, was Dr. Verrette, as indicated in
 14 Exhibit 19 authored by Dr. Hunt, a researcher with the
 15 Food and Drug Administration, part of -- again, of the
 16 United States Government?
 17 THE WITNESS: Yes.
 18 MR. MILLER: Thank you.
 19 MR. OAAS: You know, that's entirely
 20 inappropriate. We can get into a big argument about
 21 it. If you want to ask questions at the end of this
 22 deposition or you want to notice it up yourself, go
 23 ahead. Okay?
 24 MR. MILLER: I'm just trying to be --
 25 MR. OAAS: Stop doing it. I'm telling you

1 stop. Okay?
 2 Q. (By Mr. Oaas) I apologize for that,
 3 Mr. Papageorge.
 4 If you can go on to Exhibit 20, please?
 5 A. I have it.
 6 Q. Okay. If you'd review that, please?
 7 MR. MILLER: Just for the record, Exhibit 20
 8 is pages 127 through 129 of an unidentified document.
 9 MR. OAAS: Are you going to make an
 10 objection?
 11 MR. MILLER: I'll object to the lack of
 12 completeness in showing the witness three pages of a
 13 document that appears to be well over 130 pages, so
 14 it's taken utterly out of context. I think I know
 15 where this is from. It -- will you tell me what it's
 16 from?
 17 MR. OAAS: It's from the ITF, inter --
 18 MR. MILLER: Okay. Interdepartmental Task
 19 Force Report?
 20 MR. OAAS: Right. We'll get to that.
 21 MR. MILLER: Okay. I can't wait.
 22 A. I have read the article.
 23 Q. (By Mr. Oaas) Okay. Have you ever heard of
 24 the Interdepartmental -- Interdepartmental Task Force
 25 that was formed in 1971, I believe, and then made a

1 report in 1972 pertaining to the subject of PCBs?
 2 A. Yes.
 3 Q. Okay. Tell -- tell me what you know about
 4 the creation of that force -- task force, what its
 5 purpose was, and what they eventually did, if you can?
 6 A. I can't tell you what created it except that
 7 there was enough interest in the government agencies
 8 that I was communicating with to the point where they
 9 were wondering what each department was involved in and
 10 how their information interacted with the information
 11 they had. So they decided to have this
 12 interdepartmental group where they exchanged
 13 information between the governmental agencies.
 14 Q. Do you know what -- what particular agencies
 15 were involved in the task force?
 16 MR. MILLER: Let me object. I -- I have a
 17 copy of the task force report that identifies the
 18 various agencies.
 19 MR. OAAS: I just want to know --
 20 MR. MILLER: If you just want his
 21 recollection of what the document says --
 22 MR. OAAS: Sure.
 23 MR. MILLER: -- rather than what the actual
 24 document says.
 25 Q. (By Mr. Oaas) Go ahead if you can. If you

1 don't remember, that's fine. I'm just wondering if you
2 remember.

3 A. I just remember the Department of
4 Agriculture, the wildlife people at Patuxet, the FDA,
5 of course. I just don't remember all of them, but
6 there were quite a few.

7 Q. Was -- was it part of the purpose of this
8 task force to gather all of the known information about
9 PCBs as of the date -- the date they issued their final
10 report?

11 MR. MILLER: Let me object to the form. Are
12 you asking what his understanding was --

13 MR. OAAS: Sure.

14 MR. MILLER: -- or what the government's was?

15 Q. (By Mr. Oaas) Just what your understanding
16 was.

17 A. That was one of their purposes. I don't
18 know the total.

19 Q. Sure. And did they -- did they eventually
20 issue a report?

21 A. I don't remember.

22 Q. All right. Do you recall ever reading the
23 report?

24 A. No, I don't.

25 Q. Do you recall ever providing -- being

1 provided a copy of the report?

2 A. No.

3 MR. MILLER: If you show him the report, it
4 might clarify his recollection.

5 MR. OAAS: Okay.

6 Q. (By Mr. Oaas) I'm not going to mark this,
7 but I have a copy of the 1972 ITF report. You can look
8 at it and take as long as you --

9 A. Oh, that looks familiar, yeah. Yeah, I've
10 seen this before.

11 Q. Okay.

12 A. Yeah.

13 Q. And I believe if you go to 127, 128, and 129
14 in the re -- this report, you'll see Exhibit 20, which
15 I want to ask you about.

16 A. Okay.

17 Q. Okay.

18 MR. MILLER: Torger, it might be easier at
19 this point if -- you had asked him what the federal
20 agencies were that were involved. They're -- they're
21 in the introduction.

22 MR. OAAS: You can follow up with that if
23 you want. I'll do it after I get done with this
24 exhibit if you want, but --

25 Q. (By Mr. Oaas) Let's look at this exhibit,

1 Mr. Papageorge. It appears to me -- and again, correct
2 me if I'm wrong -- to be a summary of the known
3 toxicity information about PCBs in reference to tests
4 on animals as of the date the re -- that report was
5 issued?

6 A. Yes.

7 Q. Okay. And do you see it in the chart --
8 let's go to the first page of the exhibit where it says
9 oral toxicity of chlorinated biphenyls up at the top.
10 Do you see that?

11 A. I see that.

12 Q. And then over it -- it appears to -- it
13 has -- appears to have a column with respect to the
14 dose and a column with respect to the effect on the
15 particular animals that were tested?

16 A. I see that.

17 Q. And then a reference to the particular type
18 of PCBs over on the far left-hand column that were used
19 in the experiments?

20 A. Yes.

21 Q. Okay. Now, there's a reference to a Miller,
22 1944. Do you know what they're -- do you know what --
23 what -- that article they're referring to,
24 Mr. Papageorge?

25 A. I don't remember.

1 Q. Okay. But anyway, in this exhibit under the
2 effect column, it says with respect to guinea pigs --
3 and I assume that the chlorine percentage we're talking
4 about, the Aroclor 1242?

5 MR. MILLER: Object to the form.

6 A. That's a good assumption.

7 Q. (By Mr. Oaas) Okay. Under the effect
8 level, this task force noted that there was death in 11
9 to 29 days and liver damage according to a -- a report
10 by a Miller in 1944. Did I -- did I read that
11 correctly?

12 A. Yes.

13 Q. Okay. And then following that, again, with
14 Aroclor 1242, with respect to rats at the dose
15 indicated, all animals survived, liver damage. Again,
16 according to a report by a Miller published apparently
17 in 1944. Did I interpret that correctly?

18 A. Yes.

19 Q. Okay. And then, again, with rats with
20 Aroclor 1265 at the dose level, the effect column
21 indicates 50 percent dead within 35 days, severe liver
22 dam -- damage, according to an article by Bennett, et
23 al., apparently published in 1938. Do you see that?

24 A. Yes.

25 Q. Are you familiar with the Bennett article

Page 94 1 that was published in 1938? 2 A. I am not, no. 3 Q. Okay. And again, going to page 2 of the 4 exhibit, table 3, where it says -- now we're talking 5 about dermal toxicity of chlor -- chlorinated 6 biphenyls. Do you see that? 7 A. Yes. 8 Q. Okay. And again, the same questions. The 9 first column apparently we're talking about Aroclor 10 1242 on guinea pigs at the dose level -- and the 11 effects indicate all animals died within 21 days, liver 12 damage. Again, according to the report by Miller in 13 1944. Do you see that? 14 A. I do. 15 Q. And in -- in the middle column we have, 16 again, Aroclor 1250 -- Aroclor 1242 with rats at the 17 dose indicated. The effect noted was all survived, 18 minor liv -- minor liver changes, skin affected. 19 Again, in the report by Miller published in 1944. Do 20 you see that? 21 A. Yes. 22 Q. And the bottom column, again, with Aroclor 23 1242 with rabbits at the dose indicated all died 24 between 17 and 98 days, liver damage is more pronounced 25 than in the rat or guinea pig. Again, apparently	Page 96 1 very close to that? 2 A. That is my impression. 3 Q. Yeah. The symptom noted would -- would be 4 liver -- liver cell injury, increased liver weight in 5 the rat. Again, that was reported by Treon in this 6 1956 study. Do you see that. 7 A. I do. 8 Q. And again, with Aroclor 1254.3, under the 9 symptom column we have histological changes in the 10 liver in the rat, again, in Treon's report in 1956? 11 MR. MILLER: Hold on. Just show an 12 objection to the reference to Aroclor 1254.3. 13 Q. (By Mr. Oaas) Okay. Did I read that 14 correctly? 15 A. Yes. 16 Q. Okay. And then in the last column, 17 apparently dealing with Aroclor 1265 -- is there an 18 Aroclor 1265 that you know of? 19 A. There was, yes. 20 Q. There was? 21 A. Yes. 22 Q. Okay. And under the symptom column, it 23 indicates advancing liver damage in a report by -- 24 again, by Bennett, et al., in 1938. Do you see that? 25 A. I do.
Page 95 1 reported by Miller in 1944? 2 A. I see that. 3 Q. Okay. And on the last page, the heading of 4 table -- table four, vapor exposure toxicity of 5 chlorinated biphenyls. Again, the first column again 6 apparently dealing with Aroclor 1242 at the dose 7 level -- no affect on cats, rabbits, rats and mice. 8 Poor growth in guinea pigs. That's in a report 9 published by Treon in 1956. Do you see that? 10 A. Yes. 11 Q. Have you ever read that report by Treon? 12 A. I don't remember reading it. 13 Q. Okay. And again, in the second column, 14 again, apparently dealing with Aroclor 1242, the 15 symptoms that were noted in the vapor exposure report 16 here, no effects on animals as above. Again, as 17 reflected in the report by Treon, 1956. Do you see 18 that? 19 A. I do. 20 Q. Okay. And then dropping down, apparently 21 dealing with Aroclor 1254.3. I don't know what the .3 22 means. Do you? 23 A. No, I don't. 24 Q. And again, in the symptom level -- but 25 apparently we're dealing with Aroclor 1254 or something	Page 97 1 Q. Do you ever recall re -- reading the study 2 done by Bennett? 3 A. No, I don't. 4 Q. Okay. Let's go on to Exhibit 21, please, 5 Mr. Papageorge? 6 A. I have it. 7 Q. Okay. This one might be a little tough to 8 read, so take your time. 9 A. I have read the exhibit. 10 Q. Okay. And again, we've already -- we know 11 who Mr. Wheeler is by now, I hope, correct? 12 A. Yes. 13 Q. Okay. How about Mr. Davis? Was he an 14 employee of Monsanto? 15 A. Yes, he was. I'm trying to recall his 16 location, but I can't. 17 Q. That's okay. Apparently this is a 18 discussion between Wheeler and Davis concerning a 19 customer of Monsanto's, Reliance Electric & Engineering 20 Company in Cleveland? 21 MR. MILLER: Object to the form, lack of 22 foundation. 23 A. Yes. 24 Q. (By Mr. Oaas) Okay. And the date of this 25 letter is September 3, 1965, is that correct?

1 A. Correct.
 2 Q. Okay. And again, this is a discussion again
 3 about the hazards of Ar -- Aroclor use at elevated
 4 temperatures?
 5 A. Yes.
 6 Q. Okay. And I'm going down to the -- the
 7 second paragraph, the last two sentences of the second
 8 paragraph. As I understand it, it says -- and I may be
 9 pronouncing this name wrong -- Mr. Haredos,
 10 H-a-r-e-d-o-s, went on to say that in his own plant,
 11 hot Aroclor spills on the floor were common and that
 12 his own employees had complained of discomfort. I was
 13 brut -- brutally frank and told him that this had to
 14 stop before he killed somebody with liver or kidney
 15 damage, dash, not because of a single exposure
 16 necessarily, but only to emphasize that eight hour
 17 daily exposure of this type would be completely
 18 unsafe. Did I read that correctly?
 19 A. Yes, you did.
 20 MR. MILLER: Object -- object to the form.
 21 It -- it takes out of context -- these applications
 22 involved heated Aroclors over 150 degrees.
 23 Q. (By Mr. Oaas) Do you think that was good
 24 advice for Mr. Wheeler to -- to -- to have given that
 25 particular customer?

1 A. Yes.
 2 Q. Okay. Let's go on to Exhibit 22, please.
 3 A. I have read it.
 4 Q. Okay. Thank you, sir. And it's quite
 5 lengthy, so if you need to refer to any of it in -- to
 6 respond to any question that I ask you, please feel
 7 free to take the time to -- to look at it again if you
 8 need to. All right?
 9 A. Yes..
 10 Q. Now, I hope I -- I hope I can shortcut
 11 this. My reading of Exhibit 9, which is, again, a
 12 letter between Hardy and Barrett, and this exhibit,
 13 Exhibit 22, seems to indicate to me that both Monsanto
 14 in Great Britain and Monsanto in the United States were
 15 ceasing to recommend the use of PCBs in any kind of
 16 indoor paint?
 17 MR. MILLER: Object to the form. There's no
 18 foundation.
 19 A. That's the implication, yes.
 20 Q. (By Mr. Oaas) Okay. Is that surprising to
 21 you, as we sit here today?
 22 A. I'm sorry?
 23 Q. Is that surprising to you, as we sit here
 24 today?
 25 MR. MILLER: Object to the form.

1 Q. (By Mr. Oaas) And is that new information
 2 to you -- I'm asking a question before you answered,
 3 but --
 4 MR. MILLER: What is your question now?
 5 Q. (By Mr. Oaas) Is this new information to
 6 you, Mr. Papageorge?
 7 A. No. I was aware in 1970s that this had --
 8 Q. This had taken place?
 9 A. -- been practiced for 20 years.
 10 Q. Okay. All right. And it seems to me that
 11 the reason that they were -- were ceasing to recommend
 12 the use of PCBs in indoor paints was that they were
 13 concerned about the toxicity of the vapors coming out
 14 of the paint?
 15 MR. MILLER: Object to form of the
 16 question. It utterly misstates -- misstates --
 17 misstates the document in terms of what the concern
 18 was. It was a concern for vapors coming out of paints
 19 when applied at temperatures over 200 to 300 degrees
 20 Celsius.
 21 A. The concern, as I understand it, is based on
 22 high temperature affecting the release of harmful
 23 vapors, and the other one has to do with the use on
 24 surfaces that we -- that will be exposed to high
 25 temperatures on and off.

1 Q. (By Mr. Oaas) Okay.
 2 A. And it's also concerned with the application
 3 of these paints initially with the spray guns and
 4 whatever method they had for applying.
 5 Q. Okay. With reference to the -- the
 6 recommendation being withdrawn for use of indoor --
 7 indoor paints being specifically directed at hot
 8 Aroclors, I want to draw your attention to page 3 of
 9 the exhibit. Let's go to the last paragraph on page
 10 3.
 11 A. The last paragraph?
 12 Q. And I'm -- I'll just read it. You can read
 13 along with me. With reference to the impression
 14 generally -- are we -- do you see where I'm reading
 15 from, Mr. Papageorge?
 16 A. Yes.
 17 Q. With reference to the impression generally
 18 given that cold Aroclors are safe, recent
 19 determinations of vapor pressure, parentheses, Southern
 20 Research Institute Final Report to MCC on Project 526
 21 by W. -- by W.M. Nolan, close parentheses, permits the
 22 saturated vapor concentrations to be calculated as
 23 follows, and there's a series of calculations of vapor
 24 concentrations. And then on page 4, the report goes on
 25 to say hence, air saturated with cold Aroclor is at or

Page 102 1 above the maximum permissible -- permissible 2 concentration. Do you see -- do you see what I read 3 there? 4 A. Yes. 5 Q. So doesn't that indicate to you, 6 Mr. Papageorge, that not only -- not only were Monsanto 7 United States and Monsanto Great Britain concerned with 8 the toxicity of paints being used on hot surfaces, 9 but -- but clearly this letter indicates that even cold 10 Aroclors could produce air concentrations above the 11 amount recommended as safe by the Kettering Laboratory? 12 MR. MILLER: Object to the form, lack of 13 foundation, and it grossly misstates this document. 14 A. Well, the -- the keyword in the first line 15 on page 4 is underlined, saturated. It's cold, but 16 it's loaded. 17 Q. (By Mr. Oaas) Okay. 18 A. How it got loaded, it doesn't tell us -- 19 Q. Okay. 20 A. -- whether it's spray guns or heat source or 21 something. 22 Q. All right. 23 MR. MILLER: And -- and I take it, Torger, 24 you don't want to read the first paragraph on page 3? 25 MR. OAAS: You know -- you know --	Page 104 1 hear this deposition, these -- these exhibits are going 2 to be offered at the end of his deposition in their 3 entire form and we -- we have plan on offering for 4 admission at trial the complete documents, and we don't 5 intend to mislead anybody by using parts of them for 6 the deposition purposes. And if you want to object to 7 the depositions (sic) at trial, then you go right 8 ahead, but we're going to offer the entire exhibit at 9 the deposition and the trial just to -- to respond to 10 your accusation that we're misleading -- 11 MR. MILLER: Incidentally, you know, the 12 colloquy between counsel is for the court and not for 13 the jury. 14 MR. OAAS: All right. 15 Q. (By Mr. Oaas) Let's go on to Exhibit 23, 16 Mr. Papageorge, please. 17 MR. OAAS: I assume you wouldn't have any 18 objection to Exhibit 22 at trial then, would you, Adam? 19 MR. MILLER: I'm not making any statement 20 with respect to the admissibility of any of these 21 documents, Torger. There's no foundation laid with 22 this particular witness to read selected passages from 23 it. I assume you're going to have another witness to 24 do that. 25 Q. (By Mr. Oaas) Let's go to Exhibit 23,
Page 103 1 Let's go off the record for a second. 2 THE VIDEOGRAPHER: We're off the record at 3 11:54 a.m. 4 (A short break was taken.) 5 THE VIDEOGRAPHER: We're back on the record 6 at 11:54 a.m. 7 MR. MILLER: Referring back to Exhibit 22, 8 I'm going to make an objection to Mr. Oaas' questions 9 relating to selective paragraphs of this particular 10 document because it takes the document entirely out of 11 context and mischaracterizes the statements in the 12 document, particularly when there are portions that 13 indicate in other passages that the reference here is 14 to Aroclors being sprayed, and I'm going to refer 15 particularly to the first paragraph of paragraph -- the 16 first paragraph of page 3 where it reads Aroclors 17 should not be sprayed on the job in an industrial plant 18 where there are plant personnel who can breathe the 19 vapor. There's no danger at all if the material is 20 brushed on and there's no danger in spraying it if the 21 workers use a booth or an approved respirator and no 22 one inhales the spray. It has nothing to do with 23 the -- the resulting application of paint or 24 vaporization of PCBs from paint after its application. 25 MR. OAAS: Just so the jury knows if they	Page 105 1 Mr. Papageorge. Do you recognize that document? 2 A. Yes. 3 Q. Okay. What is it? 4 A. It's a Monsanto bulletin referred to as 5 Technical Bulletin O-124 describing the use of Aroclor 6 products with chlorinated rubber. 7 Q. Okay. Since -- since the prior exhibit was 8 talking about paints, I thought we would follow it up 9 with another exhibit that talks about paints. This 10 appears to be a Monsanto Technical Bulletin, correct? 11 A. Yes. 12 Q. Okay. Can you tell the jury what a 13 technical bulletin means? 14 A. It's an effort on Monsanto's part to include 15 in a document which can be shared with its customers, 16 and they're designed to address certain subjects, 17 certain uses, so as a result there are many technical 18 bulletins -- there were many technical bulletins 19 available to the customers based on the material they 20 purchased from Monsanto and the use they made of it. 21 Q. Okay. And this one particularly deals with 22 resins and plasticisers for chlorinated rubber? 23 A. Correct. 24 Q. Now, if -- if I had never heard of Aroclor 25 or resins in plasticisers for chlorinated rubber, could

1 you describe what that's referring to, just in general
 2 terms?
 3 A. These are materials, in a broad sense,
 4 produced by many companies to add to rubber products
 5 that are made using chlorine with them.
 6 Q. When a PCB is add -- added to, for instance,
 7 chlorinated rubber paint, I -- I think that this
 8 technical bulletin would cover the use of PCBs with
 9 chlorinated rubber paint? Would that be a fair
 10 statement?
 11 A. Yeah.
 12 Q. Let's -- what does a -- what does a PCB do
 13 to improve or add to the quality of a chlorinated
 14 rubber paint?
 15 A. Well, I -- again, it depends on the amount,
 16 the ratio of the PCB, and the chlorinated rubber.
 17 Q. Just in general.
 18 A. In terms of how viscus is it, how thick it
 19 is, how easy it is to apply. Does the addition of the
 20 Aroclors make it more flexible, more fire resistant?
 21 So it's -- it's a case where a lot of blends of
 22 rubber -- chlorinated rubber and Aroclors can be made
 23 to suit certain end uses.
 24 Q. Okay. And if we go back to Exhibit 22 just
 25 for a minute, to the last page in Exhibit 22,

1 Mr. Papageorge, I think the exhibit indicates that
 2 though Monsanto England and Monsanto United States were
 3 withdrawing recommendations for the use of PCBs in
 4 indoor paints, they were going to continue to recommend
 5 them for use in chlorinated rubber paints?
 6 A. That's what it says, yes.
 7 Q. And as far as you know, based upon your
 8 employment with Monsanto, they continued to do that up
 9 until the early 1970s?
 10 A. Correct.
 11 Q. Okay. Now, if we go to the second page of
 12 Exhibit 23, the heading says some important
 13 applications for protective and decorate -- decorative
 14 coatings plasticized with Aroclor compounds, and I
 15 think if I understand your -- your answer so far, this
 16 was information that you wanted to give to your
 17 customers about how they could use the -- your product
 18 in -- in their products, correct?
 19 A. Correct.
 20 Q. Okay. And -- and -- and Exhibit 23 is a
 21 document that would -- would have been created by
 22 Monsanto?
 23 A. Yes.
 24 Q. And I notice the first item there that's
 25 mentioned is a protective and decorative coating for

1 wood and metal used in yachts, barges, and other marine
 2 craft. Did -- did I read that correctly?
 3 A. That's correct.
 4 Q. Okay. And would it be fair to say that
 5 protective and decorative coatings for yachts and
 6 barges and marine craft would be a use that contacted
 7 the aquatic environment?
 8 A. Yes.
 9 Q. Okay. And then we go down to about the
 10 sixth item down, it indicates that you were
 11 recommending PCBs for use in protective and decorative
 12 coatings for masonry, floors, and walls, correct?
 13 A. Correct.
 14 Q. Would that be for use in residential
 15 structures as well as commercial structures?
 16 MR. MILLER: Object to the form.
 17 To your knowledge.
 18 A. I don't see that distinction being discussed
 19 here.
 20 Q. (By Mr. Oaas) It looks -- any -- any kind
 21 of masonry for a wall was being recommended for use
 22 for, correct --
 23 MR. MILLER: Object to the form.
 24 Q. (By Mr. Oaas) -- at least by the language
 25 here?

1 A. The statement is general --
 2 Q. Yeah.
 3 A. -- covering both.
 4 Q. All right. And then it goes on to say
 5 concrete swimming pools, correct?
 6 A. Yes.
 7 Q. And highway markings?
 8 A. Yes.
 9 Q. Okay. What -- when it says highway
 10 markings, are we talking about the paint on the
 11 highway?
 12 A. Yes. Whether it's the lane paint or a --
 13 Q. The yellow lane paint that -- that we all --
 14 A. Yellow -- yellow walls or any painting
 15 related to highways.
 16 Q. You're recommending PCBs for use in that
 17 kind of paint --
 18 A. Correct.
 19 Q. -- correct?
 20 Okay. Was there a big market, to your
 21 knowledge, for -- for PCBs for that use?
 22 MR. MILLER: In what year.
 23 MR. OAAS: Let's say in the 1960s.
 24 A. Well, it was a -- I don't know how to
 25 describe big, but it was a -- a perceived safe use,

Page 110 1 long-lasting, and as a result, the entities that were 2 in charge of lane marketing didn't have to go out every 3 year and redo them. 4 Q. (By Mr. Oaas) Okay. All right. Were these 5 PCBs sold directly to governmental agencies for -- for 6 that purpose, do you know? 7 A. I don't remember that, no. 8 Q. Okay. Let's go to page 8 of the -- Exhibit 9 23. 10 MR. MILLER: You're talking about the -- the 11 page that's numbered page 8? 12 MR. OAAS: Yeah, the -- the dash 8 dash in 13 the center of the -- center of each page. 14 MR. MILLER: Okay. The last time you 15 referred to page 2 was actually page 1. I think it was 16 the second page of the exhibit. 17 Q. (By Mr. Oaas) Are you on page 8, 18 Mr. Papageorge? 19 A. Yes. 20 Q. Okay. The heading of this page is -- 21 contains -- has the word applications at the top, just 22 to make sure we're on the same page? 23 A. Applications? 24 Q. Yeah. 25 A. Yes.	Page 112 1 A. Yes. 2 Q. Do you see that? You know what that is? 3 That's -- 4 A. I do. 5 Q. -- a PCB made by Monsanto, correct? 6 A. Yes. 7 Q. All right. Okay. Let's go to Exhibit 24. 8 A. I have read it. 9 Q. Okay. Can you identify the author, please, 10 Jack T. Garrett? 11 A. Mr. Garrett was the industrial hygienist 12 that reported to Dr. Kelly. 13 Q. Okay. And were you aware that Monsanto had 14 a customer by the name of the -- Chicago Pneumatic Tool 15 Company, apparently who this letter was addressed to? 16 Were you aware of that, Mr. Papageorge? 17 A. I remember that, yes. 18 Q. You remember that company -- particular 19 company? 20 A. Yes. 21 Q. Okay. Well, as I read this letter, it 22 seemed to me that that company was calling in for 23 advice or information on whether or not it was proper 24 to dispose of its oil waste that contained PCBs into -- 25 into the water environment?
Page 111 1 Q. Okay. And then it goes on to say alkaline- 2 resistant coatings, products containing Aroclor and 3 chlorinated rubber are highly resistant to alkalies and 4 moisture. Paints with combinations of Aroclor and 5 chlorinated rubber are used in large quantities for 6 concrete floors, walls swimming pools and other 7 surfaces. Did I read that correctly? 8 A. Yes. 9 Q. Okay. Is it my understanding that -- in 10 reading that as -- and reading as a laymen -- I mean, I 11 don't have a -- a degree in chemical engineering like 12 yourself, but it -- it seems to me that you were 13 recommending the use of PCBs in paints that by their 14 use would come into contact with water? 15 A. Yes. 16 Q. Okay. And then right down in -- in the -- 17 in the typical -- table 6, right underneath that paint 18 formulation for alkaline surfaces, parentheses, parts 19 by weight, the first ingredient is Parlon. Do you see 20 that? 21 A. Yes. 22 Q. What's Parlon? 23 A. I don't know. 24 Q. Okay. And then the second ingredient is 25 Aroclor 1254?	Page 113 1 A. That's my understanding. 2 Q. Okay. And they were specifically referring 3 to Pydraul? 4 A. Yes. 5 Q. Okay. Again, Pydraul is a hydraulic fluid 6 that contains PCBs? 7 A. Correct. 8 Q. Okay. And then I want to go down to the 9 fourth paragraph, and Mr. Garrett is reporting to this 10 customer as follows, if I'm reading this correct -- 11 correctly, based on the toxicity studies of these 12 fluids with laboratory animals, I would not expect them 13 to be very toxic to aquatic life. On the other hand, 14 this is a surmise on my part since we have no tests on 15 aquatic animals. Did I read that correctly? 16 A. Yes. 17 Q. As far as you know, was that a -- as of 18 August 29, 1960, the date of this letter, was that a 19 correct statement? 20 MR. MILLER: Object to the form, lack of 21 foundation. 22 You can answer. 23 A. Yes. 24 MR. OAAS: I think maybe we should -- the 25 tape's going to end here in a second -- take a break.

Page 114 1 THE VIDEOGRAPHER: We are off the record at 2 12:10 p.m. ending tape no 3. 3 (A short break was taken.) 4 THE VIDEOGRAPHER: We're back on the record 5 at 12:19 p.m. starting tape no. 4. 6 Q. (By Mr. Oaas) Thank you, Mr. Papageorge. 7 Are you ready to continue? 8 A. Yes, sir. 9 Q. All right. Let's go to Exhibit 25, please. 10 A. I have read the exhibit. 11 Q. All right. Have you seen this exhibit 12 before? 13 A. Yes, sir. 14 Q. In fact, this was a memo to you, to W.B. 15 Papageor -- Papageorge. I assume that that's you? 16 A. Yes. 17 Q. Okay. And the date of it is 8/6/1970? 18 A. It is. 19 Q. And it appears to be from an E.S. Tucker, 20 correct? 21 A. Correct. 22 Q. I don't think we've come across that name 23 before. Who is he? 24 A. Dr. Scott Tucker was the analytical chemist 25 working in Monsanto's research department in the	Page 116 1 that some of that material found its way all of way 2 from Roam, Georgia. 3 Q. (By Mr. Oaas) Okay. My question was were 4 -- okay. How about were any of the PCBs -- you -- you 5 were the Plant Manager of that plant between 1965 and 6 1970, correct? 7 A. Correct. 8 Q. And -- and I don't want to rehash that whole 9 situation, but isn't it true that Monsanto discharged 10 PCB waste into Choccolocco Creek? 11 A. No -- 12 Q. Okay. 13 A. -- not into Choccolocco. 14 Q. Into a tributary of Choccolocco? 15 A. Well, it's called Snow Creek, which is 16 really a drainage ditch. 17 Q. Yeah. You discharged it into Snow Creek. 18 Whether that's really a creek or not, I don't care, or 19 whether it's a drainage. It was discharged there 20 and -- and Snow Creek distributed its waters into 21 Choccolocco Creek? 22 A. Yeah. When you say discharged, it was not a 23 deliberate discharge. 24 Q. I understand. I'm not -- I'm not -- 25 A. It was a flow.
Page 115 1 St. Louis area who was involved with the analytical 2 procedures used for studying PCBs. 3 Q. Okay. Now, apparently he's reporting on a 4 survey that was done in October of 1969 of fish in 5 Choccolocco Creek? 6 A. Yes. 7 Q. Did I pronounce that correctly? 8 A. Choccolocco, yes. 9 Q. And Choccolocco Creek is a creek lo -- 10 located near the Monsanto manufacturing plant in 11 Anniston, Alabama? 12 A. Yes. 13 Q. Okay. And do you recall why this particular 14 survey was being done in Choccolocco Creek near the 15 Monsanto plant in Anniston, Alabama? 16 A. As I remember, this was part of a -- a study 17 to determine the presence of PCBs in that general 18 area. 19 Q. Wasn't it eventually determined that the 20 PCBs in Choccolocco Creek came from the Anniston, 21 Alabama Monsanto plant? 22 MR. MILLER: Object to the form of the 23 question, lack of foundation. 24 A. That was a contention, and as I remember, 25 there was further information a year or months later	Page 117 1 Q. Okay. In any event, Monsanto was interested 2 in knowing the PCB content of the fish in Choccolocco 3 Creek be -- below its plant, correct? 4 A. Correct. 5 Q. Okay. And this survey is a part of that 6 work, correct? 7 A. Correct. 8 Q. Okay. And on the second page -- I'm just 9 referring to the second page of that exhibit -- do 10 these findings indicate that there were PCBs in aquatic 11 li -- I'll -- I'll just call them fish. I mean, fish 12 to me are different than the fish they've got in 13 Choccolocco Creek, but in -- in the -- in the species 14 of fish in Choccolocco Creek, PCBs were being found, 15 according to this survey, correct? 16 A. I'm -- you said the second page shows that? 17 Q. Yeah. The second page of the exhibit where 18 it says table 1 at the top. 19 A. Yes. 20 Q. Okay. And just go down -- the one I noted 21 down at the bottom, fish I'm familiar with, Stoneroller 22 and the Blacktail Shiner. Do you see that at the 23 bottom of that exhibit on table 1 under the common name 24 of the fish? 25 MR. MILLER: He's referring to the very

Page 118 1 bottom of the page here. 2 Q. (By Mr. Oaas) Just look over that page as - 3 - as much as you need to, Mr. Papageorge. 4 A. I am. 5 Q. Okay. 6 A. I'm trying to -- 7 Q. Sure. Take your time. 8 A. This report does show -- or report the PCBs 9 present in the various samples. What I'm confused with 10 is that there were certain of these numbers with an 11 asterisk that shows on the last page of this exhibit 12 that they were analyzed by GC/Mass spec, and then they 13 have the numbers 253 and so on -- 14 Q. Okay. Well, I'm not going to ask -- 15 A. -- so there's -- 16 Q. I didn't mean to cut you off. Go ahead. 17 MR. MILLER: Go ahead. 18 A. I have no way of knowing how the greater 19 portion of the information was analyzed -- 20 Q. (By Mr. Oaas) Okay. I just want to go 21 over -- 22 A. -- or what procedure they used. 23 Q. Okay. And I'm going to stay -- hopefully 24 stay away with anything with an asterisk on it, so 25 let's go to the last fish on table one. The common	Page 120 1 those high numbers of PCBs? 2 MR. MILLER: Object to the form, lack of 3 foundation. 4 A. I -- I have a hard time defining high. 5 Compared to what? 6 Q. (By Mr. Oaas) Well, you can compare it to 7 anything in your experience. I'm just asking. 8 MR. MILLER: Same objection. 9 A. That's pretty complex because it depends 10 really on so many factors. 11 Q. (By Mr. Oaas) Okay. 12 A. The amount of lipid in that fish and how 13 much time it was exposed and on and on. 14 Q. Okay. But in the natural environment, there 15 shouldn't be any PCBs in the fish, correct? 16 MR. MILLER: Object to the form. 17 A. All right. The definition of natural is -- 18 it depends -- 19 Q. (By Mr. Oaas) In a non-PCB world, there 20 wouldn't be any PC -- that's sort of self-evident. 21 There wouldn't be any PCBs in the fish, correct? 22 A. Okay. 23 Q. All right. Let's go on to Exhibit 26 -- 24 well, let me -- no. I need to go back. 25 Was any of this information, Mr. Papageorge,
Page 119 1 name of the fish is a Blacktail Shiner. Do you see 2 that at the bottom of the page? Do you mind if I point 3 that out? Right here. 4 A. Oh, all right. 5 Q. Some people call them notropis veus -- 6 venustus, but I prefer to call them Blacktail Shiners. 7 If -- is -- do you see where I'm referring to? 8 A. Yes. 9 Q. Okay. And then do you see there's some -- 10 and then the columns -- there's a no. 3, the number in 11 composite sample, and then there's a col -- two columns 12 where the parts per million of PCBs were calculated? 13 A. Yes. 14 Q. Okay. According to wet weight and lipid 15 weight? 16 A. Yes. 17 Q. Okay. And they were specifically looking 18 for Aroclor 1254, it appears, correct? 19 A. Yes. 20 Q. And they found 1097 parts per million PCBs 21 wet weight in the black -- in three Blacktail Shiners, 22 and 37,800 parts per million PCBs in the -- in the 23 lipid of the Blacktail Shiners? 24 A. Yes. 25 Q. Okay. Now, are tho -- would you consider	Page 121 1 in Exhibit 25, to your knowledge, passed along to 2 anybody in the aquaculture industry? 3 MR. MILLER: Let me object to the form. 4 What does aquaculture industry mean? Mr. Papageorge 5 may not know that term. 6 MR. Oaas: Well, I'm -- I'm going to ask 7 him. You can ask him if you -- 8 A. Yeah, what -- what did you -- what kind of 9 industry did you say? 10 Q. (By Mr. Oaas) Well, it's a -- aquaculture 11 like agriculture, anything to do with raising fish for 12 commercial purposes like a fish hatchery, a government 13 fish hatchery, a private fish hatchery. That's what 14 I -- that's -- fish farming, I think, is another -- 15 that's what I'm talking about and mean in the broadest 16 poss -- possible sense. 17 MR. MILLER: Like the Bureau Fisheries and 18 Wildlife, for example? 19 MR. Oaas: No, no. No, no. I'm talking 20 about in the aquaculture industry in general. 21 A. This particular set of data? 22 Q. (By Mr. Oaas) Yeah. 23 A. I'm not aware of any at that time. 24 Q. Okay. Let's go on to Exhibit 26. 25 A. I have read it.

1 Q. Okay. Have you seen this particular exhibit
2 before?
3 A. I don't recall.
4 Q. Okay. But it's -- it's, again, by the same
5 Dr. Hunt you identified in the previous exhibit?
6 A. Yes.
7 Q. It appears to be a memo to Dr. Carol --
8 Dr. Kelly and his assistant, Mr. Wheeler?
9 A. Yes.
10 Q. Okay. And it talks about, in part, fish
11 toxicity tests being done by a laboratory called
12 Industrial Bio-Test?
13 A. Yes.
14 Q. Okay. Are you acquainted with Industrial
15 Bio-Test Laboratory?
16 A. Am I acquainted?
17 Q. Yeah.
18 A. Yes, I am.
19 Q. Where is that located?
20 A. In the Chicago area.
21 Q. And apparently Monsanto had contracted
22 them -- contracted with this laboratory to do, in part
23 as evidenced by this exhibit, some fish toxicity tests?
24 A. Yes.
25 Q. Okay. Now, I'm drawing your attention to

1 the paragraph that starts regarding the fish toxicity
2 studies. Do you see that?
3 A. I do.
4 Q. I'm going to read this into the record.
5 Regarding the fish toxicity studies, parentheses, cat
6 fish and bluegills, close parentheses, the time
7 schedule will be two to three weeks behind because
8 doses which were believed to be okay produced 100
9 percent kill. Is that --
10 A. That's correct.
11 Q. I take that to mean that all of the fish
12 they tested died?
13 MR. MILLER: Object to the form. There's no
14 foundation for Mr. Papageorge to --
15 A. That's the way I read it.
16 Q. (By Mr. Oaas) Okay. And then they went on
17 to explain below in the next two paragraphs that levels
18 of 1 to 10 parts per million for both 1242 and 1254 for
19 50 fish per level all died. Did I read that correctly?
20 A. Yes.
21 Q. And the next paragraph reads for 1260 at
22 levels of 10 and 100 parts per million, there were a
23 few survivors, but -- at ten, but all were dead at 100
24 parts per million. Did I read that correctly?
25 A. That is correct.

1 Q. Okay. Was this -- was this information
2 given to you, Mr. Papageorge?
3 A. I don't specifically remember this
4 particular exhibit.
5 Q. Okay. By April of 1970, were you the
6 Manager of Environment Control for Monsanto or were you
7 still the Plant Manager at Anniston?
8 A. Well, I was Environmental Control Manager.
9 Q. Okay. That started in early 1970, I take it
10 then?
11 A. Yes.
12 Q. Okay. Don't you think you should have had
13 this information as Manager for Environmental Control?
14 MR. MILLER: Object to the form of the
15 question.
16 A. This is typical of the hundreds of documents
17 I saw --
18 Q. (By Mr. Oaas) Okay.
19 A. -- so I can't say that I remember this
20 specific one --
21 Q. Okay.
22 A. -- but it's very, very typical of the kinds
23 of information that would be brought to my attention.
24 Q. All right. Okay. At -- let's talk about
25 this particular exhibit in -- in -- in general. After

1 April of 1970, are you aware of whether or not the
2 information contained about the results of this fish
3 toxicity test by Bio-Test were -- was this information
4 passed along to anybody in the aquaculture industry?
5 MR. MILLER: Object to the form in terms of
6 the definition of aquaculture industry.
7 A. I'm not aware of that.
8 Q. (By Mr. Oaas) And you understand that by
9 aquaculture, I'm -- I'm referring to it in the broadest
10 possible sense anybody --
11 A. I think I do now.
12 Q. Okay.
13 MR. MILLER: Can I -- would that include the
14 Bureau of Fish, Wildlife and -- that was run by the
15 U.S. Federal Government Department of Interior?
16 MR. OAAS: I don't think so. I think in
17 terms of people that are in fish raising business for a
18 living.
19 MR. MILLER: They do that for a living.
20 MR. OAAS: Okay.
21 MR. MILLER: You know that.
22 MR. OAAS: Well, I don't know if I knew that
23 or not, but I --
24 Q. (By Mr. Oaas) Did you send a -- let -- let
25 me ask you this question. Did you send a letter, for

Page 126 1 instance, to -- you know, in Montana -- we have in 2 Montana the Department of Fish, Wildlife, and Parks. 3 Are you aware as -- as to whether or not Monsanto 4 notified any state gover -- state governor or state 5 governmental agency involved in raising fish at either 6 public or private fish hatcheries of the results of 7 these kind of tests that are evidenced in Exhibit 26? 8 MR. MILLER: Do you mean aside from what it 9 provided to the Bureau of Fisheries and Wildlife of the 10 United States Government? 11 MR. OAAS: Well, I -- I don't know if they 12 gave any information -- 13 MR. MILLER: Well, if that's included within 14 the definition aquaculture community, that might help 15 Mr. Papageorge answer that question. 16 Q. (By Mr. Oaas) Well, Do you want me to 17 repeat the question? 18 A. No. I think I understand. 19 Q. I -- I was asking about -- 20 A. There was communication between Monsanto 21 people and Industrial Bio-Test people with the kinds of 22 activities related to fish growth and exposure. 23 Q. All right. 24 A. There was that, but I wasn't tuned into each 25 and every contract that was made.	Page 128 1 Q. (By Mr. Oaas) Let's go on to Exhibit -- 2 THE WITNESS: The Deluth meeting, yeah, but 3 that's not each and every state. 4 Q. (By Mr. Oaas) Let's go on to Exhibit 27, 5 unless you want to add to your answer? 6 A. No. 7 Q. I didn't mean to -- well, let's go on to 8 Exhibit 27. 9 A. I have scanned the exhibit. 10 Q. Okay. Have you ever seen this document 11 before, Mr. Papageorge? 12 A. Yes. 13 Q. Okay. Do you recall when that would have 14 been approximately and in what capacity? 15 A. Well, I was a member of the team. 16 Q. Okay. That went to Europe? 17 A. Yes. 18 Q. Okay. And that would have been in May of 19 1970? 20 A. Yes. 21 Q. Okay. And what was the purpose for that 22 trip to Europe? 23 A. To communicate with anyone involved in any 24 way with PCBs. 25 Q. Okay. Was that a trip sponsored by
Page 127 1 Q. All right. Okay. Because I haven't -- any 2 documents that we've looked at that -- we didn't find 3 any kind of notice in that regard. 4 MR. MILLER: Object to the form. Is that a 5 question or is that a statement of your observation. 6 Q. (By Mr. Oaas) So I'm just wondering if you 7 have seen any particular correspondence or know of any 8 situation where a particular state like Montana, for 9 instance -- 10 A. Uh-huh. 11 Q. -- or a particular state agency like the 12 Montana Department of Fish, Wildlife and Parks was 13 given information -- the type of in -- information 14 contained in Exhibit 26? 15 A. I know they were given, but I don't recall 16 the dates or the particular documents. 17 Q. Okay. You're saying that Monsanto gave -- 18 directly communicated with each state in this regard? 19 A. Each state? 20 Q. Yeah. 21 A. No. No. 22 MR. MILLER: Would Deluth be included in 23 that? 24 THE WITNESS: Huh? 25 MR. MILLER: The Deluth meeting?	Page 129 1 Monsanto? 2 A. Yes. 3 Q. And who else went besides yourself, if you 4 can recall? 5 A. Well, there's Dr. Keller. 6 Q. Now, is that different than Dr. Kelly? 7 That's a different -- 8 A. That's a different person. 9 Q. Okay. Who is Dr. Keller? 10 A. Dr. Keller is an analytical chemist 11 supervisor. 12 Q. Okay. 13 A. And Elmer Wheeler was with us. 14 Q. From the medical department? 15 A. The medical department. And I'm trying to 16 remember -- there was a representative from the British 17 operation that joined us. 18 Q. Okay. And you went to -- part of the 19 trip -- you went to Great Britain? 20 A. Yes. 21 Q. And got information on toxicity studies that 22 they were performing in Great Britain? 23 A. Yes. 24 Q. Okay. Would you turn to -- I have -- it's 25 page 4 -- numbered page 4 at the top. There's a Bates

Page 130 1 number at the bottom DSW228385. 2 A. 385? 3 Q. Yeah. That's the page I want to go to. 4 A. Okay. I have that. 5 Q. Okay. Now, I'm -- and I'm going to refer to 6 paragraph 11. Okay? 7 A. I see it. 8 Q. Okay. And -- and would you just read that 9 to yourself first, please. 10 A. I have read it. 11 Q. Okay. It reports on a -- appears to report 12 on a fixed tox -- toxicity study using Aroclor 1254, 13 correct? 14 A. Yes. 15 Q. Okay. Do you recall where this particular 16 study was done? 17 A. I do not. 18 Q. Okay. And I don't think it indicates in 19 the -- in the paragraph, does it? 20 MR. MILLER: It -- it may on the proceeding 21 page. 22 Q. (By Mr. Oaas) Well, let's go to the -- I 23 want to talk about the results of this particular 24 toxicity study. Okay? 25 A. Uh-huh.	Page 132 1 A. I have it. 2 Q. Okay. And at -- at -- I'm con -- if you 3 would just read the last half of the -- the page 4 under -- under the heading findings? 5 A. I have read it. 6 Q. Okay. Now, I'm going to reference paragraph 7 5 down at the bottom. 8 A. Yes. 9 Q. It says the conclusion of the report 10 mentioned above is that there is not too much PCBs in 11 food stuffs; however, there still has to be an effort 12 to get less in the environment. And then it goes on to 13 say fish and meat for human consumption are the 14 greatest problem area for PCBs. Would you agree with 15 that -- that sentence, Mr. Papageorge, as of that -- as 16 of the date of this report in May of 1970, would you 17 agree that, quote, fish and meat for human consumption 18 are the greatest problem area for PCBs, end quote? 19 A. I never perceived it as such. 20 Q. Okay. So you wouldn't agree with that? 21 A. I do not. 22 Q. Okay. Let's go on to Exhibit 28. 23 A. I have read it. 24 Q. Okay. Exhibit 28 -- I guess we're back in 25 Choccolocco Creek, right?
Page 131 1 Q. Do you see about the -- a little way past 2 the middle there's a sentence that begins with 3 result -- the word results? 4 A. I see it. 5 Q. In this particular toxicity test, results 6 showed that seven of the fish died after 120 hours. 7 This was with rainbow trout, right? 8 A. Yes. 9 Q. Results showed that seven of the fish died 10 after 121 hours with levels ranging from 15 to 18 parts 11 per million PCB in the muscle, and 45 to 56 ppm in the 12 viscera in the dead fish. Remaining fish which lived 13 192 hours contained 12 to 14 ppm PCBs in the muscle and 14 64 to 70 ppm in the viscera. Did I read that 15 correctly? 16 A. Yes. 17 Q. Now, was information about the re -- results 18 of this particular fish toxicity test -- and I'll -- 19 I'll just narrow the -- the question down to Montana -- 20 to your knowledge, given to anybody in the aquaculture 21 industry in Montana? 22 A. Not that I'm aware of. 23 Q. All right. Let's go -- the same -- same 24 exhibit. Let's go to -- again, it has no. 6 at the 25 top. The number at the bottom is DSW228387.	Page 133 1 A. Yes. 2 Q. Okay. And this appears to be a letter to 3 Mr. J.T. Bell, Plant Chief Chemist, Monsanto Company, 4 correct? 5 A. Yes. 6 Q. Okay. And he worked in the plant at 7 Anniston, correct? 8 A. Yes. 9 Q. So he was the chief chemist at -- at your 10 plant? 11 A. At the plant I -- that I used to be -- 12 Q. The plant you used to be the manager at, 13 correct? 14 A. Yes. 15 Q. All right. Okay. The date of this memo is 16 June '72, correct? 17 A. Correct. 18 Q. And it appears to be authored by a man named 19 Suttikus and a man named Gunning. Are you familiar with 20 those two names? 21 A. Suttikus and Gunning, yes. 22 Q. Okay. And who were they? 23 A. They were -- I don't know how to describe 24 them except to follow their letterhead. They were 25 Biological Consul -- Consultants located in Louisiana.

1 Q. And were they hired by Monsanto to do
2 something?
3 A. We -- Monsanto asked them to take samples
4 and analyze them.
5 Q. Take samples of what?
6 A. Fish.
7 Q. And where were they supposed to take samples
8 from -- fish from, what stream?
9 A. In the waterways by the plant.
10 Q. The plant in Anniston?
11 A. In Anniston, yes.
12 Q. All right. And apparently, they made
13 several reports about their work?
14 A. Yes.
15 Q. And -- and this appears to be one of those
16 reports?
17 A. Correct.
18 Q. Have you ever seen this report before?
19 A. It looks somewhat familiar.
20 Q. Okay. Would this -- would this be the kind
21 of information that you indicated before that you would
22 have been given in -- in your capacity as Manager of
23 Environmental Control --
24 A. Yes.
25 Q. -- for Monsanto?

1 A. Yes.
2 Q. All right. Now, let's go to the next to the
3 last page of that report, Mr. Papageorge. Now, I'm
4 going to -- I want to refer you to the -- the -- the
5 information below the heading discussion. Do you see
6 that?
7 A. Yes.
8 Q. And there's three paragraphs there. I -- I
9 want to ask you some questions about the first two.
10 The first paragraph, paragraph 1, indicates the data
11 for the first year of the survey indicate clearly that
12 the fishes below the Monsanto -- Monsanto outfall have
13 concentrated the PCB residues to a very high level.
14 Now, where was the Monsanto outfall?
15 A. Well, the only outfall that I could define
16 as the outfall was that ditch that was referred to as
17 Snow Creek.
18 Q. Okay. And then this paragraph goes on to
19 say the highest values obtained for fishes were at
20 sections 7, 8, and 10 in Choccolocco Creek. Do you
21 know where stations 7, 8, and 10 were?
22 A. No, I do not.
23 Q. Do you know what area he's referring to?
24 A. No.
25 Q. Okay. Let's go to paragraph 2. It says we

1 continue to find deformed, sick, and lethargic fishes
2 in our collections, particularly at stations 7, 8, and
3 10. Since the residue levels are highest at these
4 stations, it is apparent to us that there is a cause
5 and effect relationship. Do you see that?
6 A. Yes.
7 Q. It would appear that Suttikus and Gunning are
8 reporting to Monsanto that there's a connection between
9 the PCB concentrations found in the fish at stations 7,
10 8, and 10 and the condition of the fish being deformed,
11 sick, and lethargic in those areas, correct?
12 A. Correct.
13 Q. Okay. Now, was that information -- any --
14 any of that kind of information passed along to anybody
15 in the state of Montana that was involved in raising
16 fish?
17 MR. MILLER: Object to --
18 A. In Montana?
19 MR. MILLER: Let me object to the form of
20 the questions. It calls for speculation, but you can
21 respond.
22 Q. (By Mr. Oaas) If you know, was any of this
23 kind of information, the results of Suttikus and
24 Gunning's work, were they passed along to a state like
25 Montana?

1 A. Not to my knowledge.
2 Q. Not to your knowledge.
3 MR. MILLER: Wait a minute. Did you say a
4 state like Montana or Montana.
5 Q. (By Mr. Oaas) I'll say -- to Montana?
6 A. Montana?
7 Q. Yeah, I meant Montana. And your answer was
8 not to your knowledge?
9 A. Not to my knowledge.
10 Q. All right. Let's go to Exhibit 29.
11 A. I've read it.
12 Q. Okay. It references -- again, Mr. Wheeler
13 of the medical department is indicating that Monsanto
14 has, quote, probably the world's best reference file on
15 the PCB situation. Do you see that?
16 A. I do.
17 Q. Okay. Were you -- were you privy to that
18 inf -- their reference file on PCBs as the Director of
19 Environmental Operations?
20 A. I had access to a considerable amount of it.
21 Q. Sure.
22 A. I have no way of knowing if I had all of it.
23 Q. Okay. Let's go -- you certainly were
24 familiar with Dr. Jensen's -- excuse me -- I don't know
25 if -- Dr. Soren Jensen's work. You were familiar with

Page 138 1 that, correct? 2 A. Oh yeah. 3 Q. Okay. 4 A. Yeah. 5 Q. And Soren Jensen is an important figure in 6 the overall PCB story, correct? 7 A. Well, he was initially. 8 Q. Yeah. Okay. And he -- it's my 9 understanding that he was a scientist in -- from 10 Sweden? 11 A. Yes. 12 Q. Okay. And do you have -- do you believe 13 that you were -- back in the '70s, when you were 14 Director of Environmental Operations, were -- were you 15 familiar with Dr. Jensen's work? 16 A. Yes. 17 Q. Okay. You believe you read all of the 18 articles that he published concerning PCBs? 19 A. As far as I know, yes. 20 Q. Let's go to Exhibit 30. 21 A. I have scanned the article. 22 Q. Okay. It appears that it's -- it's an 23 article written by the same Soren -- Soren Jensen we 24 were discussing earlier? 25 A. Yes.	Page 140 1 MR. MILLER: It's about 1:00. 2 MR. OAAS: Okay. I'm -- can I just finish 3 with this exhibit? 4 MR. MILLER: Yeah, that's fine. 5 MR. OAAS: Okay. 6 Q. (By Mr. Oaas) If you would turn to page 128 7 of the article. Do you see that? Are you -- are you 8 on page 128, Mr. Papageorge? 9 A. Page 128? 10 Q. Yeah. Do you see the heading in the right- 11 hand column biological effects? 12 A. Yes. 13 Q. Okay. I want to direct your attention to 14 the second paragraph under that heading that starts -- 15 the sentence starts with a typical symptom. Do you see 16 that? 17 A. I do. 18 Q. Okay. It reads a typical symptom of PCB 19 poisons is fatty de -- degeneration of the liver. 20 Would you agree with that? 21 A. I do. 22 Q. Okay. 23 A. I'm -- I'm sorry -- yes, I -- 24 Q. Okay. 25 A. -- I agree.
Page 139 1 Q. Okay. And the article is titled The PCB 2 Story? 3 A. Yes. 4 Q. Do you see that on the second page of the 5 exhibit? 6 A. Yes. 7 Q. And if you look at page 125 of the article, 8 it appears that it was published in the journal Ambio 9 in August of 1972. Do you see that reference down in 10 the lower left-hand corner on page 125? 11 A. Yes. That's -- that's the date of this 12 article. 13 Q. Okay. 14 A. Uh-huh. 15 Q. And that would have been when you were the 16 manager -- the Manager of Environmental Con -- Control 17 for Monsanto, correct? 18 A. Correct. 19 Q. Okay. Do you recall reading this article 20 back then? 21 A. Do I -- 22 Q. Do you recall reading this article back 23 then? 24 A. Yes. Uh-huh. 25 Q. All right.	Page 141 1 Q. Okay. It goes on to say one case of mass 2 death of salmon fry in a Swedish hatchery showed this 3 typical picture of the PCB source could be traced to 4 anti-fouling paint used in a hatchery. Do you see 5 that? 6 A. I do. 7 Q. Okay. And you believe that you read this 8 article back in the 1970 time frame? 9 A. Yes. 10 MR. MILLER: Wait. Object to the form. It 11 was published in '72. 12 Q. (By Mr. Oaas) Excuse me. In the 19 -- 13 af -- following 1972? 14 A. Yes. 15 Q. Okay. Now, it wouldn't be -- it -- it 16 wouldn't be unusual, given the technical bulletin we 17 looked at earlier about the use of PCBs in chlorinated 18 rubber paint, to find that a hatchery was -- a fish 19 hatchery like the one referenced here was using 20 chlorinated rubber paint containing PCBs for a coating 21 on concrete surfaces? 22 MR. MILLER: Object to the form. 23 Q. (By Mr. Oaas) That wouldn't be unusual, 24 would it? 25 A. That wouldn't be?

Page 142 1 Q. Wouldn't be unusual. 2 A. Not finding -- not seeing that would not 3 be -- 4 Q. No, no. It wouldn't be unusual for a 5 hatchery to say that it had concrete raceways -- do you 6 understand what I mean when I -- when I'm referring to 7 a raceway at a fish hatchery? 8 A. Yeah. 9 Q. Okay. If those were made out of concrete, 10 for instance -- 11 A. Correct. 12 Q. Okay -- it wouldn't be unusual for a 13 hatchery in this time frame, in the late 1960s early 14 1970s, to be using paint containing PCBs as a coating 15 on their concrete raceways, would it? 16 MR. MILLER: Let -- let me object. There's 17 a lack of foundation with respect to what 18 Mr. Papageorge's knows as to what the usual practice is 19 among fish hatcheries and the paint applications. 20 There's no foundation for that. 21 MR. OAAS: Okay. I -- I think that was a 22 pretty confusing question anyway, and I -- I don't 23 think I need an answer to it right now. 24 It's about 1:00, so I think that's -- 25 we'll -- we'll abide by the agreed upon time frame and	Page 144 1 CERTIFICATE 2 3 I, Christopher C. Wiegiers, Certified Court 4 Reporter, DO HEREBY CERTIFY that pursuant to agreement 5 between the parties, the aforementioned witness came 6 before me at the time and place hereinbefore mentioned, 7 and having been duly sworn to tell the whole truth of 8 his knowledge touching upon the matter in controversy 9 aforesaid; that he was examined on the day, and his 10 examination was taken in shorthand and later reduced to 11 printing; that signature by the witness is reserved and 12 said deposition is herewith forwarded to the taking 13 attorney for filing with the Court. 14 IN WITNESS WHEREOF, I have hereunto subscribed my 15 name this 10th day of July, 2006. 16 17 18 19 20 21 22 _____ 23 Christopher C. Wiegiers 24 25
Page 143 1 we'll -- we'll start tomorrow at 9:00, if that would be 2 okay with you, sir? 3 THE WITNESS: Okay. 4 THE VIDEOGRAPHER: We are off the record at 5 1:00 p.m. 6 (Wherein, the taking of the videotaped 7 deposition concluded.) 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	Page 145 1 2 3 I, WILLIAM PAPAGEORGE, do hereby state that the 4 foregoing statements are true and correct to the best 5 of my knowledge and belief. 6 7 8 _____ 9 William Papageorge 10 11 12 Subscribed and sworn to before me this ____ day 13 of _____, 2006. 14 15 _____ 16 Notary Public 17 My Commission expires: 18 _____ 19 20 21 22 23 24 25

WILLIAM PAPAGEORGE

NAME OF DEPONENT

DEPOSITION CORRECTION SHEET

Re: Marty Paulson, et al., vs. Monsanto Chemical
Company, n/k/a Pharmacia, et al., No. DV-2004-55
Reported By: Christopher C. Wiegiers
Upon reading the deposition and before subscribing
thereto, the deponent indicated the following
changes should be made:

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SIGNATURE OF DEPONENT

July 10, 2006

HUSCH & EPPENBERGER, LLC

Adam Miller, Esq.
190 Carondelet Plaza, Suite 600
St. Louis, Missouri 63105

Re: Marty Paulson, et al., vs. Monsanto Chemical
Company n/k/a Pharmacia, et al., No. DV-2004-55

Dear Mr. Miller:

Enclosed is the transcript of Mr. William
Papageorge's deposition testimony given on June 27,
2006. Please have Mr. Papageorge review the
transcript, make any corrections, and return one copy
of the corrections as well as the signature page
directly to Torger S. Oaas, Esq. If the transcript is
not signed within thirty days, the original transcript
may be filed with the Court as if signed.

If you have any questions please do not hesitate
to contact me.

Respectfully,

Christopher C. Wiegiers

ccw
Enclosures

A				
abdominal 84:10 abide 142:25 above-captioned 2:24 absorbed 75:16 absorption 61:18 acceptability 12:24 13:9,13 85:8 accepted 55:8 access 137:20 accident 66:22 accommodate 7:21 accompanied 61:6 84:7 84:13 account 50:18 accuracy 20:18 21:1 accurate 9:4 18:10 19:1 20:16 31:17,25 32:21 32:22 82:24 accurately 79:5 84:21 accusation 104:10 acne 49:11 acne-form 38:19 acquainted 122:14,16 acronym 24:4 activities 126:22 activity 22:9 actual 58:22 89:23 Adam 3:14 104:18 147:5 add 32:16 106:4,6,13 128:5 added 106:6 addition 106:19 additional 13:6 14:4 address 9:7 10:16 105:16 addressed 112:15 Administration 85:15 87:15 admissibility 104:20 admission 104:4 adrenal 84:17 advancing 96:23 advantage 65:8 advice 98:24 112:23 advise 67:15 af 141:13 affect 47:16 95:7 affords 54:25 aforementioned 144:5 aforesaid 144:9 afternoon 2:18 age 7:19,25 agencies 89:7,13,14,18 91:20 110:5 agency 63:9 126:5 127:11 agree 75:18 132:14,17 132:20 140:20,25 agreed 142:25	agreement 144:4 agriculture 90:4 121:11 ahead 33:15 66:12 81:2 87:23 89:25 104:8 118:16,17 air 18:19 32:4 50:8 61:18 62:2 101:25 102:10 al 6:5,6 93:23 96:24 146:4,5 147:8,8 Alabama 10:23 11:4 115:11,15,21 alert 71:6 alkalies 111:3 alkaline 111:1,18 Allen 70:19 71:4 allotted 65:22 allowable 61:25 allowed 61:20 65:24 Ambio 139:8 American 30:3,15 amount 23:22,23 28:9 33:8 34:4 62:8 102:11 106:15 120:12 137:20 amounts 15:14 31:20 50:9 analogies 68:9 analogy 76:3,6 analytical 54:20,23,23 114:24 115:1 129:10 analyze 134:4 analyzed 118:12,19 Angus 1:4 2:4 6:5 animals 37:3 53:14 54:13 57:14 72:13 92:4,15 93:15 94:11 95:16 113:12,15 Anniston 10:22 11:4,14 11:16 12:1 16:17 21:11,24,24 62:6,15 63:12 64:25 77:11 115:11,15,20 124:7 133:7 134:10,11 Annistor 63:12 annual 66:3 ANSI 22:24 23:4 28:13 30:1 31:22 33:5 answer 20:21 24:1 31:2 33:15 38:7,10 57:23 67:2 107:15 113:22 126:15 128:5 137:7 142:23 answered 66:10 100:2 answers 30:25 anti-fouling 141:4 anybody 80:21 104:5 121:2 125:4,10 131:20 136:14 anymore 37:19	anyway 43:10 93:1 142:22 apologize 49:22 88:2 app 18:13 apparent 136:4 apparently 86:19 93:16 93:23 94:9,25 95:6,14 95:20,25 96:17 97:17 112:15 115:3 122:21 134:12 appear 82:23 83:1,2,8 136:7 APPEARANCES 3:1 appears 10:2 18:13 19:18 22:22 36:12 41:22 43:16 45:18 48:15,17,18 51:11 56:20 57:4,19 58:12 59:6,20 70:11,18 71:22,25 73:10,15 77:1 78:1 82:19 86:12 88:13 92:1,12 92:13 105:10 114:19 119:18 122:7 130:11 133:2,18 134:15 138:22 139:8 application 101:2 103:23,24 applications 24:22 27:16 52:18,22 54:10 98:21 107:13 110:21 110:23 142:19 applied 46:8 47:9 100:19 apply 106:19 applying 101:4 appreciate 83:4 approach 21:8 appropriate 30:19 approved 103:21 approximate 17:16 approximately 6:9 16:20 18:8,18 20:11 128:14 April 4:18 59:21 124:5 125:1 aquaculture 121:2,4,10 121:20 125:4,6,9 126:14 131:20 aquatic 108:7 113:13 113:15 117:10 Ar 98:3 arcing 25:10 area 9:7 14:4 56:3 57:2 115:1,18 122:20 132:14,18 135:23 areas 11:9 46:9 84:10 136:11 argued 55:23 argument 55:7 80:22 87:20	Aroclor 5:4,8 24:7 37:4 37:9,11,14,25 38:3 39:6,7,10,11,16,16,18 39:20 40:17,22 41:6 42:23 43:4,10,11 45:25 49:5 53:5,12,15 54:3,11,24,25 55:16 57:13 59:1 62:8,12,19 63:12 70:22,22 72:12 72:18,21,24 75:10 83:16 93:4,14,20 94:9 94:16,16,22 95:6,14 95:21,25 96:8,12,17 96:18 98:3,11 101:25 105:5,24 107:14 111:2,4,25 119:18 130:12 Aroclors 37:13,18 38:19 39:1,22 45:22 46:6,25 47:5 54:10 55:13,15,22 58:22 60:3 61:5 63:21 65:25 67:21 68:14 72:10 86:15,23 98:22 101:8,18 102:10 103:14,16 106:20,22 Aroclor-containing 56:3 aromatic 84:6 arrived 65:5 article 4:23,24 77:2,4,7 77:12,17,18,19 78:1,5 82:15,17,19 83:9,21 84:25 85:1,4,6,24 88:22 92:23 93:22,25 138:21,23 139:1,7,12 139:19,22 140:7 141:8 articles 138:18 ascites 78:18 aside 15:11 126:8 asked 30:5 52:4 66:10 72:22 91:19 134:3 asking 21:18 32:7,20 47:4 51:2 62:13 70:7 73:6 78:7 90:12 100:2 120:7 126:19 assigned 57:2 146:9,11 146:12,14,15,17,18 146:20,21,23 assistant 59:23 71:23 122:8 associate 35:22 47:15 associated 10:15 38:14 46:17 association 45:6 46:14 assume 32:20,22 46:1 93:3 104:17,23 114:15 assuming 18:12 31:17 assumption 93:6	assumptions 32:8 asterisk 118:11,24 ate 78:3 attach 23:21 attached 24:14 73:22 attaches 23:19,24 attempt 23:9 attempted 27:15 attention 27:23 42:6,17 49:21 57:7 58:19 59:3 60:21 72:5 101:8 122:25 124:23 140:13 attorney 8:18 144:13 attorneys 8:9 audience 29:1 31:9 33:17 34:1 August 53:4 113:18 139:9 author 43:15 56:20,21 59:19 86:1 112:9 authored 51:12 71:22 73:15 74:6 87:14 133:18 authors 79:15 83:1,6 automobiles 76:2 available 23:12 30:20 64:18 65:8 105:19 aware 100:7 112:13,16 121:23 125:1,7 126:3 131:22 a.m 6:9 48:1,4 76:15,18 103:3,6
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