

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY

JOAN MAERTIN, Executrix of)
the Estate of Lothar Maertín,))
JOAN MAERTIN, individually)
and in her own right, et al.,)

v.)

Civil Action L-95-cv
02849 (JBS)

ARMSTRONG WORLD)
INDUSTRIES, INC.,)

Simandle, U.S.D.J.

v.)

Rosen, U.S.M.J.

MONSANTO COMPANY and)
AMERICAN MINERAL)
SPIRITS COMPANY.)

DEPOSITION OF DR. KALEY

TAKEN ON BEHALF OF THE DEFENDANT/
ARMSTRONG WORLD INDUSTRIES, INC.

MARCH 3, 1999

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			25	Maertin, JOAN MAERTIN, individually and in her own right,	
				et al. are Plaintiffs and Armstrong World Industries,	
				Inc., Monsanto Company and American Mineral Spirits	
				Company are Defendants.	

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IT IS HEREBY STIPULATED AND AGREED by and between
counsel for the Plaintiffs and counsel for the Defendants
that this deposition may be taken in shorthand by
Tammie A. St. Arbor, CSR and notary public, and afterwards
transcribed into printing, and signature by the witness
expressly reserved.

* * * * *

DR. KALEY,

of lawful age, produced, sworn, and examined on behalf of
Defendant/Armstrong World Industries, Inc., deposes and
says:

EXAMINATION

QUESTIONS BY MR. TURET:

Q. Morning, Dr. Kaley.

A. Morning.

Q. My name is Craig Turet. I don't believe we've
met before today. I'm here as the attorney for Armstrong
World Industries, Inc. which as I'm sure you know is a
defendant in this case. Dr. Kaley, you've been through
depositions before in your life, correct?

A. Yes.

Q. Have you ever been deposed as a 30(b)(6)
corporate designee deponent?

A. No.

Q. You understand -- do you understand your

1 testimony today is the -- is testimony as if you were

2 Monsanto Company addressing certain issues, which we'll go
3 through the notice of deposition.

4 A. Yes.

5 Q. Let me before we go forward show you a document
6 that's been marked as T-1, and by the way, it's being
7 marked T whatever for toxicity just like yesterday was PR
8 for public relations.

9 Dr. Kaley, this is the notice of deposition
10 which was served on Monsanto Company by us. Have you seen
11 this before today?

12 A. I think I've seen it. I've not read it, I know
13 it exists.

14 Q. And you understand on Page 2 up at the top
15 you'll see that this is addressed to the persons
16 designated by Monsanto as most knowledgeable regarding the
17 toxicity of PCBs or PCB containing products or substances?

18 A. Yes.

19 Q. And you understand that's what you're here to
20 testify about?

21 A. Yes.

22 Q. And in addition, it's addressed to Monsanto's
23 knowledge concerning such toxicity at any time between
24 January 1, 1930 and the present.

25 A. Yes.

1 Q. And you understand that time frame has been
2 narrowed to 1940's I believe --

3 MR. DIMURO: '45.

4 Q. (By Mr. Turet) -- through the end of 1985, and
5 it's your understanding that's also what you're here to
6 address?

7 A. I don't know that I knew that specifically, but
8 I'll take your word for it.

9 Q. Well, are you prepared today to be asked
10 questions on behalf of Monsanto Company about Monsanto's
11 knowledge of toxicity during that time period?

12 A. Yes.

13 Q. And down at the bottom you'll see there's a
14 request for the production of documents asking for
15 documents reflecting Monsanto's knowledge concerning
16 toxicity to humans or any animal of PCBs or any product or
17 substance containing PCBs. Have you brought any document
18 with you today?

19 A. No.

20 Q. And is it my understanding, is my understanding
21 correct the documents responsive have already been
22 produced in this litigation?

23 MR. DIMURO: The toxicity documents have been
24 produced.

25 MR. TURET: But the toxicity documents are the

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1 ones responsive --

2 MR. DIMURO: The toxicity documents relating to
3 human health and safety have been produced.

4 MR. TURET: Human or animal?

5 MR. DIMURO: Animal to the extent it relates to
6 human safety. No environmental documents as you know
7 based on our agreement have been produced.

8 MR. TURET: That's not exactly correct. The
9 documents you've produced have in large part been
10 environmental documents. Today we're for toxicity. But
11 my question is, is there some universe of animal toxicity
12 documents that were not produced?

13 MR. DIMURO: Animal toxicity documents that
14 relate to human health and safety have been produced.

15 MR. TURET: That's the first time I've heard it
16 phrased like that.

17 MR. DIMURO: That's not the first time.
18 Environmental documents --

19 MR. TURET: I'm not talking about environmental
20 documents. I'm talking about animal toxicity.

21 MR. DIMURO: You didn't get any documents, and
22 you haven't gotten them since day one in this litigation
23 and you know that, that relate to environmental problems.

24 MR. TURET: Are you defining environmental
25 problems to include animal toxicity?

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1 MR. DIMURO: If it's animal toxicity related to
2 human health and safety, you've got it.

3 MR. TURET: Explain to me what relates to human
4 health and safety means.

5 MR. DIMURO: I'm not going to explain it. It's
6 been gone over since day one. If you don't know by now,
7 I'm not going to explain it.

8 MR. TURET: But aside from environmental
9 pollution, we're talking about toxicity. This is directed
10 to toxicity. I'm understanding for the first time you're
11 making a distinction to that which relates to human health
12 and safety which was not all that was asked for.

13 MR. DIMURO: That's all you were getting in this
14 case and that's all you got in this case.

15 MR. TURET: So there are documents out there
16 that relate to animal toxicity that were not produced
17 because somebody's determined that it is not related to
18 human health and safety; is that correct?

19 MR. DIMURO: If it didn't relate to human health
20 and safety, you didn't get it.

21 Q. (By Mr. Turet) All right. Dr. Kaley, just a
22 few background definitions so that we're all on the same
23 page. When I use the term Monsanto, you understand that
24 Monsanto would include what's now known as Solutia?

25 A. Yes.

1 Q. And you understand Monsanto as a term includes
2 the Monsanto Company and any subsidiaries or divisions
3 that are included within Monsanto?

4 A. Yes.

5 Q. And that also includes Monsanto Chemical Limited
6 or companies within the Monsanto Company located in Europe
7 or wherever in the world they may be located?

8 A. Yes.

9 Q. And when I refer to Armstrong today, you'll
10 understand that Armstrong means Armstrong World
11 Industries, Inc.?

12 A. Yes.

13 Q. And as to the term PCBs, you'll understand that
14 means polychlorinated biphenyls?

15 A. Yes.

16 Q. Now, Dr. Kaley, what steps were taken to prepare
17 you to address the issues as a corporate designee today?

18 A. Nothing very specific. I read a couple of, or
19 skimmed a couple of depositions by Dr. Emmet Kelly who
20 played a similar role earlier. And I reread some of the
21 reports produced by Armstrong experts in this litigation.

22 Q. Have you gone back and looked at the documents
23 that have been produced in this case that you've heard
24 your counsel describe as toxicity documents?

25 A. No.

1 Q. Have you gone back and interviewed any current
2 or former Monsanto employees to glean their knowledge
3 about toxicity?

4 A. No.

5 MR. TURET: Why don't we mark this as T-2.
6 (Exhibit T-2 was marked for identification by
7 the reporter.)

8 Q. (By Mr. Turet) Dr. Kaley, for the record you're
9 being shown a document that's been marked as Exhibit T-2
10 which is Bates numbered MAE 049906 through 908 which is a
11 December 30th, 1947 letter from Paul Benignus to Celanese
12 Corporation of America. Have you seen that document
13 before today, sir?

14 MR. DIMURO: You don't have any copies, Craig?

15 MR. TURET: No, I just brought the one with me.

16 A. I don't recall specifically having seen it
17 before.

18 Q. (By Mr. Turet) Having looked at it, I will
19 represent to you this has been produced by Monsanto
20 Company in this case, you can tell by the Bates. Is it
21 fair to say this letter is a response to an inquiry from
22 Celanese Corporation to Monsanto about toxicity of
23 Aroclors?

24 MR. DIMURO: I'll object.

25 A. I'm going to, I mean if you want to know that,

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1 I'm going to have to take some time to read it. I'm
 2 sorry, but I'm just going to have to take some time to
 3 read it. If you can point to language which suggests
 4 that's the case --
 5 Q. (By Mr. Turet) Okay. I can start with the
 6 first sentence, as suggested by Dr. R. L. Jenkins in his
 7 letter to you on December 23, this is addressed to
 8 Celanese, we are pleased to report about Aroclor toxicity
 9 considerations.
 10 A. That's fine, and I will agree that's what that
 11 says. It doesn't say this is in response to a specific
 12 request by Celanese. I'll take it at face value what it
 13 is. It's a letter from a former Monsanto employee to
 14 Celanese purportedly addressing Aroclor toxicity.
 15 Q. Now on Page 2 there is, and I'll refer you to
 16 the sentence that begins in your letter of December 19th
 17 to Dr. Jenkins.
 18 A. Yes.
 19 Q. By the way, do you know who Dr. Jenkins is? It
 20 says at the top Dr. R. L. Jenkins, Anniston.
 21 A. No, I don't.
 22 Q. You asked whether studies had been made of the
 23 possible toxicity or dermatitis due to finished
 24 manufactured items containing Aroclors as an ingredient.
 25 Are there any documents from Monsanto that

1 A. Did you say polychlorinated biphenyl?
 2 Q. Yes.
 3 A. That is true, those would not have addressed
 4 Aroclor 5460, but it is an Aroclor product. I don't know
 5 about PCBs, if there's anything on PCBs specifically, but
 6 the preceding paragraph says Aroclor, and certainly, 5460
 7 falls within that designation.
 8 Q. I just want to make sure, I think you've
 9 answered it, but I want to make sure. Had Monsanto as of
 10 this date, December 30th, 1947, conducted any tests
 11 toxicity tests, specifically on finished products that
 12 contained PCBs?
 13 A. Not that I'm aware of at this point.
 14 Q. Now, Mr. Benignus in this letter proceeded to
 15 list off commercial applications that were used as of
 16 December of 1947, typical large current outlets for
 17 Aroclors. Do you see those, they're numbered 1 through
 18 19?
 19 A. I see those, yes. What term did you use to
 20 describe them?
 21 Q. You'll see in the paragraph it states the
 22 following commercial applications are some typical large
 23 current outlets for Aroclors.
 24 A. All right.
 25 Q. Now, there are, you'll see a No. 7 specifically

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1 address the issue of studies of possible toxicity or
 2 dermatitis due to finished manufactured products
 3 containing Aroclors as an ingredient back in 1947?
 4 A. I'm not aware of anything specific.
 5 Q. Now, the following paragraph responds to that
 6 inquiry with reference to patch tests done with Aroclor
 7 5460. Do you see that?
 8 A. Yes.
 9 Q. What was Aroclor 5460 and specifically, did it
 10 contain PCBs?
 11 A. No. It's a polychlorinated Terphenyl product.
 12 It may have had some low level of PCBs as a by-product of
 13 the manufacturer, but I don't know what level or whether
 14 this material did specifically or not, but it was
 15 generally a polychlorinated Terphenyl.
 16 Q. Had Monsanto conducted any toxicity tests as of
 17 December 30th, 1947 on finished products that contained
 18 PCBs as an ingredient?
 19 A. Well, based on the information in this
 20 paragraph, it appears that Monsanto or someone tested
 21 canvas painted with Aroclor 5460 and an oil modified alkyd
 22 resin.
 23 Q. Okay.
 24 A. I think those would be finished products.
 25 Q. I understood you to say 5460 was not a PCB?

1 references to plasticizers for nitrocellulose, ethyl
 2 cellulose and polyvinylchloride coatings.
 3 A. Yes.
 4 Q. And just to confirm, to your knowledge, let me
 5 withdraw that.
 6 Just to confirm, had Monsanto conducted any
 7 toxicity testing on plasticizers and polyvinylchloride
 8 coatings that contained PCBs as of December 1947?
 9 MR. DIMURO: I'll object to the form.
 10 A. Was your question plasticizers and
 11 polyvinylchloride or as plasticizers in
 12 polyvinylchloride?
 13 Q. I meant plasticizers in polyvinylchloride
 14 coatings.
 15 A. Not that I'm aware of.
 16 Q. And further along, No. 8, there's a reference to
 17 a, the use of plasticizers for Purion and Pliolite paints
 18 and coatings. And same question, had Monsanto as of
 19 December 1947 conducted any toxicity testing on those
 20 types of paints and coatings that contained PCBs?
 21 A. Not that I'm aware of.
 22 Q. No. 13 refers to fire retardant paints and
 23 coatings. Same question, had Monsanto as of this date
 24 conducted any toxicity testing on fire retardant paints
 25 and coatings that contained PCBs?

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1 A. Not that I'm aware of.
 2 Q. No. 19, the manufacture of dentures, same
 3 question.
 4 A. Not that I'm aware of.
 5 Q. I have no further questions on that one. Let me
 6 just take a couple of steps back.
 7 MR. TURET: Let's mark these as T-3 and T-4 and
 8 T-5.
 9 (Exhibits T-3, T-4 and T-5 were marked for
 10 identification by the reporter.)
 11 MR. DIMURO: Can you identify these for the
 12 record?
 13 MR. TURET: Yes, I will do that before I go on.
 14 Q. (By Mr. Turet) Dr. Kaley, can you just for the
 15 record define, we've been talking about toxicity. Can you
 16 give me a definition of toxicity?
 17 A. I think toxicity is, well, toxicity is basically
 18 a property of a material which can lead to some usually
 19 defined as adverse effect on a living system.
 20 Q. And does that mean, does toxicity mean effect on
 21 the human system or is it something broader than that?
 22 A. Something much broader than that. It's any
 23 living system would be my understanding.
 24 Q. Would that include adverse effects on fish?
 25 A. Certainly it may.

1 about toxicity. And you found somebody to appear for
 2 Monsanto, and that's Dr. Kaley, so if that's the
 3 definition Dr. Kaley is addressing, that's the definition
 4 we'll use for today's purpose.
 5 MR. DIMURO: As long as you agree with that,
 6 that's fine.
 7 MR. TURET: For today's purpose.
 8 MR. DIMURO: If you don't, you run the risk of
 9 taking a deposition that has absolutely no meaning, but do
 10 what you want.
 11 Q. (By Mr. Turet) Dr. Kaley, I've just had marked
 12 three different documents. Exhibit T-3 is a document
 13 that's been Bates numbered MAE 039937 through 966. It's
 14 entitled Aroclors Physical Properties and Suggested
 15 Applications. It's also application data bulletin number
 16 O-P-115.
 17 The document that's been marked as T-4 is
 18 Technical Bulletin Number PL-311. It's been Bates
 19 numbered MAE 059877 through 93.
 20 And document number T-5 has been -- is technical
 21 bulletin number O/PL-311. It's Bates MAE 056532 through
 22 552.
 23 A. I see that.
 24 Q. Okay. Let's go back to the first of those,
 25 Dr. Kaley, the one that I think was T-3.

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1 Q. And I mean the concept, and does it also mean
 2 adverse effects on birds?
 3 A. Yes.
 4 Q. And does it mean adverse effects on plant life?
 5 A. Yes. If there are any for a particular
 6 chemical?
 7 Q. Right. No, I'm asking generally, so the term
 8 toxicity is clear.
 9 A. Some chemicals can be toxic to plants. I don't
 10 know, there's no --
 11 MR. DIMURO: Are you adopting Dr. Kaley's
 12 definition of toxicity? Because I notice you didn't
 13 provide one in your deposition notice.
 14 MR. TURET: I'm not here to provide anything.
 15 I'm asking Dr. Kaley and making sure the record is clear
 16 on what the answers are addressing.
 17 MR. DIMURO: And the record is not clear. You
 18 sent a notice of toxicity. Are you now asking that
 19 Monsanto adopt a definition given by Dr. Kaley? Or if
 20 you're going to use toxicity in this deposition, if you're
 21 going to use that word, it needs to be defined. Are you
 22 willing to accept Dr. Kaley's definition or do you have
 23 another one?
 24 MR. TURET: I mean, the definition was clear
 25 enough in the notice for someone to be here to testify

1 A. Yes.
 2 Q. The technical bulletin O-P-115. Now, as one
 3 looks at this, is there any way that you can tell what the
 4 date of this particular application data bulletin is?
 5 A. I'm not sure. On Page 27 of the document, on
 6 the MAE 039964, there is, there is a small code at the
 7 bottom which I find difficult to read. Typically, the
 8 date can be surmised from that -- from that number, but
 9 there were different codes at different times. So number
 10 1, I can't read it on my copy, and number 2, without
 11 reading it, I don't know whether the date may be coded in
 12 there or not. It may very well be.
 13 Q. Fair enough. Okay. I would like to direct your
 14 attention to Page 19 which is the section that's entitled
 15 dermatology and toxicology.
 16 A. Yes.
 17 Q. Now, I'm going to take you through the different
 18 technical bulletins and ask you to sort of compare one
 19 dermatology and toxicology section with another section
 20 that addresses similar topics. What I'm going to ask you
 21 to do is put down the points that are included in this
 22 one, list them on a piece of paper, and we'll attach them
 23 as an exhibit, because it will make it easier as we go to
 24 the next to see if the points are the same or different
 25 that are being covered. So I want to do it in your

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1 language rather than mine.
 2 A. Would you repeat that? I'm not sure I
 3 understand what you asked me to do.
 4 Q. Sure. Starting with this particular bulletin,
 5 I'm going to ask you to make a list of the points that are
 6 being made in this section, whichever ones are
 7 significant, 1 through 2 or one through 21 or however many
 8 there are and we'll compare and go to the next bulletin
 9 and so forth. So why don't we at the top, I mean this is
 10 going to be Exhibit T-6.
 11 MR. DIMURO: I'm going to object. If you
 12 believe they're significant points that you want to
 13 address, why don't you have Dr. Kaley identify them. I'm
 14 not going to have him go through the document and write
 15 them down. That's not his job.
 16 MR. TURET: If you want he can tell me what they
 17 are.
 18 MR. DIMURO: You can ask the questions. I'm not
 19 going to have him go through the document and write what
 20 he thinks is significant.
 21 MR. TURET: I'm asking Monsanto to identify the
 22 significant points out of its own technical bulletins.
 23 What's the problem with that question?
 24 MR. DIMURO: I don't know what the significant
 25 points are. I want you to ask him the questions.

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1 MR. TURET: I just did.
 2 MR. DIMURO: I want you to ask him the
 3 questions.
 4 Q. (By Mr. Turet) Dr. Kaley, would you tell me
 5 please, looking at the dermatology and toxicology section,
 6 list off for me, if you would prefer, I will write them
 7 down and number them and ask you what the points are
 8 sentence by sentence, what the points being made out of
 9 that section are.
 10 MR. DIMURO: I'll object to that question.
 11 THE WITNESS: Should I do it?
 12 MR. DIMURO: If you can figure it out from his
 13 question, sure.
 14 A. All right. I might add before I start this that
 15 based on this paragraph, which I don't recall having read
 16 before but may have, it does appear that a polyvinyl
 17 chloride free film was tested and patch tested. That
 18 would be some example of a finished product containing
 19 PCBs. So that would go to serve to correct one of my
 20 previous answers.
 21 Q. (By Mr. Turet) What exactly is a patch test?
 22 A. It's a test where a square of material or a
 23 piece of material is placed in contact with the skin on
 24 sometimes the arm, sometimes the back of an animal or in
 25 some cases a human, to see if there is a dermatological

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1 reaction.
 2 Q. Is there any standard period of time on which
 3 it's left or is that defined within the particular patch
 4 test?
 5 A. I think it would be defined by the protocol for
 6 the particular test. Okay. Based on the information in
 7 the first paragraph, a patch test was done with a material
 8 containing Aroclor 1254 and dioctyl phthalate and that
 9 test showed the film, that the film was not a primary
 10 irritant or sensitizer.
 11 Q. Patch test was done with, I'm not that quick a
 12 writer.
 13 A. A piece of film containing 11 1/2 percent
 14 Aroclor 1254.
 15 Q. Okay.
 16 A. And apparently about 11 or 12 percent dioctyl
 17 phthalate.
 18 Q. Okay.
 19 A. And under the conditions of the test, the
 20 conclusion was that the film was not a primary irritant or
 21 a sensitizer.
 22 Q. And what, just so I understand, what is a
 23 primary irritant or a sensitizer? What are those two
 24 terms?
 25 A. A primary irritant would be a material that

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1 causes some reaction on the skin by the very contact of
 2 that material with the skin so that you would get an
 3 immediate or within the test, a reaction caused by that
 4 material.
 5 A sensitizer is a material which makes the skin
 6 more sensitive to the effects of some other agent,
 7 typically, materials can for instance, can sensitize to
 8 sunlight. So you would put the material on the skin,
 9 would not find a reaction or redness or rash, and but on
 10 subsequent exposure to sunlight, a rash might develop.
 11 That would be a sensitizer.
 12 Q. So the patch test was done with a piece of film
 13 containing 11 1/2 percent of Aroclor 1254 and under test
 14 conditions, the conclusion was the film was not a primary
 15 irritant or a sensitizer, correct?
 16 A. Correct.
 17 Q. And what is the next point being made in the
 18 dermatology and toxicology section?
 19 A. The next point, a patch test on Aroclor 1254
 20 applied to gauze and then applied, placed in contact with
 21 the skin showed no primary irritancy or sensitization. So
 22 basically the same conclusion on 1254 alone as it was
 23 applied to gauze.
 24 Q. Was not a primary irritant?
 25 A. Right.

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1 Q. Or sensitizer?
 2 A. Yeah. This one uses different words, but
 3 basically the conclusion is the same.
 4 Q. And the next part?
 5 A. The next part addresses patch tests using canvas
 6 coated with Aroclor 5460 which as we described earlier is
 7 not a polychlorinated biphenyl product.
 8 Q. Since this case is about PCBs, I'll represent to
 9 you, I'll modify my questions so that we'll just talk
 10 about the parts that would relate to PCB products.
 11 A. That's fine.
 12 MR. DIMURO: I would note the witness is just
 13 simply reading from T-3 and you're simply writing down
 14 exactly what he's saying reading from T-3.
 15 MR. TURET: That's fine.
 16 A. The next paragraph which is the third paragraph,
 17 the first sentence says that if PCBs are spilled on the
 18 skin, the skin should be washed with soap solution. And
 19 the next sentence says that if a burn occurs from contact
 20 with hot Aroclors which would include PCBs as well as
 21 other materials, the burn should be treated the same as
 22 any ordinary burn.
 23 Q. (By Mr. Turet) So if PCBs are spilled on the
 24 skin, the skin should be washed with soap solution. And
 25 if a burn occurs from contact with hot Aroclors the burn

1 should be treated the same as an ordinary burn?
 2 A. Correct. The third sentence expands on that,
 3 both of those a little bit saying if there's Aroclor
 4 adhering to a burned area --
 5 Q. Okay.
 6 A. -- it need not be removed immediately unless the
 7 treatment of the burn demands it.
 8 Q. Okay.
 9 A. And basically it says in which case use soap and
 10 water or repeated washings with a vegetable oil.
 11 Q. So that's if there is Aroclor adhering to a
 12 burned area it need not be removed immediately unless the
 13 treatment of the burn demands it, in which case use soap
 14 and water or repeated washings with a vegetable oil. What
 15 is the next --
 16 A. The next statement I believe is significant. It
 17 says at ordinary temperatures Aroclors have not presented
 18 industrial toxicological problems.
 19 Q. (By Mr. Turet) And by ordinary, does that mean
 20 room temperature?
 21 A. Yes, or maybe a little warmer than room
 22 temperature. Could be, I mean temperatures typically,
 23 that could occur environmentally, so it could be higher
 24 than at room temperature.
 25 Q. Okay. Next.

1 A. All right. The next paragraph addresses, if
 2 Aroclors are used at elevated temperatures, and suggests
 3 if Aroclors in general are used at elevated temperatures
 4 it gives the example such as 200 or 300 degrees centigrade
 5 in open systems.
 6 Q. Okay.
 7 A. But the methods must be designed to exhaust any
 8 vapors.
 9 Q. Okay.
 10 A. It goes on to specify that this applies most
 11 especially to the lower chlorinated Aroclors for which
 12 experimental work on animals indicates that a maximum safe
 13 concentration of vapors in work rooms is in the range of
 14 0.5 to 1.0 milligrams per cubic meter of air.
 15 Q. May I use MG slash M cubed, just to --
 16 A. If you wrote that, I would understand what you
 17 meant.
 18 Q. Okay. So if Aroclors are used at elevated
 19 temperatures in parenthesis such as 200 degrees or 300
 20 degrees Celsius in open systems methods must be designed
 21 to exhaust vapors. Applies especially to lower
 22 chlorinated Aroclors for which experimental animals
 23 indicates the maximum safe concentration of vapors in the
 24 work room is in the range of .5 to 1.0 milligrams per
 25 cubic meter of air?

1 A. Yes. It goes on then to suggest that for more
 2 highly chlorinated Aroclors such as Aroclor 1268, the
 3 allowable limit is about 10 milligrams per cubic meter and
 4 goes on to suggest that Aroclors of this type, meaning the
 5 more highly chlorinated Aroclors are believed to be of a
 6 much lower order of toxicity.
 7 Q. I don't write fast enough.
 8 A. Just read it, it's right there.
 9 Q. Okay.
 10 A. And then the final paragraph suggests that where
 11 Aroclor vapors may be encountered in the work rooms local
 12 exhaust ventilation together with general work room
 13 exhaust is recommended.
 14 Q. So where Aroclor vapors may be encountered in
 15 work rooms local exhaust and ventilation together with
 16 general work room exhaust is recommended?
 17 A. Yes.
 18 Q. Let's just staple this and mark it as an exhibit
 19 and we'll leave it in front of you. I think you'll see
 20 why in a moment.
 21 MR. TURET: Can we mark this as T-6?
 22 MR. DIMURO: T-6 was the handwritten document of
 23 Mr. Turet.
 24 (Exhibit T-6 was marked for identification by
 25 the reporter.)

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1 MR. TURET: Based on Dr. Kaley's comments from
 2 this section dermatology and toxicology; is that fair?
 3 A. That's fine.
 4 Q. (By Mr. Turet) Now, let's put that one aside
 5 and move on to the next document that's been marked as
 6 T-4, I believe it's PL-311. Now on the cover, this is the
 7 best copy that counsel was able to supply, this is the
 8 second copy, and it's difficult to read. There's a stamp
 9 on it that says revised April something. Can you make
 10 that out?
 11 A. Well, unfortunately the one I can't make out is
 12 probably the most important. It's April 19 something 2.
 13 I don't know what the third digit is. I hesitate to
 14 guess.
 15 MR. DIMURO: We don't want you to guess.
 16 Q. (By Mr. Turet) Let me turn your attention to
 17 Page 13 of it. And I think you'll see there a line that
 18 you described before, there's a line that says WFW. Would
 19 that be Walter Waychoff?
 20 A. I have no idea.
 21 Q. And it says 4/62?
 22 A. Yes.
 23 Q. Does that indicate what the date of this
 24 revision was?
 25 A. From what I've seen on the previous documents,

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1 that would indicate the date is April 1962, yes.
 2 Q. Let's go back to the page before it, the
 3 toxicity and safe handling section.
 4 MR. DIMURO: Just a point of clarification, if I
 5 may ask Dr. Kaley one question. Dr. Kaley, can you tell
 6 from this date whether it's, the section was done in '62
 7 or there's a by line after the section. I notice it's not
 8 at the bottom of the document, so which are you saying,
 9 are you saying the section may be '62 or --
 10 THE WITNESS: My conclusion based on this
 11 document and what other documents would be, my conclusion
 12 would be the whole document is. I understand the point
 13 you're trying to make, and I don't know specifically the
 14 answer as to whether it is only that page, that freight
 15 classification page or the whole document. But I've not
 16 seen it in this form with the specific initials you
 17 suggested it's somebody's name, that is the difference.
 18 And Mr. -- I don't know specifically, Mr. DiMuro's
 19 suggestion may be correct. It may only be this page, but
 20 I don't know for sure.
 21 Q. (By Mr. Turet) Given it's part of the document,
 22 at a minimum we know it's on or around April of '62?
 23 A. That's correct.
 24 Q. Let's go back to the page before, the toxicity
 25 and safe handling.

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1 A. Okay.
 2 MR. TURET: Can we go off the record for just
 3 one second?
 4 (A discussion was held off the record.)
 5 Q. (By Mr. Turet) Why don't we pick up where we
 6 left off. We were looking at Exhibit T-4, Technical
 7 Bulletin PL-311, the toxicity and safe handling section
 8 which is Page 12. Dr. Kaley, let's go through quickly,
 9 you have the list we put together from the last
 10 application data bulletin, let's see which things are and
 11 are not included in this version of PL-311. You see the
 12 first sentence that at ordinary temperatures Aroclor have
 13 not presented industrial toxicological problems. Would
 14 you agree that's No. 6 from the last list?
 15 A. I'll agree with that.
 16 MR. DIMURO: Mr. Turet's list.
 17 MR. TURET: So the record is clear, your
 18 objection about my having written the list is on the
 19 record.
 20 MR. DIMURO: It's your list. It's No. 6 on your
 21 list.
 22 MR. TURET: It is my list, my handwritten list
 23 based on Dr. Kaley's comments. And unless we have to put
 24 that back and forth every time we refer to the list --
 25 MR. DIMURO: That's fine. I also want him to

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1 have T-3 in front of him with your list on his comments.
 2 The only comment I was making is that he was looking at
 3 No. 6 on your list. It's your list. You wrote it, it's
 4 your list.
 5 Q. (By Mr. Turet) Dr. Kaley, let's go through
 6 PL-311, which is the one that's in front of you.
 7 A. Yes.
 8 Q. Is the first sentence about at ordinary
 9 temperatures contained in the previous section on toxicity
 10 and safe handling?
 11 MR. DIMURO: Previous section of which
 12 document?
 13 Q. (By Mr. Turet) The list that is in front you
 14 that was derived from application data bulletin O-P-115
 15 marked as T-3.
 16 A. Yes.
 17 Q. The next section which begins, the hazard of
 18 potential toxic exposure varies with the volatility, the
 19 lower chlorinated more volatile ones prevent more of a
 20 potential problem from the standpoint of both inhalation
 21 and skin contact. Is that also contained in the Exhibit
 22 T-3?
 23 A. Those exact --
 24 Q. The substance of it.
 25 A. Yes, the substance is included, yes.

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1 Q. And the next sentence that begins when Aroclor
2 compound and ends with work room exhaust, is that also
3 included within Exhibit T-3?
4 A. Yes.
5 Q. The next paragraph vapor of the liquid Aroclor
6 compounds at room temperature should not be breathed in a
7 confined space and no vapor of any Aroclor compound
8 evolved at elevated temperatures should be allowed to be
9 dispersed into the general work room; is that also
10 included?
11 A. I would say there's a little bit of difference.
12 Certainly the elevated, the vapor of elevated temperatures
13 should not be allowed to be dispersed into the general
14 work room is worded a little differently because the
15 previous documents says if there is Aroclor vapors in a
16 work room the general work room exhaust is recommended. I
17 think the thought is the same, the wording is a little
18 different.
19 Q. And in Exhibit T-3 they referred to elevated
20 temperatures in open systems?
21 A. Yes.
22 Q. And this one is talking about vapors evolved at
23 elevated temperatures in general in the general work room?
24 A. But --
25 MR. DIMURO: Object to the form. You can

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1 answer.
2 A. All I would say is that only in an open system
3 would the vapors be allowed to be dispersed, so if it was
4 a closed system, there wouldn't be vapors. So whether
5 there's an open system, the fact that the second document,
6 T-4, discusses not allowing them to be dispersed by
7 implication suggests they're open systems. So if any
8 difference, it's just in wording. The meaning is the
9 same.
10 Q. (By Mr. Turet) Now, on the Exhibit T-3 which
11 we've been through, there was the sentence that applies
12 especially to lower chlorinated Aroclors for which
13 experimental work on animals indicates the maximum safe
14 concentration in the work room is in the range of .5 to
15 1.0. Is that also contained in Exhibit T-4?
16 A. Yes, there may be various minor wording changes
17 but, yes, it's essentially the same.
18 Q. And then that's all under the section labeled
19 inhalation; is that correct?
20 A. Yes, it is.
21 Q. And was there similar a breakdown of sections in
22 the last bulletin to your knowledge?
23 MR. DIMURO: Speaking about T-3?
24 MR. TURET: Yeah, T-3.
25 A. No. The second one or the first was dermatology

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1 and toxicology in general. And the second includes a
2 separate section for inhalation.
3 Q. (By Mr. Turet) And for skin contact?
4 A. And for skin contact, yes.
5 Q. Now moving into the skin contact section, first
6 one relates to a Schwartz patch test on 200 volunteers
7 shows Aroclor 1254 was neither a primary skin irritant or
8 a sensitizer. Was that also in the last exhibit, T-3?
9 A. It was in less specificity, but that addressed
10 skin patch tests, yes.
11 Q. And the next sentence beginning continuous or
12 repeated skin contact with the Aroclor compounds must be
13 avoided by the use of gloves and protective garments
14 because of the possible occurrence of a condition called
15 chloracne. Was that included within T-3?
16 A. No, that does not appear to be in the previous
17 document.
18 Q. The next sentence says although reports of this
19 condition caused by Aroclor compound are rare, it can be
20 produced by excessive skin contact. Was that included
21 within the last toxicity section?
22 A. There was no discussion of chloracne in the
23 previous document.
24 Q. And the final sentence in this paragraph, if any
25 Aroclor compound is spilled on the skin, the skin should

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1 be washed in a usual manner with a soap solution. Is that
2 included in the last technical bulletin we looked at, T-3?
3 A. Yes, it is.
4 Q. And the final paragraph down below, there's a
5 reference to, well, is that the same substance that was
6 communicated in the last one?
7 A. That's pretty much the same words, yes.
8 Clearly, the thought is the same.
9 Q. Let's put that one aside.
10 MR. DIMURO: Which one?
11 MR. TURET: T-4. Exhibit PL, it's technical...
12 bulletin PL-311 T-4, and move onto T-5 which is --
13 MR. DIMURO: Just to let Dr. Kaley know, if you
14 need to look at T-4 it's here.
15 Q. (By Mr. Turet) And T-5 indicates at the top,
16 Monsanto Trade Literature Permanent File. Is that the
17 same one you're looking at?
18 A. Yes.
19 Q. Now looking at the end of that document,
20 Dr. Kaley, the second to the last page, there's a similar
21 line that we saw in the last one that says 1/2/68. Does
22 that indicate the date of this publication is January 2nd
23 1968?
24 A. I'm not sure about that. And the reason I say
25 that is below the Bates number there's another

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1 designation, another series of numbers near the end. It
 2 says 0668 dash something. Based on my experience with
 3 other documents, that would suggest to me that document
 4 may have been a June 1968 document. So I would agree that
 5 based on what I can see in this document, it was issued
 6 sometime in 1968, but I don't know which of those
 7 particular numbers addresses the correct month.
 8 Q. Okay. You'll find the toxicity and safe
 9 handling section on Page 18.
 10 A. Yes.
 11 Q. And I think you'll also find actually, if you
 12 look at the technical bulletin we just put aside, which
 13 was T-4 and put them side by side, rather than going
 14 sentence by sentence, do you see any differences that are
 15 significant?
 16 A. I took the opportunity at the break to compare
 17 the two. I see a very minor wording difference at the end
 18 of the third paragraph under inhalation. It's basically a
 19 rearrangement of words. Those are the only differences in
 20 a quick reading that I saw.
 21 Q. Which rearrangement of words, just so I'm
 22 following with you, the threshold limits?
 23 A. Well, if you look at the last sentence, the
 24 threshold limits for an 8 hour working day set by the
 25 American Conference of Government Hygienists are 1.0

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1 milligrams of lower chlorinated per cubic meter of air and
 2 .5 of the more highly chlorinated such as Aroclor 1254
 3 per cubic meter of air.
 4 The other document ends .5 to 1.0 milligrams per
 5 cubic meter of air for the highly chlorinated such as
 6 Aroclor 1254, which is a rearrangement of the
 7 parenthetical phrase.
 8 Q. But that seems --
 9 A. That's what I said.
 10 Q. Other than that, the toxicity and safe handling
 11 sections of these two technical bulletins, T-5 and 4 seem
 12 to be the same?
 13 A. They appear to be with my cursory reading, yes.
 14 Q. And yesterday, we had a document marked as
 15 Exhibit PR-5 which is Technical Bulletin O/PL-306 which I
 16 would ask you to take a look at, and again, asking you
 17 about two things, one, is see if there's anything in there
 18 that indicates to you what the date of the document is.
 19 MR. DIMURO: Can you mark it?
 20 MR. TURET: With a separate exhibit right next
 21 to it? Can you mark it as T-7?
 22 (Exhibit T-7 was marked for identification by
 23 the reporter.)
 24 Q. (By Mr. Turet) Specifically, if you turn to the
 25 very last page, do you see the 1-2-68?

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1 A. I believe it's, on my copy it's the next to the
 2 last page. And I see that designation, yes.
 3 Q. And does this indicate to you that this document
 4 was created on or about January of 1968?
 5 A. I have the same comment, if you look to the
 6 other series of numbers under the Bates stamp, the last
 7 numbers say in my reading of this 0568. That might
 8 indicate to me it was produced in May 1968. So I would
 9 have the same comment. It appears it would be a 1968
 10 document, but I can't designate the month as I sit here.
 11 Q. As you look at the document we just put aside
 12 which is T-5 which had the same designation at the bottom
 13 and you look at the toxicity and safe handling section
 14 side by side --
 15 A. Could you direct me to a page?
 16 Q. Page 18 in the document we looked at.
 17 A. I've got that open.
 18 Q. Page 50, it looks like Page 50 in this one.
 19 A. Yes, I have that.
 20 Q. After looking at it, I'm going to ask you
 21 whether the toxicity and safe handling instructions are
 22 the same in both technical bulletins.
 23 MR. DIMURO: T-5 and T-7?
 24 MR. TURET: Correct.
 25 A. I finished a cursory reading.

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1 Q. (By Mr. Turet) Okay. And based on your reading
 2 of the two toxicity and safe handling sections, would you
 3 agree that they are the same?
 4 A. Yeah. The only, again, there's the wording
 5 change that we talked about earlier is present in the last
 6 line of Paragraph 3 under inhalation.
 7 I would also note that this document in at least
 8 one place specifically talked about Aroclor plasticizers
 9 versus Aroclor compounds which is consistent with the fact
 10 that it's a plasticizer bulletin.
 11 Q. And does that language appear, just going
 12 quickly back to the document that was marked as T-3 which
 13 is the Aroclors physical properties and suggested
 14 applications --
 15 MR. DIMURO: Does what language appear?
 16 Q. (By Mr. Turet) Page 19, is there any reference
 17 to its use as a plasticizer there?
 18 A. Well, the first paragraph talks about a skin
 19 patch test, talking about its use in a film, it says
 20 plasticizer with Aroclor 1254, so there is some mention of
 21 plasticizer uses.
 22 Q. Agreed, but this isn't the inhalation section
 23 which you pointed out. Is that the analogy to the last
 24 sentence you're talking about, Aroclor vapors may be
 25 encountered in work rooms?

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1 A. Yes.

2 Q. Now, you've look at a few technical bulletins,
3 as you sit here today, are there other technical bulletins
4 that relate to the Aroclors as plasticizers that offer
5 different toxicity and safe handling instructions?

6 A. Not that I'm aware of as I sit here right now.
7 (Exhibits T-8A and T-8B were marked for
8 identification by the reporter.)

9 Q. All right. We can put all those aside. Let's
10 mark this as T-8A and T-8B. They're two interoffice memos
11 Bates numbered MAE 052506 to 508 and MAE 052509 to 512,
12 and these are two interoffice memos from August 30th,
13 1949.

14 A. Should I take time to read these or do you have
15 specific questions?

16 Q. I will direct you. Do you, first off, do you
17 know what these two memoranda are?

18 A. Not specifically.

19 Q. Is it a format that was typical within Monsanto
20 as a summary of toxicity for a particular product?

21 A. It's not a format I'm familiar with.

22 Q. Now, on Page 2 of the exhibit, is it 7A?

23 A. 8.

24 Q. I'm sorry, 8A, there's a paragraph, Paragraph F,
25 there's a reference to a circular from P.G. Benignus to

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1 phosphate division salesmen describing the use of Aroclor
2 1254 as a plasticizer for sealing cracks in glass-lined
3 tanks used in the brewing industry.

4 A. I see that paragraph or designation.

5 Q. Now what documents within Monsanto reflect
6 toxicity testing done on the use of Aroclors in a sealant
7 in the brewing industry?

8 MR. DIMURO: I'll object to the question.

9 A. Other than the documents that you're showing me
10 here, I know of no other documents that reflect that.

11 Q. (By Mr. Turet) Okay.

12 A. We're looking at A and I'm referring to the
13 first paragraph, or the designation number one on B which
14 talks about sealant composition in beer tanks.

15 Q. Okay. And that's under oral ingestion of
16 Aroclor 1254?

17 A. Yes.

18 Q. Does that confirm there had been some toxicity
19 testing on oral ingestion involving Aroclor 1254 and
20 sealants?

21 MR. DIMURO: I'll object to the form.

22 A. I would -- there had been a test done to
23 determine whether taste or odor could be detected in beer
24 when the sealants were used. I don't know whether -- I
25 certainly wouldn't call that toxicity testing, and whether

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1 MCC, the statement that MCC considered that no
2 toxicological problem was presented is based on any
3 further follow up. I don't know the answer to that. The
4 test as I see it described, I would not necessarily call
5 it toxicity testing.

6 Q. (By Mr. Turet) Okay. Would you agree though
7 that there was testing, there was taste testing done on
8 the beer that was manufactured in a tank that had Aroclor
9 1254 as a sealant?

10 A. Based on this document, yes, I would agree with
11 that.

12 Q. And by MCC, that's Monsanto Chemical Company?

13 A. That's what it means to me.

14 Q. And Monsanto in this document has concluded
15 there was no toxicological problems as a result?

16 MR. DIMURO: I'll object to the form. You can
17 answer.

18 A. The term they use is considered in this, so I
19 would go with the wording there, but yes, based on their
20 observation, there were no toxicological problems evident.

21 Q. (By Mr. Turet) Did Monsanto conduct any
22 toxicity tests other than this one that involved ingestion
23 of Aroclor 1254 as part of a finished product?

24 A. I'm not aware of any as I sit here.

25 Q. Did Monsanto conduct any toxicity testing that

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1 involved inhalation of PCBs from a finished product
2 containing 1254 as of 1949?

3 A. In humans or animals?

4 Q. Either.

5 A. As far as I know, there was nothing done in
6 humans. I'm not sure, I would have to go back to some of
7 the other documents you've shown me. I don't know whether
8 the inhalation testing from the work done at the Kettering
9 Institute in the '50's included any finished products, or
10 not as I sit here, I don't know the answer to that. It
11 may have.

12 Q. Other than the work done by the Kettering Labs?

13 A. As far as I know, no.

14 Q. Now down, as long as we're on 8B, there's also a
15 section regarding dermatology of Aroclor 1254 in PVC.

16 A. Yes.

17 Q. And there's a reference to the free PVC film
18 plasticized with 1 1/2 percent of Aroclor 1254 and a
19 similar amount of dioctyl phthalate. Was that the skin
20 patch test to which you referred before in the technical
21 bulletin?

22 A. My understanding would be it would be the same
23 test, yes. I don't know that specifically, but certainly
24 the wording is similar enough and the experiment described
25 is similar enough I would assume they were the same test,

1 yes.

2 Q. When was this particular skin patch test
3 conducted or any skin patch test by Monsanto that included
4 a free PVC film?

5 A. I don't know the answer to that. Obviously,
6 sometime before 1948 so -- I believe the patch testing was
7 done in the late '40's. I don't know a specific date as I
8 sit here.

9 Q. Did Monsanto conduct any other patch testing on
10 a finished product that contained Aroclor 1254 as a
11 plasticizer as of 1949?

12 A. Not that I'm aware of. As I sit here, I don't
13 know.

14 (A short break was taken.)

15 MR. TURET: Why don't you mark this as T-9.

16 (Exhibit T-9 was marked for identification by
17 the reporter.)

18 MR. TURET: And for the record, T-9 is a
19 document Bates numbered MAE 052497 through 501. It's a
20 December 4th, 1952 memo.

21 Q. (By Mr. Turet) Dr. Kaley, there's a reference
22 in the first paragraph to Dr. Newman. Was Dr. Newman a
23 medical director of Monsanto abroad, Monsanto Chemical
24 Limited or Monsanto Europe?

25 A. I don't know.

1 Q. Do you know who H.R. Newman was up at the top?
2 Was that the same Dr. Newman?

3 A. I don't know specifically.

4 Q. Do you know who Dr. J.A. Gardner, Fulmer, was?

5 A. No.

6 Q. Do you know who Mr. D.V.N. Hardy of Fulmer was?

7 A. I have heard Mr. Hardy's name, yes.

8 Q. Who is Mr. Hardy?

9 A. He was an employee of Monsanto Limited, that's
10 all I know.

11 Q. Do you know whether he had specific
12 responsibilities related to toxicity?

13 A. I don't know that.

14 Q. Do you know if he had any responsibilities
15 related to occupational medicine?

16 A. I don't know specifically.

17 Q. Okay. And how about M.L. Harden, H-A-R-D-E-N,
18 the author of this document?

19 A. Don't know specifically.

20 Q. Do you know generally?

21 A. No. I would assume since he's writing on
22 Monsanto Limited stationary he's an employee, but other
23 than that, I don't know anything.

24 Q. You see the subject up at the top of the
25 document is Aroclors dash toxicity?

1 A. I see that.

2 Q. What was the discussion taking place back in
3 1952 between Dr. Newman and the sales department and with
4 certain customers that related to the problem of Aroclors
5 and toxicity?

6 A. I would have to, assuming that that information
7 is in the document, I would have to read the document. I
8 can't answer that without taking time to read it.

9 Q. Okay. If you want to take the time to read it,
10 please feel free.

11 A. Is the answer to that question in here?

12 Q. I'm not sure.

13 A. All right. I've read the document, or read it
14 quickly.

15 Q. Would you agree, Dr. Kaley, that the enclosures
16 or excerpts are various technical bulletins of Monsanto
17 Chemical and Monsanto Chemical Limited?

18 A. Yes, I would.

19 Q. That relate to PCBs or Aroclors?

20 A. Yes.

21 Q. And does that help you to understand what the
22 problem that's being discussed between Dr. Newman, the
23 sales department, and certain customers was with regard to
24 certain Aroclors and toxicity?

25 A. I would only be able to surmise, but it appears

1 to have something to do with customer inquiries about
2 toxicity of Aroclors. Other than that, I don't have any
3 specific information and really can't glean anything from
4 this document.

5 Q. Okay. On the top of Page 2, Mr. Harden states
6 that he would sum up his reaction to the question of
7 toxicity by saying the risks had been exaggerated in some
8 quarters. I'll ask you about the rest of that in a
9 minute. What does that mean, the risks have been
10 exaggerated with regard to Aroclors and toxicity back in
11 1952?

12 A. I don't know what Mr. Hardy was addressing.

13 Q. And what is meant by common sense precautions
14 such as one would take in handling most organic chemicals.
15 are all that is required?

16 A. To me, that would mean use the precautions such
17 as exemplified in the attachments to this paper.

18 Q. And so the common sense precautions are the ones
19 set forth in the toxicity and safe handling sections of
20 the different technical bulletins?

21 A. Yes.

22 MR. DIMURO: Referred to in T-9, is that what
23 you're referring to?

24 A. Those attached to T-9. My reading would be he
25 was attaching those as the kind of common sense

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Page 5

1 precautions that ought to be taken.
 2 (Exhibit T-10 was marked for identification by
 3 the reporter.)
 4 Q. (By Mr. Turet) Okay. Dr. Kaley, you're being
 5 shown a document that's been marked as Exhibit T-10, Bates
 6 numbers MAE 033722 through 734 which is an interim report
 7 on Aroclor in gases.
 8 A. Yes.
 9 Q. Now, Dr. Kaley, is this interim report a form
 10 which you're familiar?
 11 A. Not specifically, no.
 12 Q. Are you, is it fair to say that an interim
 13 report was an interim research report produced within
 14 Monsanto back in the 1953 time period?
 15 MR. DIMURO: I'll object to the form.
 16 A. I think that's a fair conclusion, yes.
 17 Q. (By Mr. Turet) And on Page 2 of the document
 18 that you're being shown --
 19 A. Right.
 20 Q. -- you'll see research department phosphate
 21 division Anniston, Alabama?
 22 A. Yes.
 23 Q. Anniston, Alabama was one of the Monsanto
 24 facilities where PCBs were manufactured, correct?
 25 A. That's correct.

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1 Q. There's a list of 18 copies that were
 2 disseminated within Monsanto. Do you see that?
 3 A. Yes.
 4 Q. Actually 16, and one of the recipients is Emmet
 5 Kelly, the medical director at Monsanto at the time; is
 6 that correct?
 7 A. Correct.
 8 Q. And Paul Benignus was another who we saw earlier
 9 referred to in one of the documents?
 10 A. Yes.
 11 Q. Now, are any of the other gentlemen on this list
 12 ones you recognize as having been involved in either
 13 toxicity matters or medical department matters?
 14 A. No. Then again, I wouldn't characterize
 15 Benignus necessarily as being involved in those. He was
 16 primarily involved in marketing. He was not a part of the
 17 medical department, so Dr. Kelly's the only one that I do
 18 recognize as being specifically involved in the medical
 19 department.
 20 Q. Now, on the letter you saw earlier today, the
 21 1947 letter signed by Paul Benignus, it says product
 22 development department. Was the product development
 23 department one which considered new uses for existing
 24 products?
 25 MR. DIMURO: I'll object to the question.

1 A. That would have been one of the functions of
 2 that department. The name's changed through the years and
 3 it's hard to really define without asking him
 4 specifically. But certainly, by the title of that
 5 department, that would be one of the responsibilities for
 6 that group of people.
 7 Q. (By Mr. Turet) Okay. As you flip ahead to the
 8 page in this report that says No. 1 at the top --
 9 A. All right.
 10 Q. -- and as I think you'll see in the introduction
 11 section, would you agree that Dow Chemical Company
 12 expressed an interest in 1953 in using Aroclors as a
 13 plasticizer in paint, styrene Latex paint systems?
 14 A. Yes.
 15 Q. Would you agree also that Monsanto's plastics
 16 division in their Springfield laboratories had done some
 17 testing on the vaporization of PCBs out of paint?
 18 MR. DIMURO: I'll object to the question. You
 19 can answer.
 20 A. The document says the plastics division
 21 Springfield laboratory indicated that the use of such
 22 paints under certain conditions had been tested. It
 23 doesn't necessarily say they did the testing, but they're
 24 certainly aware of some testing.
 25 Q. (By Mr. Turet) So it was either done by them or

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1 someone else that they were monitoring?
 2 MR. DIMURO: Objection.
 3 A. Or that they were aware of the testing. I don't
 4 know whether they were monitoring them or not.
 5 Q. (By Mr. Turet) Let me refer you ahead to Page 2
 6 under the references section. There's a Monsanto Chemical
 7 Company plastics division confidential report on Aroclor
 8 Vapor in Air from Paints. Is that -- does that help in
 9 concluding whether there were or weren't tests performed?
 10 A. There was never any doubt the tests were
 11 performed. This indicates to me that Monsanto had some
 12 direct involvement. It could mean they did the testing,
 13 or in this case, they had some role in seeing that testing
 14 was undertaken, yes.
 15 Q. If it's a confidential report done based on
 16 research and it's a confidential Monsanto Chemical Compan
 17 report, does that confirm the testing was done in-house as
 18 opposed to outside the company?
 19 A. No, not necessarily.
 20 Q. Have you seen the document, this report on
 21 Aroclor vapor in air from paint?
 22 A. I don't know whether I seen this specific
 23 document or not. I don't have a specific recollection of
 24 seeing this document.
 25 Q. Okay. Now, up -- in the back in the

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1 introduction section, there's the statement that for this
 2 reason Dow is dubious about the use of Aroclors for this
 3 application. Do you see that?
 4 A. I see that.
 5 Q. And this, for this reason they're talking about,
 6 it's referring to the findings of the plastics division
 7 that vaporization occurred from paint; is that right?
 8 A. Yes. It's referring to the fact that under the
 9 conditions of the test the use of the paints in enclosed
 10 areas under certain conditions, and I don't know what
 11 conditions those particularly were, resulted in Aroclor
 12 concentrations above some accepted safe maximum limit for
 13 continuous exposure, yes.
 14 Q. Now, this was, this report relates to further
 15 research that was being done by Monsanto on the use of
 16 Aroclors in paint, correct, this isn't the same research
 17 that was done in the Springfield facility, right?
 18 A. Based on the introduction, and without having
 19 read the rest of the report, it appears to be. And I
 20 wouldn't call it research. It appears to be testing done
 21 to determine the concentration to which operators at the
 22 Anniston Plant are exposed.
 23 Q. And what is the stated purpose of this further
 24 testing that's being done at the request of the sales
 25 department? If you look at the second paragraph, the

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1 introduction --
 2 A. I think the --
 3 Q. The sentence that begins --
 4 A. Okay. This sentence that you're, I wouldn't
 5 call it a stated purpose, but it appears based on the good
 6 health of our workers at Anniston, if one could determine
 7 the Aroclor exposure to which they were exposed on a daily
 8 basis. That might give some basis for saying that, to
 9 determine whether the conditions under which the paints
 10 were applied in the previous test were comparable to those
 11 worker exposures.
 12 Q. So in other words, they were trying to do
 13 testing that would demonstrate that other, whatever the
 14 level of vapor, as it gets out of paints, it would not
 15 pose a threat to those who applied the paints?
 16 MR. DIMURO: Objection.
 17 A. I think they were trying to determine whether
 18 the exposures that the workers were exposed to were above
 19 or below what they determined in those rooms under those
 20 specific testing conditions. It doesn't, I mean without
 21 knowing above or below, you can't draw the conclusion that
 22 you were drawing, that they pose no harm. They were
 23 trying to see whether that information would be useful to
 24 make some comparison to those levels.
 25 Q. (By Mr. Turet) Well, back at this time, 1953,

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1 is it fair to say there was a level that was recommended
 2 for the vapors of PCBs in the air that was included in the
 3 technical bulletins on behalf of Monsanto?
 4 A. Yes. Based upon Monsanto's testing, there had
 5 been some discussions and estimations of safe maximum
 6 levels as the term is used in this particular document.
 7 ACGIH adopted those levels. They're still in use today,
 8 so, yeah, there was some, based on that testing, there was
 9 some awareness of what were accepted maximum levels,
 10 whether those were -- well, I won't say anymore.
 11 Q. And back in 1953 accepted levels were 1.0
 12 milligrams per cubic meter for the lower chlorinated
 13 Aroclors and .5 milligrams per meter cubed for Aroclor
 14 1254; is that correct?
 15 A. That's what they are today. I don't know
 16 specifically how they were phrased back at that time, but
 17 that's the -- that's certainly ACGIH's recommendation.
 18 Q. In the summary section, am I understanding this
 19 correctly that the plastics division had found
 20 concentrations in the range of 1 to 5 milligrams per meter
 21 cubed? Referring you specifically to the third
 22 paragraph.
 23 A. I'm sorry, I'm going to take time to read this
 24 summary just so I know everything that's in there.
 25 Q. That's fine. Well, is my understanding of this

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1 research correct that the plastic division of Monsanto had
 2 found levels of between 1 milligram and 5 milligrams per
 3 cubed meter of air -- PCBs based on the application of
 4 paint containing PCBs?
 5 A. I'm sorry, point me to where you're referring
 6 to.
 7 Q. Two places. One is the last paragraph on Page
 8 1.
 9 A. All right. Yes.
 10 Q. And other is on Page 5.
 11 A. Right. I remember that. I'm having trouble
 12 sorting out what's in the plant and what's in the paint.
 13 Okay. Yes, it does say that the plastics division did
 14 report concentrations in the 1 to 5 milligrams per cubed
 15 meter range but certainly the context is important here in
 16 that the author of this report is saying it's difficult to
 17 believe those numbers are correct based on the results
 18 they found in the testing at the plant.
 19 And I might add at this point, those kinds of
 20 determinations in the '50's were very crude and difficult
 21 to do. There was hardly any way, I can't even imagine, as
 22 an analytical chemist, I can't imagine they were able to
 23 do those kinds of measurements. So I think the conclusion
 24 he is drawing is entirely appropriate.
 25 Q. Okay. But would you agree that that was the

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1 results of testing that was performed at the time back in
2 1953?

3 A. That was the report of the -- from the people
4 who had done that testing, yes.

5 Q. And that was Monsanto's conclusions at the time;
6 is that correct?

7 A. That was what -- well, I don't know about
8 conclusion. That was the report from that particular set
9 of tests, yes.

10 Q. Of Monsanto?

11 A. Yes.

12 Q. And these additional tests that are being done
13 in Anniston, Alabama, and I'll direct you to the
14 conclusion section of the report, found that the Aroclor
15 vapor concentrations are almost never below the 1.0
16 milligram per cubed meter level and often reach even 5
17 milligrams per cubed meter of air; is that right?

18 A. That's what the report is in the plant, yes.

19 Q. And this particular report closed with the
20 recommendation that more testing be done of the air where,
21 let me withdraw that. This closed with the recommendation
22 that further samples of the air at the Aroclor plant be
23 done; is that right on, Page 5?

24 A. Yes, the first recommendation is that air
25 sampling be continued to obtain more complete data.

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1 Q. And the second recommendation was that Aroclor
2 containing paint be obtained and applied so that the room
3 could be tested for vapors; isn't that right?

4 A. Well, it says that they, yes, generally, yes,
5 that they recommended a sample of the paint be secure and
6 that that room be painted, that that testing be done to
7 see if the earlier concentration report with that finding
8 could be duplicated.

9 Q. They wanted to know what the levels were going
10 to be when they applied PCB containing paint, correct?

11 A. They had the original report which suggested
12 what the levels were. The author of this report suggested
13 that it's difficult for him to conceive that could be
14 correct. So he was, this recommendation was proposing an
15 experiment to see if those numbers, that result could be
16 duplicated.

17 Q. Isn't it fair -- is it fair to say there is a
18 difference between an interim report and a final report?

19 A. Yes.

20 Q. And the final report includes all the data
21 leading up to the end of the set of tests? In other
22 words, there's no further testing that's recommended or
23 that's to be done when you get to the final report?

24 A. I wouldn't say that's true at all.

25 Q. What is the difference between an interim report

1 and a final report?

2 A. Well, I think you've properly characterized the
3 difference. An interim report is obviously the report
4 along the way of a particular set of experiments. The
5 final report would be the conclusion of this set of
6 experiments. But a final report could certainly include a
7 recommendation that further testing is necessary.

8 Q. Have you seen a final report on the testing of
9 Aroclors in the air that's reflected in this interim
10 report from 1953?

11 A. Not that I'm aware of.

12 Q. Did Monsanto prepare a final report?

13 A. I don't know the answer to that as I sit here.

14 Q. Let me -- also, there was a question posed and
15 you indicated you didn't remember offhand what the
16 permissible level or recommended level was back in --

17 A. I just don't remember how it was phrased,
18 whether it was specific to Aroclors or not, but go ahead.

19 Q. The first document we looked at today that was
20 written by Mr. Benignus said that the permissible level
21 for Aroclor 1254 was .5 milligrams per meter cubed. This
22 would be T-2 on the first page.

23 A. Well, that's a 1947 document referring to
24 Drinker work, but the time of this other work, 1953, my
25 understanding is it very well could have been the results

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1 from the Trion work were known and that ACGIH looked at
2 those levels and set new levels. So I wouldn't refer to
3 this document to determine what the acceptable levels were
4 in 1953. I would have to go back and check.

5 Certainly, that's what this document says, but I
6 don't know if those are the levels being referred to in
7 the 1953 document. I'm not quibbling about the numbers.
8 Certainly, the OSHA numbers today, that .5 per meter cubed
9 for Aroclor 1254 and 1.0 per meter cubed for Aroclor 1242
10 are the acceptable levels.

11 Q. And those are also the ones in the toxicity and
12 safe handling sections?

13 A. Yes.

14 Q. I just wanted it clear, there wasn't a sudden
15 blip up from .35 for 1254 and coming back down or
16 something like that.

17 A. No.

18 MR. TURET: Mark this as T-11, please.

19 (Exhibit T-11 was marked for identification by
20 the reporter.)

21 Q. (By Mr. Turet) Dr. Kaley, you're being shown a
22 document that's been marked as Exhibit T-11 which is Bate
23 numbers MAE 052485 and it's a September 1st, 1953 memo
24 from Elmer Wheeler.

25 A. Yes.

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TOWOLDMON0051341

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1 Q. Now obviously Elmer Wheeler was in the medical
2 department back in 1953?
3 A. Yes, he was.
4 Q. And E. Mather at Ruabon, was he in the medical
5 department of Monsanto abroad?
6 A. I don't know.
7 Q. Do you know who E. Mather was?
8 A. I've heard the name. Other than to say the
9 name, I can't really broaden that.
10 Q. Okay. Up at the top in terms of recipients,
11 it's addressed to some of the names we saw previously,
12 Dr. J.W. Barrett, London.
13 A. Yes.
14 Q. He was the who authored Exhibits 8A and 8B I
15 believe. No, it was addressed to him, pardon me. The two
16 memorandum related to summary on toxicity on Aroclors.
17 A. Okay. I'll take your word for that.
18 Q. Do you recognize any of the names up there as
19 being people who were involved in the medical departments
20 of Monsanto's affiliates abroad?
21 A. No, I don't.
22 Q. In this document, this is -- there's a reference
23 to a Mr. Beauregard having asked the Monsanto medical
24 department to comment on a particular letter relating to
25 Aroclor toxicity, if you look at the heading.

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1 A. I see that.
2 Q. First of all, who was Mr. Beauregard?
3 A. I don't know.
4 Q. What was the substance of the letter that
5 related to Aroclors and toxicity back in 1953?
6 A. I don't know. You're talking about the letter
7 referred to above or this letter?
8 Q. The letter referred to above.
9 A. I don't know.
10 Q. Do you know what the toxicity in Aroclors issue
11 is that's referred to in this memo?
12 A. Not specifically. Without surmising from the
13 contents of this memo, I don't know.
14 Q. Would you agree that at least in the last
15 paragraph one of the toxicity issues being raised is focus
16 on the use of Aroclors as plasticizers in the emulsion
17 paints?
18 A. Yes, I've read that paragraph.
19 Q. Okay. Would you agree that's one of the Aroclor
20 toxicity issues that's the subject of the memo, is the use
21 of Aroclors as a plasticizer in emulsion paints?
22 A. Well, it's more on a side to the memo than a
23 subject to the memo, but it says they were watching the
24 use of Aroclors as plasticizers in emulsion paints, yes.
25 Q. Now, Mr. Wheeler states that we, referring to

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1 the medical department of Monsanto, do not recommend they
2 be used in paints that might be applied in confined or
3 unventilated areas. And I recognize I'm not reading the
4 whole sentence, just focusing on that part, what testing
5 had Monsanto done as of September of 1953 with regard to
6 the use of Aroclors in paints in confined or unventilated
7 areas?
8 A. Other than the work we previously discussed, I
9 don't know of any additional.
10 Q. So the plastics division in Springfield that we
11 saw and the Anniston, Alabama testing, there's no other
12 testing you're aware of?
13 A. Not as I sit here right now, no.
14 Q. Now, there's, Mr. Wheeler specifically refers to
15 this being a case of worrying about the exposure of
16 painters who may apply such materials day in and day out
17 rather than worrying about those who might occupy the room
18 during or shortly after the paint had been applied. See
19 that?
20 A. Yes.
21 Q. Now I understand that the basis for worrying
22 about exposure to painters has to do with the testing that
23 had been done. What is the basis for not being concerned
24 about those who might occupy the room during or shortly
25 after?

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1 A. Well, the maximum contaminant levels, and now
2 the OSHA TLV's or whatever, the threshold limit values or
3 whatever the proper term is for OSHA, apply to a level
4 which is acceptable for a worker to be exposed to five
5 days a week on an eight hour day. So those limits are
6 specifically established to protect workers who are
7 exposed day after day to those kinds of levels.
8 By implication and more than that, by common
9 sense, if it's someone who was exposed to that kind of
10 level for a period of an hour or day, there would be no
11 concern about the toxicity levels whatsoever because
12 people can be exposed to levels similar to that over long
13 periods, in fact, throughout their work career.
14 Q. Doesn't this indicate that the medical
15 department has no concern about vapor levels in a room
16 that had already been painted with Aroclors?
17 MR. DIMURO: Objection.
18 A. Well, all I can say is what it says, and it says
19 that the focus of the worry is on people who were painting
20 day after day in these spaces and not someone who happens
21 to be in the room for one day while it's being painted or
22 enters the room the day after it's painted and that's
23 their only exposure. So it doesn't address that. I
24 understand your question to be about people occupying a
25 room for some period of time after the paint was applied.

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1 It doesn't address that.

2 Q. (By Mr. Turet) Was that a concern of Monsanto
3 back in September of 1953, the exposure to people who
4 would be in a room painted with an Aroclor containing
5 paint?

6 MR. DIMURO: Object to the form. You can answer
7 it.

8 A. Based on the information available to Monsanto
9 and other people about levels in newly painted rooms and
10 the conclusions or the statement of the worry here, I
11 would say that Monsanto would not have particular worries
12 about persons occupying that room that had been painted
13 after the paint had dried for any period of time.

14 Q. (By Mr. Turet) And had it done any testing of
15 the level of vapors that persisted beyond the initial
16 application of the paint with PCBs?

17 MR. DIMURO: Object to the form.

18 A. I'm not aware of any specifically. But again,
19 the conclusions of the testing that the level in a newly
20 painted, confined room under the test conditions were at
21 or marginally above the accepted levels would certainly
22 indicate once the paint dried, those levels would be well
23 below levels of concern from a worker point of view.

24 Q. (By Mr. Turet) Or an occupant?

25 A. Or occupant point of view, yes.

1 (Exhibit T-12 was marked for identification by
2 the reporter.)

3 Q. For the record, the document marked as T-12 is a
4 February 12th, 1954 memo from R. Emmet Kelly, M.D. Bates
5 numbered MAE 052491.

6 A. Okay. I've quickly read that document.

7 Q. Is it apparent from this document that Monsanto
8 knew at least after February of 1954 that at levels of 7
9 milligrams per cubed meter exposure to Aroclors in the air
10 there was some liver damage found?

11 A. In animals, yes.

12 Q. In animals?

13 A. Yes.

14 Q. Okay. And at least as of February of 1954,
15 there was additional tests being done to determine whether
16 lower levels could lead to liver damage in animals?

17 MR. DIMURO: Objection.

18 A. There's a statement we are now running this at
19 lower levels, so the presumption would be that they are
20 doing whatever tests, similar tests to do whatever they
21 did to determine 7 milligrams per cubed meter caused liver
22 damage, yes.

23 Q. (By Mr. Turet) Based on the timing of this,
24 would that be the Kettering Lab testing?

25 A. Without having -- I don't know.

1 Q. Dr. Kelly states that in the second paragraph
2 that in painting a room we have found 1 to 2 milligrams
3 per day or so but after that the level drops down to
4 nothing. Other than the two sets of studies that we
5 referred to already, the plastics division study or test
6 and the Anniston, Alabama test, are there any bases for
7 that statement?

8 MR. DIMURO: Objection.

9 A. Well, the Anniston, Alabama test was not
10 painting rooms. It was looking at exposures to workers in
11 the operating plant. So with that exception aside, I know
12 of no other information other than the plastics division
13 test that would be the basis for this conclusion.

14 Q. (By Mr. Turet) Okay. And Dr. Kelly goes on to
15 state their real concern is somebody would develop
16 hepatitis and then on questioning would recall that
17 perhaps he had been in a room painted with Aroclors and
18 that a jury might believe it if he claimed that the
19 Aroclors had caused the liver damage, I'm sorry, caused
20 the hepatitis.

21 A. Well, I don't see anything in here about a jury,
22 but his concern as expressed in this document is that
23 someone would become ill with hepatitis for some other
24 reason than exposure to Aroclor, recall they smelled it in
25 the room, and there might be some association by that.

1 Q. I apologize, the jury comment is in a different
2 document. I didn't mean to inappropriately suggest there
3 was something there. I have no further questions on that
4 one.

5 (Exhibit T-13 was marked for identification by
6 the reporter.)

7 Q. (By Mr. Turet) For the record, Dr. Kaley,
8 you're being shown a document that's marked as Exhibit
9 T-13, Bates numbered MAE 052484. It's a March 15th, 1954
10 Monsanto memorandum.

11 A. Okay.

12 Q. Now this is -- this memorandum is authored by an
13 A.M. Ellenburg?

14 A. Yes.

15 Q. Is that the same A.M. Ellenburg that was on that
16 interim report we looked at before?

17 A. Presumably, I don't know.

18 Q. Dr. Ellenburg says the final report on the
19 problem of checking the concentration of Aroclor vapor in
20 the air has been written and is now in the process of
21 being typed and from the next sentence, there's a
22 reference back to the interim report we already looked
23 at.

24 A. Yes.

25 Q. Was there a final report issued on the Aroclor

1 vapor in the air following up on that interim report?
 2 A. I don't know specifically.
 3 Q. You haven't seen one?
 4 A. No, not that I recall.
 5 Q. Now Mr. Ellenburg also says no work has been
 6 done since last October on the project but that the final
 7 report was being based on information accumulated before;
 8 is that correct?
 9 A. Yes, basically, that's correct.
 10 Q. Now, here, Dr. -- Mr. Ellenburg says in
 11 Paragraph 3 that in connection with the use of Lustrex
 12 Latex Paint containing Aroclor 1248 that the sampling
 13 operation shows that the concentration falls off in a few
 14 days to a limit of less than 1 milligram per cubic meter
 15 after a few days. Do you see that?
 16 A. With that particular Lustrex Latex Paint, that's
 17 what the memo says, yes.
 18 Q. Was there any comparable testing on paints that
 19 contained Aroclor 1254?
 20 A. I'm not aware of any.
 21 Q. Was there any comparable tests done on paint
 22 containing Aroclor 1260?
 23 A. Not that I'm aware of as I sit here.
 24 Q. Now, did the report or this testing follow the
 25 air levels that existed after a drop below 1 milligram per

1 is sent to Mr. E. Mather at St. Louis?
 2 A. Yes.
 3 Q. You may remember he was listed as Ruabon
 4 previously and they also sent the letter on to Elmer
 5 Wheeler in the medical department in St. Louis?
 6 A. Yes.
 7 Q. And it also went on to H. K. Nason?
 8 A. Yes.
 9 Q. And who was H. K. Nason at the time?
 10 A. Again, a name I recognize but I don't know what
 11 his role was.
 12 Q. Now, I guess I'll -- I have not copied it and
 13 attached it as an exhibit, but if you would prefer I do, I
 14 would be happy to do so. This which is a memorandum March
 15 18th, 1954 from E. Mather sent down to J. W. Barrett and
 16 others. If you'll look at the document that you just put
 17 aside --
 18 MR. DIMURO: You're not marking this?
 19 MR. TURET: Well, we'll make a copy and do it if
 20 you want me to, but I'm going to ask Dr. Kaley if he would
 21 agree that E. Mather in St. Louis forwarded on the
 22 substance of the previous exhibit onto others at Monsanto
 23 abroad.
 24 MR. DIMURO: He forwarded this?
 25 MR. TURET: If you put them side by side.

1 cubic meter?
 2 A. Based on the information available in this memo,
 3 there's no information that that would be the case.
 4 Q. Down below, Mr. Ellenburg states the opinion
 5 that with regard to the use of Aroclors in paint that each
 6 paint would have to be tested in a room and that if the
 7 odor is present then caution would have to be exercised
 8 before the paint is distributed freely for household use.
 9 Do you see that part?
 10 A. Yes, I do.
 11 Q. And was any testing done by Monsanto on any of
 12 the individual types of paint containing a PCB product?
 13 A. I'm not aware of what paints were out there,
 14 whether any were even being marketed at that point.
 15 Everything I've seen today on the documents you've shown
 16 me that I know about would suggest this was all testing.
 17 There was not necessarily any paints out there in the
 18 market. I think it expresses his opinion that based on
 19 these tests that you would continue to test any particular
 20 material and the particular paint that it was suggesting
 21 to be used in.
 22 Q. So this is just theoretical testing, not based
 23 on actual uses of Aroclor in paint?
 24 A. Not that I know of.
 25 Q. Okay. Now up above at the top, you'll see this

1 A. This, the document you're not marking appears to
 2 be a retyping or transcription of the T-13 and forwarded
 3 to additional people, some of I guess -- some of whom,
 4 yeah, are in Europe. Yes, I will agree with that without
 5 specifically checking it word for word.
 6 Q. (By Mr. Turet) I'll represent to you that it, I
 7 mean at least it starts with quotes at the beginning and
 8 ends with quotes at the end. I have not looked word for
 9 word either.
 10 MR. DIMURO: Whatever's there is there.
 11 A. They appear to be the same.
 12 (Exhibit T-14 was marked for identification by
 13 the reporter.)
 14 Q. (By Mr. Turet) Dr. Kaley, for the record.
 15 You're being shown a document that's been marked as T-14
 16 which is Bates numbered MAE 052513 through 521.
 17 A. Okay.
 18 Q. And you'll notice that this is also authored by
 19 D.V.N. Hardy who we've seen on several of the previous
 20 exhibits.
 21 A. Yes.
 22 Q. And you'll notice as you, the substance of the
 23 this at the top is Aroclors dash toxicological
 24 examination?
 25 A. Yes.

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1 Q. And I think you would agree as you look at the
2 list of CC's they're many of the same names we keep seeing
3 in terms of Dr. Newman, Dr. Gardner and the addressee,
4 Dr. J. W. Barrett.

5 A. Yes, we have seen those names before.

6 Q. Now, would you agree that the substance of this
7 relates to the reports of the Kettering Laboratory that
8 related to a measurement of Aroclor 1254, I'm sorry, let
9 me withdraw that question.

10 Would you agree that this relates to a set of
11 reports that were issued by the Kettering Laboratory which
12 measured the toxicity of animals of prolonged exposure to
13 Aroclor 1254 vapors at a particular level?

14 A. Yes, I would agree with that in general. At
15 least the first page, yes.

16 Q. And the level of Aroclor 1254 in the air that
17 those animals were exposed to is 1.5 milligrams per meter
18 cubed?

19 A. I'm sure there were other levels other than that
20 particular one, but it expresses that that level, 1.5 per
21 cubed meter there was slight or positive signs of injury
22 in test animals.

23 Q. And Monsanto was aware of the results of that
24 testing, correct?

25 A. Yes.

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1 Q. In fact, was Monsanto a sponsor of that testing?

2 A. Yes.

3 Q. Now, Mr. Hardy, or Dr. Hardy, whichever he may
4 be, indicates that at least abroad there was a safety
5 factor that was built in when extrapolating from animal
6 toxicity to human toxicity. Do you see that part?

7 A. Yes, I see that.

8 Q. Is it your understanding at least as of that
9 time period that that was the common practice abroad?

10 MR. DIMURO: I'll object to the form.

11 A. Other than what he says using the words
12 recognized practice to employ safety factor of 10, I don't
13 have any further information on it.

14 Q. (By Mr. Turet) Would you agree that Mr. Hardy
15 states the observation in this memo, that taking the
16 Kettering results one would have to apply an Aroclor 1254
17 air level of .15 if one was assessing a safe level for
18 humans?

19 MR. DIMURO: Is there a particular paragraph you
20 can direct him to?

21 A. Well, what he is saying is that based on that
22 recognized practice in, apparently in Europe that that
23 number would be at .15 milligrams per cubic meter, yes.

24 Q. (By Mr. Turet) Now, at least after this point
25 in time, August 1955, had any testing been done by

1 Monsanto or otherwise on animals being exposed to Aroclor
2 1254 vapors below 1.5 milligrams per meter cubed?

3 A. I'd have to go back and look at the Trion
4 publication or reports or whatever. I don't know as I sit
5 here whether it was lower or not.

6 Q. All right. Well, on the second page of this
7 particular memo, Mr. Hardy essentially looks at the
8 results of the Kettering labs and his observations about
9 the safety factor of 10 and then compares it with the air
10 levels that had been found from paint that contained
11 Aroclor 1248. Do you see that?

12 A. Yes, I see that.

13 Q. The first full paragraph on Page 2 refers to
14 analytical work in a room painted with Aroclor 1248
15 plasticized Lustrex Latex paint?

16 A. Yes.

17 Q. Am I correct in saying that Mr. Hardy is
18 expressing concerns that at the levels of PCBs out of that
19 type of paint would exceed the levels that could be
20 extrapolated out of the Kettering study?

21 A. Well, expresses a concern is your words, but
22 certainly he is suggesting that the levels, based on that
23 testing, the levels in a room painted under the conditions
24 of the test with that particular paint could lead to
25 levels of .5 milligrams that can prevail for a month. So

1 the document says what it says.

2 Q. As you read -- you read the document now, do
3 you --

4 A. I'm reading as we go along with the questions.
5 I wouldn't say I read the whole document, but go ahead.

6 Q. Why don't you read to the end because I don't
7 want you to misunderstand?

8 A. Okay. I finished reading the document.

9 Q. Just to go back a step, I may have asked a
10 question that was off base. On Page 2, what Mr. Hardy is
11 saying here is our own analytical work with a room painted
12 with Aroclor 1248 plasticizer Lustrex Latex paint offers
13 evidence that Aroclor concentrations of the order of .5
14 milligrams per cubed meter could last for a month, and
15 that's separate from whatever study had been done by the
16 plastics division in the U.S., correct?

17 A. I don't know the answer to that. That very well
18 could be the same study. They're both Monsanto document.
19 and it could very well be the same study. I just don't
20 know the answer to that.

21 Q. Mr. Hardy suggests that as of this date in 1955
22 there was no analytical technique that was able to
23 pinpoint with reasonable precision concentrations of PCBs
24 in the air below .5 milligrams per meter cubed, correct?

25 A. That's consistent with the point I made before,

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1 yes.
 2 Q. So if the levels are .49, you don't get an
 3 accurate reading; is that correct?
 4 MR. DIMURO: Objection.
 5 A. You know, I don't know the -- how they were
 6 doing this, the method specifically, but .49 is completely
 7 out of the range of region. The answer is you couldn't
 8 tell the difference between .2 and .6. The lack of
 9 precision was such they had some comfort at .5 that
 10 anything below that, whether it was .4, to talk about the
 11 second decimal place is beyond the "pale." It's a much
 12 more gross lack of precision than the difference between
 13 .49 and .50.
 14 Q. So the difference between .4 and .5 couldn't be
 15 distinguished based on existing analytical methods,
 16 reliably?
 17 A. I don't know exactly. I wasn't there,
 18 obviously, and I didn't mean that to sound smart. I don't
 19 know exactly what they're talking about. I don't know if
 20 they meant they couldn't detect .4 or whether the
 21 precision was so bad they couldn't tell .4 from .3. I
 22 don't know specifically, but certainly I will concur that
 23 in the '50's the methods available to do vapor
 24 concentration were very crude and it is not surprising to
 25 me there were analytical difficulties measuring low levels

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1 of PCBs in air.
 2 Q. So is it fair to say based on those limitations
 3 on the analytical methods, that there was no way to
 4 determine what the level that was going to persist into
 5 the future would be?
 6 MR. DIMURO: Objection.
 7 Q. (By Mr. Turet) Do you understand my question?
 8 A. Yes, I do. I think that's basically a
 9 reasonable conclusion. I think that's not inconsistent
 10 with what he says, so --
 11 Q. And farther down in this memo, Mr. Hardy also
 12 expresses concerns about the idiosyncrasy factor; isn't
 13 that right, down in the middle paragraph?
 14 A. Yes.
 15 Q. And what he's referring to there is the fact
 16 that the focus typically is on average humans as opposed
 17 to someone that may have a heightened sensitivity to a
 18 particular chemical?
 19 A. That's what he's referring to, yes.
 20 Q. And all of those factors that we've talked about
 21 including the idiosyncrasy factor lead him to address in
 22 this memo the issue of whether Monsanto Chemical Limited
 23 should withdraw its recommendation that PCBs be used as an
 24 ingredient in paint, right?
 25 A. Right. And especially since the MCC and United

1 States had already withdrawn that recommendation or never
 2 made a recommendation to begin with, that's right.
 3 Q. He specifically says that, well, okay, I
 4 understand what you're saying. What documents are there
 5 that reflect that Monsanto Chemical in the USA withdrew a
 6 recommendation for the use of Aroclors in paint?
 7 MR. DIMURO: Objection.
 8 A. Other than that, I don't know of anything
 9 specifically. But certainly, this one addresses that
 10 position.
 11 Q. (By Mr. Turet) If there was a technical
 12 bulletin, I'm sorry, did you finish.
 13 A. Yes.
 14 Q. If there's a technical bulletin reference that
 15 recommends the use of a particular Aroclor PCB containing
 16 plasticizer as an ingredient in paint, would you agree
 17 that a withdrawal of that recommendation would be
 18 necessary subsequently to make this sentence accurate?
 19 MR. DIMURO: Objection. That goes beyond the
 20 scope of the deposition notice.
 21 A. Well, what the statement says is that apparently
 22 MCL, the English division, had a recommendation that
 23 Aroclors -- not that Aroclors might be used as
 24 plasticizers in Lustrex Latex paints. In withdrawing that
 25 recommendation, they would be lining up with MCC, but I

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1 don't know that, whether that specifically means that
 2 they're lining up with MCC and not having a recommendation
 3 for these particular paints or with a more broad position
 4 of MCC, that PCBs should not be used in certain kinds of
 5 paints.
 6 It goes on to talk about in the document about
 7 PVA paints. I'm not sure exactly what PVA is, and talks
 8 about ordinary paints, so there's a lot more going on in
 9 the paint industry on the various different types of
 10 paints that I'm just frankly not aware of what the
 11 difference between the Lustrex Latex is. Certainly, as he
 12 goes on into the next paragraph he talks about ordinary
 13 paints, the rate of volatilization will be greatly
 14 reduced, so there's some differences in the paint
 15 formulations I'm not qualified or able to speak about.
 16 And I don't know of any other -- back to your
 17 original question, I don't know of any documents where
 18 there's a recommendation or withdrawal of a
 19 recommendation, but I think based on this, you could make
 20 the conclusion that MCC in America was not recommending
 21 plasticizers for Lustrex Latex paints.
 22 Q. (By Mr. Turet) Was not recommending Aroclor PCB
 23 plasticizers as an ingredient in Lustrex Latex paints in
 24 of August of 1955?
 25 A. Right.

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1 Q. And MCL is now revisiting the issue, deciding
2 whether or not to withdraw its recommendation?
3 A. Yes.
4 Q. Now, you're right, in that last paragraph on the
5 same page, Mr. Hardy refers to still having to examine the
6 position of Aroclors in ordinary paints.
7 A. Yes.
8 Q. By that he means examining the extent to which
9 the use of Aroclors in ordinary paints lead to PCB vapors
10 in the room, correct?
11 A. Presumably, yes. It's saying those exact
12 words. That would be a logical conclusion, yes.
13 Q. And Mr. Hardy is also saying he would think in
14 that next sentence that because he argued previously that
15 the rate of volatilization would be greatly reduced if it
16 was used in ordinary paints?
17 A. Yes.
18 Q. Because that's the argument he made before,
19 that's what he's saying?
20 A. Yeah, right.
21 Q. By the rate of volatilization, we're talking
22 about the rate at which PCBs are able to vaporize out of
23 ordinary paints, correct?
24 A. Yes.
25 Q. And get into the air and create vapor levels?

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1 A. Yes.
2 Q. And Mr. Hardy is saying it now seems possible a
3 hazardous concentration could be attained in a room in
4 which a large area is painted with Aroclor containing
5 paint, correct?
6 A. That is basically what that sentence says, yes.
7 Q. Did Monsanto ever recommend to any of its
8 customers that it not use Aroclor 1254 in paints due to
9 concerns about vaporization of the PCBs into the air?
10 A. I don't know.
11 Q. No further questions on that one. I'm going to
12 take a quick break.
13 (A short break was taken.)
14 (Exhibit T-15 was marked for identification by
15 the reporter.)
16 Q. (By Mr. Turet) Dr. Kaley, I'm showing you a
17 document that's been marked as T-15, a September 8th, 1955
18 memorandum from J. W. Barrett.
19 A. Okay.
20 Q. And it's been addressed to H. K. Nason in
21 St. Louis?
22 A. Yes.
23 Q. Again he's, and you recognized him as
24 somebody --
25 A. It was a name I knew, but didn't know a role.

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1 Q. As an employee of Monsanto?
2 A. Yes.
3 Q. And you may want to read this one through.
4 A. Yeah, I am. Thank you. Okay, I've read it.
5 Q. Okay. First off, would you agree with me that
6 in this letter Mr. Barrett is communicating that they are
7 very much concerned with the toxicology of Aroclors
8 particularly since their sales of Aroclors are just
9 beginning to take off abroad?
10 A. That's I think a fair characterization of the
11 first paragraph, yes.
12 Q. And down in the third paragraph, there's a
13 reference to the chief medical officer, Dr. H.R. Newman.
14 Does that help in recalling who he was?
15 A. I'll take the document's word for it that's who
16 he was, so I'm willing to move forward with that.
17 Q. And here in the aftermath of the Kettering Lab's
18 results, Dr. Newman was coming to St. Louis to meet with
19 Dr. Kelly who was medical director of Monsanto in
20 St. Louis, correct?
21 A. Your characterization of in the aftermath
22 sounds like it was a causal factor. I don't know -- he
23 was coming to St. Louis. I don't know if it had anything
24 to do with the fact that the Kettering Lab results had
25 become available or not. It could have been a side

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1 issue. But he was certainly coming to St. Louis.
2 Q. Going to the paragraph before it, is it fair to
3 say that Mr. Barrett is saying they recently received the
4 results from the Kettering Labs which represents entirely
5 new data on Aroclor toxicity?
6 A. That's again a fair characterization of the
7 first sentence of that paragraph, yes.
8 Q. And having read it, would you agree with me that
9 the general sentiment from Mr. Barrett is results about --
10 the results of the Kettering Lab which is prompting the
11 meeting of the medical director?
12 A. No, I would agree he's expressing certain -- it
13 might have been a normal yearly meeting and this was going
14 to be discussed there. Based on the term fortunately, I
15 don't think it prompted it at all.
16 Q. Now, Mr. Barrett is expressing particular
17 concern because a very large proportion of their present
18 sales of PCB containing Aroclors went to surface coating
19 uses; is that right?
20 A. That's what the document says, right. It says
21 it's important to us because of that reason, yes.
22 Q. And Mr. Barrett is suggesting to Mr. Nason in
23 St. Louis that additional toxicity testing be undertaken
24 on PCB containing Aroclors, is he not?
25 A. He's saying they are considering that, yes. He

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1 is saying they are considering it.
 2 Q. And they're inviting input from St. Louis as to
 3 whether to go forward?
 4 A. Well, they're saying they would certainly
 5 discuss it with St. Louis. I don't know if they're
 6 inviting input.
 7 Q. And Mr. Barrett goes so far as to say quite a
 8 lot more data is needed and they're willing to go forward
 9 and obtain it if you think that's a reasonable suggestion,
 10 doesn't he?
 11 A. That's what the document says, yes.
 12 (Exhibit T-16 was marked for identification by
 13 the reporter.)
 14 Q. I want to show you another document. Dr. Kaley,
 15 have you had, for the record, T-16 -- for the record, T-16
 16 is a document that's been Bates numbered MAE 052494
 17 through 495. It's a September 20th, 1955 memorandum from
 18 R. Emmet Kelly, M.D. Dr. Kaley, have you had a chance to
 19 look at T-16?
 20 A. Yes, I have.
 21 Q. And would you agree that Dr. Kelly, the medical
 22 director of Monsanto is responding to the memo from J. W.
 23 Barrett that was marked T-15?
 24 A. Yes, I would agree with that.
 25 Q. And Dr. Kelly offered apparently, it's

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1 Dr. J. W. Barrett, some general information about Aroclor
 2 1254 and its toxicity?
 3 A. Well, he certainly commented again on the
 4 results of the determination of air levels. I don't know
 5 that it's general toxicity -- I wouldn't characterize it
 6 as general toxicity information but --
 7 Q. Okay. At least some of his comments related to
 8 Aroclors and toxicity?
 9 A. Yes.
 10 Q. And would you agree with me also that Dr. Kelly
 11 goes on to state to Mr. Barrett that he doesn't see any
 12 particular advantage in doing further testing on the
 13 release of -- I'm sorry, further toxicity testing on
 14 Aroclor 1254 at this time?
 15 A. I would say that the sense is I don't know how
 16 you would get any particular advantage of doing more
 17 work. That would suggest to me back to the previous memo
 18 he's talking particularly about inhalation testing not
 19 toxicity testing in general.
 20 Q. Would you agree that what he's saying is he
 21 doesn't see any particular advantage in further inhalation
 22 testing from Aroclor 1254?
 23 A. Yes.
 24 Q. And Dr. Kelly specifically recommends he thinks
 25 the focus should be on testing air concentrations based on

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1 particular applications containing Aroclor 1254; is that
 2 correct?
 3 A. I think that's a fair characterization, yes.
 4 Q. And that's whether it's industrial applications
 5 of one sort or another or painting?
 6 A. Yeah. It certainly suggests if it's -- I mean
 7 it does show applications could be painting, but I think
 8 the real distinction is industrial application or
 9 household or -- so a consumer application. It would
 10 suggest -- I think this suggests you would do more careful
 11 testing and require lower limits of exposure for
 12 households.
 13 Q. Was it the position of Monsanto back in
 14 September of 1955 that -- that it was to review each new
 15 Aroclor's proposed use from the point of view of
 16 determining whether it was going to be for industrial
 17 exposure versus household exposure?
 18 MR. DIMURO: Objection.
 19 A. Well, based on the contents of this memo, and in
 20 general, to the extent that Monsanto knew about a
 21 particular application, and that wasn't always the case,
 22 but to the extent they were answering specific questions
 23 about specific applications, I think they would review the
 24 kind of information that Dr. Kelly discusses here.
 25 Q. (By Mr. Turet) Mainly whether it's going to be

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1 used in a household versus an industrial setting?
 2 A. That would be one of the evaluation
 3 considerations involved of that particular use, yes.
 4 Q. What other consideration would go into the
 5 evaluation of that particular use?
 6 A. Whether the product performed appropriately,
 7 what the purpose of the product was, and other various
 8 uses.
 9 Q. What about -- how about a toxicity standpoint,
 10 putting aside whether it actually works well in a
 11 particular application, what consideration would there be
 12 other than you mentioned industrial versus household?
 13 A. I think they would look at potentially the root
 14 of exposure and those types of considerations. That would
 15 be one I think.
 16 MR. TURET: Let's mark this as T-17.
 17 (Exhibit T-17 was marked for identification by
 18 the reporter.)
 19 Q. (By Mr. Turet) For the record, Dr. Kaley's
 20 being shown a document that's been marked as T-17, Bates
 21 MAE 052486 through 489. And it is a December 6th, 1955
 22 memorandum from D.V.N. Hardy.
 23 A. Okay.
 24 Q. Now, again, Dr. Kaley, this is coming from the
 25 same D.V.N. Hardy we've been seeing?

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1 A. Yes.
 2 Q. And it's to Dr. J. W. Barrett?
 3 A. Yes.
 4 Q. And it relates to Aroclors toxicological
 5 examination?
 6 A. Yes.
 7 Q. And it's addressed to Dr. Gardner and Dr. Newman
 8 and these others we've been seeing?
 9 A. Yes.
 10 Q. Now would you agree that according to this
 11 document that Dr. Kelly either had asked or was about to
 12 ask the American Conference of Governmental Industrial
 13 Hygienists to increase the permissible level of Aroclor
 14 1254 to 1 milligram per meter cubed?
 15 A. Again, question of words, but certainly the
 16 paragraph suggests that MCC and Dr. Kelly would be part of
 17 this and are going to submit the reports in support of a
 18 claim that those, that the two maximum permissible levels
 19 of concentration should be adopted, and the one for
 20 Aroclor 1254 is 1 milligram per meter cubed.
 21 Q. And by the way, in that first paragraph at the
 22 end, there's a statement that Dr. Newman has discussed
 23 with Dr. Kelly the significance of the Kettering results
 24 in relation to MCC thought and policy.
 25 Is that a reference back to the meeting that was

1 about to take place with Dr. Newman coming over to meet
 2 with Dr. Kelly?
 3 A. The times of the previous documents could
 4 suggest that that could be the case. I don't know that
 5 specifically, but the timing is consistent with that.
 6 Q. Now, on the second page, the second paragraph, I
 7 should preface it by saying there is a paragraph in
 8 between the first page and second page that talks about
 9 the Monsanto Chemical Company recommendations as to
 10 toxicity levels.
 11 Going into the next paragraph, it says that
 12 there will be no impact on the Monsanto Company policy
 13 regarding the use of Aroclors in paints since Monsanto
 14 Chemical Company have long ceased to use the Aroclor for
 15 that purpose.
 16 A. Yes.
 17 Q. Does that help you to recall whether at one
 18 point Monsanto recommended the use of Aroclors, PCBs
 19 containing Aroclors in particular?
 20 MR. DIMURO: Objection.
 21 A. It doesn't help me recollect whether they did or
 22 not, but certainly based on this sentence, the fact that
 23 they've ceased recommending, it would suggest at one point
 24 they did recommend it, yes.
 25 Q. (By Mr. Turet) How does Monsanto withdraw the

1 recommendation for a particular use of a chemical based on
 2 toxicity?
 3 A. I would think there were various ways of doing
 4 this. I don't know how specifically this one may or may
 5 not have been done.
 6 Q. What are the various ways of withdrawing a
 7 recommendation based on toxicity considerations?
 8 A. Just the decision of recommending the uses in
 9 product bulletins, there could have been a communication
 10 to either salespeople or distributors to cease those
 11 recommendations. There could have been communications
 12 with customers, any number of ways of doing that. How it
 13 was done here, I have no idea.
 14 Q. So if one was to look at a technical bulletin
 15 that was older and a technical bulletin that was newer and
 16 the particular recommendation exists in the older one but
 17 doesn't exist in the newer one, that's an example of a
 18 withdrawal of a recommended use?
 19 MR. DIMURO: Objection. I think that's beyond
 20 the scope of the deposition notice. You haven't related
 21 anything to toxicity for the recommendations --
 22 MR. TURET: This whole line of questioning is
 23 intended --
 24 MR. DIMURO: It needs to be put in those terms.
 25 MR. TURET: Let me rephrase the question then.

1 Q. (By Mr. Turet) So if one looks at an older
 2 technical bulletin that recommends a particular use of a
 3 product and a newer technical bulletin that doesn't
 4 recommend the use of that product, is that an example of a
 5 withdrawal of a recommendation based on toxicity
 6 considerations?
 7 MR. DIMURO: I'll object to the form of that
 8 question. I think it's an incredible hypothetical.
 9 A. My answer to that would be that a toxicity
 10 consideration could have been one of the reasons for that
 11 recommendation no longer being there, but there could have
 12 been many others.
 13 Q. (By Mr. Turet) Fair enough. And where a
 14 withdrawal of a recommended use is based on toxicity
 15 consideration, are those toxicity considerations
 16 communicated by Monsanto to its customers?
 17 MR. DIMURO: I object to that question as also
 18 being beyond the scope of the notice because we're now
 19 talking about general toxicity and not specific to PCBs,
 20 but I will allow the Doctor to answer if he can.
 21 A. I would think that would depend on a specific
 22 case. I don't know there's a general answer to that
 23 question. If there was, I don't know.
 24 Q. (By Mr. Turet) So it could be communicated to
 25 customers or it might not be?

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1 A. That's probably a fair characterization, yes.
 2 That's again generally speaking, that's not necessarily
 3 specific to PCBs or anything. That was intended as a
 4 general answer to a general question.
 5 Q. Would your answer be any different if we focus
 6 on PCBs?
 7 A. Not necessarily, no.
 8 Q. Is the answer the same or is it not the same if
 9 we're talking about just PCBs?
 10 A. I think it's the same.
 11 Q. Now, the second sentence of the same paragraph
 12 that we came out of on Page 2 says that Monsanto Chemical
 13 Limited has continued to offer Aroclors for use in paints
 14 on the basis that the evidence for rejection was slim and
 15 the risk is reduced by resorting to the use of more highly
 16 chlorinated Aroclors. Just to clarify, Aroclor 1254 is a
 17 more highly chlorinated Aroclor as the term is used at
 18 Monsanto, isn't it?
 19 MR. DIMURO: Objection. More highly chlorinated
 20 than what?
 21 A. That's essentially what my answer would be, that
 22 in some consideration it could be a more highly
 23 chlorinated or it could be a lower chlorinated depending
 24 on what you're comparing it to. It could go either way.
 25 Q. (By Mr. Turet) Have you seen the term used

1 objection.
 2 A. I don't know.
 3 Q. (By Mr. Turet) Are there any documents that
 4 reflect the basis as its stated here for continuing to
 5 offer Aroclors for use in paints by Monsanto Chemical
 6 Limited?
 7 A. Not that I'm aware of.
 8 Q. Are there any documents that would form a basis
 9 for concluding that risk is reduced by resorting to the
 10 use of more highly chlorinated Aroclors in paints?
 11 A. Well, I think that that refers back, for
 12 instance, to the previous paragraph where it talks about a
 13 more highly chlorinated Aroclor such as Aroclor 1268,
 14 which I didn't really -- that substantiates my previous
 15 answer suggesting it has a much higher allowable limit and
 16 therefore there would be less concern. In addition, it
 17 would be less volatile so it's more likely for that to
 18 reach that allowable limit. So I think we've seen in
 19 other documents that similar argument posed in those exact
 20 words, but to the extent we've seen them today, there are
 21 other documents that support that.
 22 Q. You lost me on that.
 23 A. Your original question was is there any other
 24 documents which support the contention the risk is reduced
 25 by using highly chlorinated Aroclors such as 1268. As

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1 within Monsanto highly chlorinated PCBs versus non-highly
 2 chlorinated PCBs?
 3 MR. DIMURO: I'll object to the form of that
 4 question.
 5 A. I don't know I've seen that specifically. I've
 6 seen more highly chlorinated versus less chlorinated.
 7 I've used those myself.
 8 Q. (By Mr. Turet) What does that mean as you've
 9 used it?
 10 A. It's relative to what you're talking about.
 11 Compared to Aroclor 1221, it's more highly chlorinated.
 12 Compared to 1268, it's less chlorinated. And I think in
 13 some of the documents today, you see those differences. I
 14 think in some of the documents Aroclor 1254 has been among
 15 those considered more highly chlorinated, but it certainly
 16 talked about 1268 being the more highly chlorinated
 17 compared to 1254. So it depends on the particular context
 18 in which the discussion is being made.
 19 Q. Let's go back to the question that what
 20 documents reflect Monsanto Chemical Limited continued to
 21 offer Aroclors for paints back in December of 1955.
 22 MR. DIMURO: I'm going to object to that
 23 question as being beyond the scope of the notice.
 24 Documents pertaining to sale of Aroclors by Monsanto
 25 Limited? I'll let you answer it Doctor, but note my

1 stated in the previous paragraph, I think there are other
 2 documents today which make that same argument, that
 3 Aroclor, because Aroclor 1268 is more highly chlorinated
 4 and has a higher limit, it might be more appropriate.
 5 Q. Was it the position of Monsanto back in December
 6 of 1953 that risk would be reduced by using a more highly
 7 chlorinated PCB product in paint?
 8 MR. DIMURO: Object to the form of the
 9 question.
 10 A. I don't know where you got that date from.
 11 Q. (By Mr. Turet) That's the date of this letter.
 12 A. I thought it was 1955.
 13 MR. DIMURO: You said '53.
 14 Q. (By Mr. Turet) Let me restate the question.
 15 A. That's fine. I wanted to be sure you were
 16 looking at the same document. Now you'll have to read the
 17 question back, I'm sorry.
 18 Q. Do you want me to restate it again with the
 19 right date?
 20 A. That would be fine.
 21 Q. Was it the position of Monsanto back in December
 22 of 1955 that the risk of volatilization could be reduced
 23 by resorting to the use of more highly chlorinated
 24 Aroclors in paint?
 25 MR. DIMURO: Object to the form of the

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1 question.
 2 A. The risk of volatilization, I mean that just
 3 following from the physical properties, I don't know if it
 4 was a position or policy or not. I don't have any
 5 document which states that if that's what you're asking.
 6 Q. (By Mr. Turet) That is what I'm asking, but
 7 you're saying the general properties of the more highly
 8 chlorinated PCBs lead to that conclusion?
 9 A. Right. They have very much reduced vapor
 10 pressures, yes.
 11 Q. In fact, the next sentence says that was thought
 12 to have the dual advantage of using a material of the; A,
 13 lower intrinsic toxicity; and B, lower vapor pressure. Is
 14 that consistent with what you were just saying?
 15 A. Yes, it is as a matter of fact, thank you.
 16 Q. Now, just so I'm clear, what is vapor pressure
 17 exactly?
 18 A. Vapor pressure is a property which measures the
 19 tendency of a material to evaporate or to move from the
 20 liquid phase or the solid phase into the vapor phase.
 21 Q. So if one has a lower vapor pressure, it
 22 vaporizes more slowly?
 23 A. That's correct.
 24 Q. Now, the next sentence from Mr. Hardy says its
 25 now clear that toxicity increases with the degree of

1 more toxic than Aroclor 1242. And in another test with
 2 another end point, Aroclor 1254 might be more or less
 3 toxic than Aroclor 1242.
 4 And where I was really going was that if you
 5 were to look at Aroclor 1268, my guess would be under any
 6 conditions of tests Aroclor 1268 would be less toxic than
 7 both of those other two materials.
 8 Q. Now in the last paragraph on this Page 2,
 9 there's a reference to a recent decision by ICI to
 10 discontinue their uses of Aroclors in ordinary paints.
 11 Fair to say Monsanto was aware that ICI had ceased to use
 12 PCB containing Aroclors in paints somewhere prior to
 13 December of 1955?
 14 A. Well, subject to the assumption that the
 15 Aroclors that they're talking about are PCB containing
 16 Aroclors which it doesn't state that, that's what the
 17 sentence says, yes.
 18 Q. Is it fair to say the entire letter --
 19 A. The subject of this letter is polychlorinated
 20 biphenyls, yes.
 21 Q. So when they're talking about the discontinuance
 22 of the use of Aroclors in ordinary paints by ICI, is it
 23 fair to conclude from that that we're talking about PCB
 24 containing Aroclors?
 25 MR. DIMURO: I'll object to the form.

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1 chlorination and that this effect may cancel or even
 2 outweigh the advantage due to decreased vapor pressure.
 3 Am I understanding him to say there that higher
 4 chlorinated PCBs are more toxic even though they may
 5 vaporize more slowly?
 6 A. That's what the sentence says. I would add
 7 though that he is, he's basing that only on the two
 8 Aroclors that are being discussed here 1254 and 1242 and
 9 to the extent there's any intent to extrapolate to other
 10 Aroclors, I don't know what his thought would be, but I
 11 would disagree with it.
 12 It's my understanding he's only talking about
 13 those two materials, but to the extent he's talking about
 14 other materials, I'm not sure I would agree with what his
 15 statement is. I do not believe the more highly
 16 chlorinated materials in most cases are less toxic.
 17 Q. Is Aroclor 1254 more toxic than Aroclor 1242?
 18 MR. DIMURO: I'll object to the form of the
 19 question:
 20 Q. (By Mr. Turet) I'm trying to understand what
 21 you said a moment ago.
 22 A. Okay. Under the conditions of this particular
 23 test, the inhalation toxicity test, where they were
 24 looking at liver damages and end point, the results of
 25 this test would suggest that Aroclor 1254 was slightly

1 A. No, I don't agree with that. It may be fair to
 2 assume that. I don't know if it's fair to conclude that.
 3 Q. (By Mr. Turet) Okay. Would you agree that --
 4 MR. DIMURO: I've got to take this call. If you
 5 wouldn't mind, Gerard will sit in for a moment.
 6 (Mr. DiMuro exited the deposition room.)
 7 Q. (By Mr. Turet) Now, would you agree that at
 8 least Mr. Hardy is expressing some concern after his
 9 discussion about PCBs with ICI's decision to discontinue
 10 the use of Aroclors in ordinary paints?
 11 A. Well, without taking a lot of time to read it in
 12 detail, I don't know that he's expressing concern with
 13 that decision. He's discussing that decision.
 14 Q. Would you agree he's expressing that their
 15 decision might also reflect the line that might be taken
 16 by other customers at Monsanto?
 17 A. Yes, that's what that sentence says, that it's
 18 an indication that that line might be taken, yes.
 19 Q. And would you agree also that Mr. Hardy sugges
 20 that ICI's decision was influenced at least in part by
 21 information received from the medical director at
 22 Monsanto, Dr. Kelly?
 23 A. It says that, yes.
 24 Q. And Dr. Kelly's comments included the statemen
 25 on Page 3 that it is our belief that at room temperature

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1 not enough can get into the air to cause any trouble.
 2 A. That's what it says, yes. Under the conditions
 3 that he discussed, I mean, you know, if it's not being
 4 sprayed etc., etc.
 5 Q. Aroclor fumes at room temperature very probably
 6 would not present any hazards, right?
 7 A. Right, but mist or spray is another problem
 8 entirely and that's the basis for the recommendation.
 9 Q. Now --
 10 A. Let me just clarify to be sure we're both --
 11 what I'm saying is, it is Dr. Kelly's express belief that
 12 vaporization of PCBs at room temperature would not give a
 13 high enough level into the air to cause any trouble.
 14 Q. When used in paint?
 15 A. Well, that's what this discussion is based on.
 16 It doesn't say that specifically, but that's basically the
 17 source of discussion, yes.
 18 Q. And based on all this discussion by Mr. Hardy,
 19 including the reference to ICI to discontinue the use of
 20 Aroclors in paint, there are some recommendations which
 21 Mr. Hardy makes at the end. Do you see them?
 22 A. Yes.
 23 Q. And those recommendations are that Monsanto
 24 Chemical Limited continues to sell Aroclors for use in the
 25 manufacture of paints based on chlorinated rubber, right?

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1 A. Yes. That very specific kind of paint which I
 2 think there was specific advantages for, yes.
 3 Q. And also continue to sell Aroclors for
 4 production of paints intended for exterior application,
 5 correct?
 6 A. Yes.
 7 Q. But all others, all other possible uses of
 8 Aroclors in paint are no longer recommended?
 9 A. That's correct, yes.
 10 Q. That would include for interior use?
 11 A. Yes.
 12 Q. Okay. Now, the only other thing, I'm sorry, I
 13 skipped over this, Page 3 down at the bottom, one of ICI's
 14 comments in an apparent letter to Monsanto was that air
 15 saturated with cold Aroclor could be at or above the
 16 maximum permissible concentration; is that correct, you'll
 17 see it goes on to the next page.
 18 A. That's what it says, but it would be very
 19 difficult to saturate cold air with Aroclors.
 20 Q. But that's what Monsanto is told by ICI, back
 21 in --
 22 A. Under the specific conditions where the testing
 23 created a saturated atmosphere, that is what the report
 24 apparently said, yes.
 25 (Mr. DiMuro returned to the deposition room.)

1 Q. (By Mr. Turet) Are there any documents still in
 2 existence which reflect this exchange of letters between
 3 Dr. Kelly and ICI?
 4 A. Not that I'm aware of.
 5 (A lunch break was taken.)
 6 (Exhibit T-18 was marked for identification by
 7 the reporter.)
 8 Q. (By Mr. Turet) Okay. Now, Dr. Kaley, for the
 9 record you're being shown a document marked as Exhibit
 10 T-18 which is Bates numbers MAE 051971 and it's dated
 11 November 14th, 1955. Dr. Kaley, the person who has signed
 12 this memorandum, Jack Garrett, he was a member of the
 13 medical department back in 1955?
 14 A. That's correct.
 15 Q. And this is directed to a gentleman at the
 16 Krummrich Plant?
 17 A. Apparently, yes.
 18 Q. And the Krummrich Plant was the St. Louis plant
 19 of Monsanto where PCB was manufactured?
 20 A. Actually, it's across the river from St. Louis
 21 in Sauget, but generally it's the St. Louis area plant,
 22 yes.
 23 Q. And Department 246 is the portion of the plant
 24 where the PCBs were manufactured?
 25 A. Based on what I think is correct, and this memo,

1 I would agree with that.
 2 Q. Now, in this document -- let me withdraw that.
 3 Would you agree that the medical department is
 4 stating the opinion that eating of lunches should no
 5 longer be allowed as of November 14, '55 in the Department
 6 246 where Aroclors were manufactured?
 7 A. Again, it doesn't say no longer. It says should
 8 not be allowed. Presumably, that means it had been
 9 allowed before that, but I don't know that for sure.
 10 Q. And Mr. Garrett lays out the reasons for
 11 reaching that opinion. One of them is because Aroclor
 12 vapors and other process vapors could contaminate the
 13 lunches unless they were properly protected.
 14 A. That's what item one says, yes.
 15 Q. And did the Krummrich Plant institute a policy
 16 in November '55 or soon thereafter that forbid the eating
 17 of lunches within the department?
 18 A. Presumably so, but I don't know that to be a
 19 fact.
 20 Q. Do you know for a fact that there was a
 21 prohibition against eating lunches in that department at
 22 some point in time?
 23 A. I think I seen that in a Krummrich document.
 24 I'm not positive of that, but I may have seen that. It
 25 sounds familiar to me.

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1 Q. And so at least the medical department of
2 Monsanto as of November '55 was aware that PCB vapors in
3 the air could contaminate food products being eaten in the
4 room?

5 A. Well, Aroclor and other vapors. I mean they
6 state that it's, you know, it's long been their opinion of
7 they shouldn't be eating in there, so it's not necessarily
8 specific to PCBs. The policy is, you know, addressed on
9 this particular document to the PCB department, but it
10 basically says they shouldn't be doing it in any process
11 department.

12 Q. And is that true because of toxicity
13 consideration, that one does not eat lunch in a room where
14 there are PCB vapors?

15 MR. DIMURO: Object to the question.

16 A. In the most general sense, yeah. I mean, I
17 think it's just, it's basically the fact that you
18 shouldn't be eating in a place where there's high
19 concentrations of chemical due to manufacture, so
20 arguably, yeah, I guess that has to do with toxicity in
21 the general sense. But I don't know if it has to do with
22 any specific toxicity.

23 Q. (By Mr. Turet) You mentioned high PCB vapors,
24 but presumably Monsanto was following the recommendations
25 of this technical basis --

1 1961 document that referred to the possible detection of
2 PCBs in chickens leading to chick edema?

3 A. Not that I'm aware of.

4 Q. Okay. Had you seen this document before today?

5 A. I've seen this document, yes.

6 Q. And what did Monsanto do upon learning that
7 there was going to be a study released in the Journal of
8 Poultry Science showing that Aroclor 1242 had seemingly
9 gotten out of paint and into chicken coops?

10 MR. DIMURO: I'll object to the form. You can
11 answer.

12 A. I'm not aware of any specific action.

13 Q. (By Mr. Turet) Did Monsanto do any testing of
14 its own to determine whether PCBs could get out of paint
15 as applied in chicken coops?

16 MR. DIMURO: Objection to form. You can
17 answer.

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

19 Q. (By Mr. Turet) Did Monsanto do any toxicity
20 testing on chickens to determine the ramifications of PCBs
21 getting out of paint and into the chickens?

22 MR. DIMURO: Object to the form. You can answer
23 it.

24 A. Monsanto, at some point did do toxicity testing
25 on chickens, yes.

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1 A. Well --

2 Q. Let me finish my question, to use exhaust to get
3 rid of whatever vapors might be generated in the
4 manufacturing process, correct?

5 A. I was using high with reference to in an
6 industrial situation as opposed to a non-industrial
7 situation. So whether they were using this, I'm sure they
8 were using the controls to keep the levels within the OSHA
9 guidelines, not OSHA at that time, but the ACGIH
10 guidelines at this time. I was really discriminating
11 against a non-industrial situation. The level certainly
12 in the manufacturing department even if they're under the
13 TLV's are going to be higher than they would be, you know,
14 outside of the industrial manufacturing situation.

15 Q. One would expect?

16 A. Almost guaranteed.

17 MR. TURET: Let's mark this as T-19.

18 (Exhibit T-19 was marked for identification by
19 the reporter.).

20 Q. (By Mr. Turet) For the record, T-19 is a
21 document with Bates numbers MAE 053216 dated July 18,
22 1961. Dr. Kaley, who is Chuck Eby?

23 A. Eby. He was an employee that worked in our
24 Washington office at one point or another.

25 Q. Are there any documents before this July 18th,

1 Q. (By Mr. Turet) Was that in about 1969, 1970?

2 A. That's correct.

3 Q. You're thinking the Industrial Bio-Test studies?

4 A. Yes.

5 Q. Were there any studies before the Industrial
6 Bio-Test studies on PCBs in chickens?

7 A. Not that I'm aware of.

8 MR. TURET: Let's mark that 20.

9 (Exhibit T-20 was marked for identification by
10 the reporter.)

11 Q. (By Mr. Turet) For the record, Dr. Kaley,
12 you're being shown a document marked as T-20 which is
13 dated October 23rd, 1961 and it's Bates numbered in
14 another matter PRR 019171. Dr. Kaley, I'm sorry, have you
15 skimmed it?

16 A. I'm in the process of it.

17 Q. Let me know when you're done.

18 A. Okay.

19 Q. Now, this is another memo from Chuck Eby in the
20 Monsanto office in Washington also to Howard Bergen in
21 St. Louis and this one refers to the FDA again looking
22 into the issue of chick edema and having asked for samples
23 from Monsanto; is that correct?

24 A. I don't know about your characterization of
25 again, but it says they are -- they're hot on the trail of

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1 a chlorinated compound X which is a causative factor of
 2 chick edema. The FDA had been involved in studies of
 3 chick edema for some time and they actually in the second
 4 paragraph --
 5 Q. Says he's back on the trail?
 6 A. Okay.
 7 Q. Now, what had happened between July of 1961 and
 8 October of 1961, had the FDA looked into the issue of the
 9 possible connection between PCBs and chick edema and
 10 abandoned that inquiry?
 11 MR. DIMURO: Objection.
 12 A. I have no idea.
 13 Q. (By Mr. Turet) Is there anything to your
 14 knowledge that was reported between July of 1961 and
 15 October of 1961 on the cause of chick edema?
 16 A. I don't know whether the O'Dell article had been
 17 published. Without seeing it and seeing the date, I don't
 18 know if it had been published in that time frame or not.
 19 Other than that, I wouldn't know anything.
 20 Q. Just so I ask it to cover the whole time period,
 21 I asked you before whether Monsanto had done any testing
 22 on PCBs in paint and the possible connection to chick
 23 edema. Did Monsanto do any testing on or after October of
 24 1961 as to the ability of PCBs to get out of paint and
 25 cause chick edema in chickens?

1 forwarded to Mr. Hunt and, I'm sorry, Dr. Hunt and
 2 Dr. Kelly in the medical department?
 3 A. Yes.
 4 Q. Okay. Back to the document marked as T-21,
 5 that's document Bates MAE 053218, June 24th, 1964
 6 memorandum from M. M. Johnson, M.D.
 7 A. Yes.
 8 Q. Now Dr. Johnson was a member of the medical
 9 department at the time at Monsanto?
 10 A. I don't know the answer to that.
 11 Q. Given the first sentence --
 12 A. Presumably, yeah, given the first sentence, he
 13 was certainly acting in Dr. Kelly's absence. So
 14 presumably he was, yes.
 15 Q. And this is addressed to J. M. Campbell at MCL
 16 in London?
 17 A. Yes.
 18 Q. Who was Mr. Campbell if you know?
 19 A. I don't know.
 20 Q. Apparently Mr. Campbell, if I'm reading this
 21 correctly, had inquired as to Aroclors in regard to this
 22 chick edema issue?
 23 A. Apparently, so, yes.
 24 Q. In this document, Dr. Johnson refers to the
 25 meeting of the Federation of American Societies for

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1 MR. DIMURO: Objection. You can answer it,
 2 Doctor.
 3 A. Not that I'm aware of.
 4 Q. (By Mr. Turet) Now, this document from Mr. Eby
 5 suggests that Aroclors had been used as extenders or
 6 insecticides against roaches, etc. in the poultry field?
 7 A. Yes.
 8 Q. And was he correct in that regard?
 9 A. I'm not sure. My understanding has always been
 10 there were investigations of the potential use for PCBs as
 11 extenders, but those were either -- never occurred at all
 12 or were never widely occurring. So I don't know whether
 13 he's correct or not on that. That is not necessarily my
 14 understanding of the situation with PCBs as pesticide
 15 extenders.
 16 (Exhibit T-21 was marked for identification by
 17 the reporter.)
 18 A. Yeah, that -- just to go back to that last, the
 19 last paragraph suggests that it, and my understanding has
 20 always been that the -- that investigations of that use
 21 were by USDA, the Department of Agriculture, and in the
 22 last paragraph of this previous document, T-20 is
 23 consistent with that. Beltsville is the USDA laboratory,
 24 yes.
 25 Q. Okay. By the way, that document also was

1 Experimental Biology in April of 1964 and a paper that was
 2 presented there as to chick edema disease-like symptoms.
 3 Do you see that reference?
 4 A. Yes.
 5 Q. What did the studies say? Let me withdraw
 6 that.
 7 Did Monsanto know about the connection between
 8 exposure to PCBs and development of chick edema
 9 disease-like symptoms back in June of 1964?
 10 MR. DIMURO: Objection.
 11 A. Presumably, they knew whatever they had learned
 12 from the O'Dell publication. That was mentioned in the
 13 previous documents and they presumably had this document
 14 and learned whatever was in there.
 15 Q. (By Mr. Turet) And Dr. Hunt from the medical
 16 department was at whatever that presentation was?
 17 A. That's the conclusion that could be drawn from
 18 this. Yes, well, yes, okay, that's correct.
 19 Q. Now, Dr. Johnson states that Aroclors apparently
 20 can produce some chick edema but are not nearly so potent
 21 as the real chick edema factor. What was the real chick
 22 edema factor that he's referring to?
 23 MR. DIMURO: Objection. You can answer it if
 24 you know.
 25 A. It was some combination of chlorinated

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1 "diabenz" dash P dash dioxins and chlorinated diabenz
 2 furans.
 3 Q. (By Mr. Turet) Is it fair to say as of June
 4 24th, 1964 Monsanto knew that the dioxins and furans could
 5 cause chick edema?
 6 MR. DIMURO: Objection.
 7 A. I'm not sure that I would have. I don't know as
 8 I sit here today at what date that identification was
 9 made. I'm speaking from what I know today about that
 10 factor, what they were calling factor X at FDA in the
 11 early '60's when the final determination of the identities
 12 of those materials was made, so --
 13 Q. (By Mr. Turet) Would you agree that the medical
 14 department of Monsanto knew as of June 24th, 1964 that
 15 Aroclors can produce some chick edema?
 16 MR. DIMURO: Objection.
 17 A. That's what the document says, yes.
 18 Q. (By Mr. Turet) Is there some other date at
 19 which you know that, that Monsanto knew more about this in
 20 connection between PCBs and chick edema?
 21 MR. DIMURO: Objection.
 22 A. I'm not sure I understand your question.
 23 Q. (By Mr. Turet) Well, in --
 24 A. I mean the answer is going to be no anyway, but
 25 I don't know that I understand your question.

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1 Q. Let me ask it in a more open-ended way and maybe
 2 I can refine it backwards. What did Monsanto know as of
 3 1969 about any possible connection between exposure to
 4 PCBs and chick edema?
 5 A. I don't think -- I mean there continued to be an
 6 occasional paper in the literature about chick edema. One
 7 or more of those may have mentioned PCBs and referred back
 8 to the earlier data, but as far as I know, the O'Dell
 9 paper and apparently this Federation of American Societies
 10 for Experimental Biology papers, but I don't know of any
 11 specific studies on Aroclors and development of chick
 12 edema symptoms.
 13 Q. Do you know of any that happened after 1969?
 14 A. Well, the Monsanto studies certainly indicated
 15 that PCBs had some toxicity to chickens. I frankly don't
 16 recall if edema was one of the end points that was noted
 17 in those chickens.
 18 Q. Did the Industrial Bio-Test toxicity tests on
 19 chickens include ingestion of PCBs as well as inhalation?
 20 A. My recollection would be that it was ingestion.
 21 I could be wrong. If you have other information, that's
 22 fine, but I think they were ingestion. They were feeding
 23 studies.
 24 MR. TURET: Mark this one as, actually, let me
 25 see if we had it yesterday. Can we mark this one as

1 T-22.
 2 (Exhibit T-22 was marked for identification by
 3 the reporter.)
 4 Q. Dr. Kaley, you're being shown a document that's
 5 been marked as Exhibit T-22 which yesterday was marked as
 6 PR --
 7 A. 3.
 8 Q. -- 3, and that is a January 26th, 1967 letter
 9 from David Wood of Monsanto to George Buchanan of
 10 Monsanto.
 11 Very quickly, Dr. Kaley, I just want to refer
 12 your attention to Page 2. You'll see a section that was
 13 underlined by someone whom I don't know, that's not in
 14 connection with this litigation, that says Jensen,
 15 referring to the Swedish scientist, stated that he had
 16 been approached personally by several workers and these
 17 workers were quite worried as to the possible effects on
 18 their health. What, if anything, did Monsanto do upon
 19 learning that some workers had reported to Mr. Jensen,
 20 Professor Jensen concerns about the toxicity of PCBs?
 21 A. Well --
 22 MR. DIMURO: Objection.
 23 A. I mean, this is part of the start of a whole
 24 series of activities on Monsanto's part with regard to the
 25 detection of PCBs in the Swedish environment. I don't

1 know whether they did anything specific with regard to
 2 this underlined statement or not.
 3 Q. (By Mr. Turet) Okay. I have no further
 4 questions on that one.
 5 MR. TURET: This one is T-23.
 6 (Exhibit T-23 was marked for identification by
 7 the reporter.)
 8 Q. Dr. Kaley, you're being shown a document that's
 9 been marked as T-23. It's Bates numbered MAE 053518 dated
 10 July 31, 1968.
 11 A. Yes.
 12 Q. Okay. This memo refers to an article that
 13 appeared in the New Scientist Magazine in December 15th of
 14 '66; is that right?
 15 A. Yes.
 16 Q. And it's directed to the two members of the
 17 medical department, Dr. Kelly and Elmer Wheeler, among
 18 others?
 19 A. Yes.
 20 Q. And specifically, would you agree with me when I
 21 say that Mr. Paton is criticizing the article as being
 22 biased and implausible?
 23 A. He says it's most opinionated.
 24 Q. Would you agree that Mr. Paton was belittling
 25 the article?

1 MR. DIMURO: Objection. You've taken
2 Mr. Paton's deposition. You've asked him about this
3 document, and you're not going to ask Dr. Kaley to
4 interpret what Mr. Paton is saying.
5 A. It's certainly not flattering.
6 Q. (By Mr. Turet) The theory which he expresses on
7 how PCB finds its way into fish and later humans proved to
8 be correct, didn't it?
9 A. I have not read that article or recall reading
10 that article. I don't know what the theory it's
11 propounding is.
12 MR. DIMURO: Also notice the article is not
13 attached to T-20.
14 MR. TURET: As produced, it was not attached,
15 that's correct.
16 MR. DIMURO: That doesn't mean you don't have
17 the article.
18 Q. (By Mr. Turet) Would you agree that the PCBs
19 that made it into the waterways and made it into fish --
20 withdraw the question.
21 I have no further questions on that one.
22 MR. TURET: T-24, please.
23 (Exhibit T-24 was marked for identification by
24 the reporter.)
25 Q. (By Mr. Turet) For the record, Dr. Kaley,

1 you're being shown an exhibit that's been marketed T-4.
2 It's Bates numbered MONS 072195, and I'm not quite sure
3 what the month of this is. It appears to be 10 or
4 12/24/68. Have you read it, Dr. Kaley?
5 A. No. I'm having trouble reading the last three
6 lines. I don't know what they say.
7 Q. If I were to suggest to you it says Dr. R.E.
8 Kelly says burning of NCR paper a problem here along with
9 others and signed by Howard Bergen --
10 A. I'll take your representation. Well, yeah, that
11 seems to be correct. It's certainly possible that's what
12 it says.
13 Q. And what was the earliest that Monsanto
14 concluded that incineration of NCR paper would lead to the
15 release of PCBs into the environment?
16 MR. DIMURO: Objection.
17 A. I'm aware of no documents before that addressing
18 this issue. And this doesn't necessarily refer
19 specifically to the problem as you define it, so I don't
20 know specifically what Emmet may have talked about what
21 the problem was.
22 Q. (By Mr. Turet) Would you agree the first
23 sentence refers to Monsanto having to protect themselves
24 on this toxicity issue?
25 MR. DIMURO: You're taking part of the sentence.

1 Q. (By Mr. Turet) To give you a feel as to why
2 Monsanto has to protect themselves on this toxicity
3 question. Is that --
4 A. That seems to be what it says, yes.
5 Q. And the second sentence, would you agree that
6 Dr. R.E. Kelly says burning of NCR paper a problem here
7 along with all others?
8 A. That's what it says.
9 Q. And do you conclude that those two sentences
10 were intended to go together meaning that the burning of
11 NCR paper and the toxicity question are being linked in
12 this memo by Howard Bergen?
13 MR. DIMURO: Objection.
14 A. There is apparently some linkage, yes.
15 Q. (By Mr. Turet) And H. L. Minckler, was he an
16 executive of Monsanto back in '68?
17 A. I don't know what his position was.
18 MR. TURET: That's 25.
19 (Exhibit T-25 was marked for identification by
20 the reporter.)
21 Q. (By Mr. Turet) For the record, Dr. Kaley is
22 being shown a document marked as T-25 which is Bates
23 numbers MAE 053009. It's a January 14, 1969 memorandum
24 from D. A. Olson of Monsanto?
25 A. Yes.

1 Q. Dr. Kaley, this is addressed to a gentleman
2 whose name I'm not even going to try to pronounce at MMK
3 Tokyo. Do you have an understanding as to whether MMK was
4 Mitsubishi Monsanto Joint Venture back in 1969?
5 A. I understand that was the case, yes.
6 Q. And that was a joint venture that was based in
7 Japan?
8 A. I believe that's true, yes.
9 Q. And in the first paragraph, when they're
10 referring to the Bran Oil poisoning incident, is that the
11 Yusho incident?
12 A. Yes.
13 Q. Now D. A. Olson sent on some materials according
14 to this memorandum to Mr. Hoshino?
15 A. I'll accept that.
16 Q. And he comments about the enclosures, there are
17 few regulations and little information on human toxicity,
18 and he goes on to state that this is because we do not
19 envision the use of Aroclor as either a direct or indirect
20 food additive and have little justification for the
21 expense of the toxicity testing which would be required.
22 Dr. Kaley, was it the position of Monsanto that
23 additional toxicity testing was not merited back in
24 January 1969 because the expense of the toxicity testing
25 made it unnecessary or unjustified?

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1 A. No. What that means is that if a material is,
2 if the intended use of a material is either as a direct or
3 indirect food additive, there is a very extensive battery
4 of tests which were required and still are required by FDA
5 to be undertaken so that any material that was intended
6 for these uses had to undergo that battery of tests.

7 Since the Aroclor products were not intended to
8 be used in those kinds of applications, those tests would
9 not be necessary and you wouldn't do them if you weren't
10 going to make an application for that food contact use.

11 Q. What types of tests would have been done if
12 Aroclor was intended to be a food additive back then as
13 opposed to an industrial chemical?

14 MR. DIMURO: Objection. I'll note this question
15 goes beyond the scope of the notice.

16 A. They were basically extractability tests.

17 Q. (By Mr. Turet) What's an extractability test?

18 A. You basically put the, you formulate the product
19 that would be in contact with the food and put it in
20 contact with a variety of solvents to see how much of that
21 material migrates from the -- for instance, the film of
22 the can lighting into those various solvents.

23 Q. So that would be if it was going to, if it was
24 going to be contained in a paint that was going to come in
25 contact with food, you would do extractability tests in

1 unique incident that there might be governmental action in
2 Japan which would lead to someone deciding that PCB
3 products in general were not suitable for heat transfer
4 applications.

5 Q. And this too was forwarded to Mr. Wheeler in the
6 medical department, correct?

7 A. He's on the CC list, yes.

8 (Exhibit T-26 was marked for identification by
9 the reporter.)

10 Q. For the record, the document being marked as
11 T-26 is a March 3rd, 1969 letter from Elmer Wheeler of
12 Monsanto. It was marked yesterday as PR-6. I'll direct
13 you to a couple of fairly specific spots if it would be
14 helpful on Page 2.

15 A. Okay.

16 Q. There is a statement by Mr. Wheeler that the
17 Swedish and American scientists had implied that PCBs are
18 highly toxic chemicals and this is simply not true. Is it
19 fair to say that was Monsanto Company's position back in
20 March of 1969?

21 A. Yeah, I think that whole paragraph is a fair
22 characterization of Monsanto's position, yes.

23 Q. That PCBs are not toxic unless they are
24 mishandled or misused?

25 A. They're not highly toxic and they are not toxic

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1 order to get -- I haven't phrased that well.

2 Extractability tests would be appropriate if the
3 finished product containing Aroclors were to come in
4 contact with food?

5 A. If it was -- that was the intended use, yes.

6 Q. Were extractability tests also done if the
7 finished product were to be in proximity but not touching
8 the food?

9 A. My understanding would be not necessarily, no.

10 Q. And I know I've asked this generally, but we're
11 talking about back in January of 1969, or can you --

12 A. Yes.

13 Q. If you need to broaden the time frame, I'm not
14 trying to focus you on --

15 A. I think that was the case then. And to my
16 knowledge, that's still the case now.

17 Q. So it was true in '69 and true in 1970 and
18 thereafter?

19 A. As far as I know.

20 Q. Now, down in the last paragraph, there's a
21 statement that we, like you, are vitally concerned that no
22 governmental action in Japan be taken which would be
23 harmful to Aroclor. And what does that mean, as to action
24 taken which would be harmful to Aroclor?

25 A. I think they were concerned based on this single

1 unless they are mishandled or misused.

2 Q. And, Dr. Kaley, would you agree that it would
3 not be a mishandling or misuse for a customer to use an
4 Aroclor product as recommended in a technical bulletin put
5 out by Monsanto?

6 MR. DIMURO: I'm going to object that this goes
7 beyond the scope of the notice. He's here to talk about
8 toxicity, not uses of PCBs. Note my objection. You can
9 answer it.

10 A. In general, I think that's a fair assumption,
11 yes.

12 (Exhibit T-27 was marked for identification by
13 the reporter.)

14 Q. (By Mr. Turet) Dr. Kaley, you're being shown a
15 document that's marked as T-27.

16 A. Yes.

17 Q. And it was marked yesterday as PR --

18 A. -- 4.

19 Q. And it's a chronology that was signed by R.E.
20 Keller of Monsanto at the bottom and I'll represent to you
21 he was deposed in this case and indicated it was his
22 document.

23 A. Okay.

24 Q. On the chronology which has been marked as T-27
25 on December 29, 1966, there's a reference regarding a

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1 Widmark letter to somebody who's been blanked out of this
2 document dash Monsanto. Is there a document in the
3 possession of Monsanto today from Professor Widmark from
4 back in 1966?

5 MR. DIMURO: I'm going to object because we
6 don't know if the name has been blocked out as you say or
7 if that's the way it was typed. Subject to that, you can
8 answer the question.

9 A. I don't think there is such a letter. This may
10 be a mischaracterization of the exchanges around that time
11 frame. I don't know. I don't know of this particular
12 Widmark letter at that time, no.

13 Q. (By Mr. Turet) And this is the same Professor
14 Widmark from Sweden that participated with Professor
15 Jensen in the Jensen and Widmark studies?

16 A. Yes.

17 Q. And down at the end you'll notice the little
18 entries that led to this letter, would like to work with
19 Monsanto toxicologists on problem. Did Professor Widmark
20 approach Dr. Monsanto about working with them on the
21 discovery of PCBs in Sweden?

22 MR. DIMURO: I'm going to object to the form of
23 that question. You can answer.

24 A. I haven't seen documents which would
25 substantiate that. I don't know if that's true or not.

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1 Q. (By Mr. Turet) Did the Monsanto toxicologists
2 end up working with Professor Widmark on what's referred
3 to here as the chlorinated biphenyls problem?

4 MR. DIMURO: I'll object to that question also.
5 You can answer.

6 A. Monsanto personnel certainly had discussions
7 with Dr. Widmark and/or Dr. Jensen. I'm not aware of
8 whether any joint work was ever carried out, no.

9 Q. (By Mr. Turet) Now, under the February 21, 1967
10 entry, the second one in particular, there's a reference
11 to Kelly letter to Wilde, no need to contact Swedish
12 people. What is that?

13 A. I don't know.

14 Q. Now, the October 21, 1967 entry Holmes, Simmons,
15 Tatton, is that a toxicity study?

16 A. Without looking at it specifically, I would say
17 no. I think it's just an occurrence of PCBs in the
18 environment study. I don't think there's toxicological
19 information in that paper as I recall.

20 Q. How about the November 2nd, 1967, there's a
21 reference to Richardson letter to Hardy confirmed by GC
22 slash mass Aroclor 1254 in eggs from a hundred parts per
23 million feeding studies confirmed Government Labs. Is
24 that a reference to a toxicity study?

25 A. Based on the information there, I would say that

1 is probably not a toxicity study. I don't -- I'm not
2 aware of that specific study, but there's nothing in there
3 that says it would be toxicity, I don't know.

4 Q. On the next page there's an entry on May 3rd,
5 1968 that says Newell letter to Hunt. Dr. Hunt was the
6 medical department St. Louis, correct?

7 A. Presumably that's who that was addressing, yes.

8 Q. And Dr. Newell was medical department in London,
9 correct?

10 A. I'm not sure of that.

11 Q. That was the chief medical director we had seen
12 earlier I believe.

13 A. I'll accept that as your representation. Newell
14 doesn't sound right.

15 Q. It says -- I apologize it says Chairman
16 Department of Agriculture and Environmental Toxicology.

17 A. Yeah, it was another name.

18 Q. What toxicological study, if any, was done back
19 around May of 1968 that was brought to the attention of
20 the medical department?

21 MR. DIMURO: I'll object to the form of the
22 question.

23 A. I have no information other than what's
24 presented here. And it says enzyme induction was
25 stimulated.

1 Q. (By Mr. Turet) What does that mean?

2 A. Any material or most materials, all materials
3 when introduced into an animal body, the body reacts to
4 those materials in some way. And one of the ways is that
5 enzymes are caused to be formed as a reaction to that
6 material being in the body. Typically, those enzymes help
7 the body metabolize that material so it can be excreted or
8 dealt with.

9 Q. Is there any toxicological significance to
10 finding enzyme induction?

11 A. Well, certainly toxicologists are interested if
12 PCBs or other chemicals induce enzymes. That's a piece of
13 information that is useful to them. So to that extent,
14 yes, there is toxicological information. Enzyme induction
15 does not necessarily indicate toxicity or an adverse
16 effect as it is an effect.

17 Q. Now, the notes here also under this same Newell
18 letter to Hunt suggest that Newell recommended tests in
19 corroboration with Monsanto rather than seek government
20 support. Is that an accurate reference, did whoever
21 Newell was approach Monsanto with a request to corroborate
22 on toxicity testing?

23 A. I haven't seen that letter. I can't answer
24 that.

25 Q. And there's also a reference, medical department

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1 recommended no action.

2 A. Again, I don't know whether that's the case or
3 not.

4 (Exhibit T-28 was marked for identification by
5 the reporter.)

6 Q. (By Mr. Turet) Dr. Kaley, for the record,
7 you're being shown a document that's marked as T-28 which
8 was also marked as an exhibit yesterday which is an
9 October 2nd, 1969 report of the Aroclor Ad Hoc Committee.
10 It's Bates numbered MONS 036720 through 732. This is a
11 document you've seen before today, isn't it, sir?

12 A. Yes.

13 Q. Now, on the page that says No. 2 up at the top,
14 entitled probability of success --

15 A. Yes.

16 Q. -- the ad hoc committee concluded that little
17 could be done to refute the identification of Aroclor 1254
18 and 1260 as a nearly global, in the first paragraph, as
19 nearly global environmental contaminant leading to
20 contamination of human food in parentheses particularly
21 fish, the killing of some marine species in parentheses
22 shrimp, and the possible extinction of several species of
23 fish eating birds. Now was the position of Monsanto at
24 the time the same as the position of the ad hoc committee?

25 A. Well, number one, I think this is a draft

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1 report, so I'm not sure what the final report said, but --

2 MR. DIMURO: And the question is, is the
3 position of Monsanto the same as the position of the ad
4 hoc committee with respect to this first, with respect to
5 the sentence that you read?

6 Q. (By Mr. Turet) So their conclusion was that
7 there was little probability that any action could be
8 taken that will prevent the growing incrimination of the
9 specific PCB's near this global contaminant, etc.?

10 A. My feeling would be the specifics are somewhat
11 overdramatized, but I think the general conclusion that
12 there's little can be done that's going to prevent the
13 growing incrimination is probably a general position, yes.

14 Q. As of October of 1969?

15 A. Whenever this draft was prepared, yes.

16 Q. And down at the bottom, the notes indicate
17 toxicity towards certain species is high. Was that also
18 consistent with the position of Monsanto at the time?

19 A. Well --

20 MR. DIMURO: I object.

21 A. We've talked, it says toxicities relative,
22 nonspecifically what this person was talking about nor
23 what his definition of high was, and the words are there.
24 And under some definitions, I assume that obviously PCBs
25 were more toxic to some species than others. So on a

1 relative basis it was higher to some species than others.

2 Q. (By Mr. Turet) Putting aside higher, would
3 Monsanto agree that PCBs were a high toxicity to certain
4 species?

5 A. I can't put aside higher. I don't know
6 specifically what species they were talking about, whoever
7 wrote these notes nor what that person might consider to
8 be high, higher, low, lower. So you know, I'm not, I
9 can't say anything more than what I already said that
10 certainly the toxicity is higher to some species than
11 others so --

12 Q. What is this species that toxicity was
13 established to be highest as of October of 1969?

14 A. Well, my recollection and based on this document
15 is certainly shrimp. Juvenile shrimp did seem to be
16 extremely more susceptible to the higher levels of PCBs.
17 I think that's one where Monsanto would agree that
18 toxicity appears to be under the conditions of the test
19 higher in that species than for some other species.

20 Q. Is there any point at which Monsanto would agree
21 that there's such a thing as high toxicity to a particular
22 species?

23 MR. DIMURO: I'll object to the form of that
24 question.

25 A. I don't think it could be answered in the

1 abstract. If someone wants to give a definition of what
2 high toxicity is, it may or may not fall within that
3 range.

4 Q. (By Mr. Turet) Now on Page 5 of the same
5 report, fourth paragraph down, there is a statement made
6 in this report that it has also been recognized there
7 could be vapor losses, but it was felt that these were of
8 perhaps of less significance than the vapor losses in
9 plasticizer applications. What were the vapor losses in
10 plasticizer applications that were envisioned in this
11 report?

12 MR. DIMURO: Objection.

13 A. I don't know specifically.

14 Q. (By Mr. Turet) Did Monsanto know as of October
15 of 1969 that there were significant vapor losses from
16 plasticizer applications that were likely?

17 MR. DIMURO: Objection.

18 A. Well based on this document and I think other
19 things we've discussed today, we understood that in
20 certain applications there could be vapor losses on a
21 relative basis. Those vapor, whoever wrote this feels
22 that those vapor losses are potentially more. They use
23 the word significant, than the losses from other
24 applications. I kind of lost where your question was
25 exactly, but --

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1 Q. I'm trying to --
 2 A. The word significance is used here. I don't
 3 know, again, that's kind of a relative term. It doesn't
 4 say that they're of concern, it says they're of
 5 significance. So whether there's more potential there, I
 6 mean a plasticizer application. I think a plasticizer
 7 application is basically an open application compared to
 8 applications like transformers or capacitors where they're
 9 closed, so certainly the potential for vapor loss is
 10 higher and therefore potentially more significant in the
 11 closed applications.
 12 Q. As of October of 1969, did Monsanto know whether
 13 vapor losses could occur from surface coatings containing
 14 PCBs?
 15 MR. DIMURO: Object to the form of the
 16 question.
 17 A. I think they would certainly have known that
 18 there was a potential at some level from some surface
 19 coatings based on the results where they had looked at
 20 paints, for instance, where they did, were able to measure
 21 vapor from paints where they were drying.
 22 Q. (By Mr. Turet) You're talking about the ones we
 23 looked at earlier from the plastics division?
 24 A. Yes.
 25 Q. As of October of 1969, had Monsanto done any

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1 other testing to determine the extent to which vapors
 2 escaped from surface coatings containing PCBs?
 3 A. Not that I'm aware of.
 4 Q. And as of October of 1969, had Monsanto done any
 5 testing to determine the extent to which PCBs would escape
 6 from finished products that contained PCBs?
 7 MR. DIMURO: Objection. You can answer it.
 8 A. Not that I'm aware of.
 9 Q. (By Mr. Turet) Now understand, I'm asking both
 10 vaporized and escape in other media.
 11 A. As far as particular tests on what you're
 12 calling particular finished products, I'm not aware of any
 13 testing.
 14 Q. Now, there's also in this last paragraph
 15 references to possible sources of air environmental
 16 contamination from essentially, if I'm reading it
 17 correctly, incineration of materials that have Aroclors in
 18 them. Am I reading that correctly?
 19 A. Basically, yes.
 20 Q. And when was the earliest that Monsanto had
 21 knowledge that PCBs could get out of finished products
 22 that contained PCBs through incineration?
 23 MR. DIMURO: Objection.
 24 A. I'm not sure what you mean by get out of, but I
 25 don't know the specific date when that knowledge was

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1 there. You showed me the document earlier where they
 2 mentioned incineration of NCR paper.
 3 Q. (By Mr. Turet) That's Howard Bergen?
 4 A. Yes, that handwritten note, so around the late
 5 1960's apparently there was some awareness that that could
 6 be a potential problem.
 7 Q. That was as of October, or December, or January --
 8 that the date you're referring to?
 9 A. I don't remember what the date on that document
 10 was. '68, '69 time frame based on that document, if it
 11 was 1968, and this one, it's a potential, it says a
 12 possible source, it doesn't say a source. So there was a
 13 recognition of the potential.
 14 Q. What testing did Monsanto do to determine the
 15 extent to which PCBs escaped from products that were being
 16 incinerated?
 17 A. I'm not aware of any.
 18 Q. I have no further questions on that document.
 19 (Exhibit T-29 was marked for identification by
 20 the reporter.)
 21 Q. Dr. Kaley, you're being shown a document that's
 22 been marked as Exhibit T-29 and was marked yesterday as
 23 PR --
 24 A. 12.
 25 Q. -- 12. It's the minutes of the meeting of the

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1 corporate development meeting from November 17th, 1969.
 2 You'll notice, Dr. Kaley, that this is a three-page
 3 meeting minutes and then there's a whole attachment, PCB
 4 presentation to the corporate development committee, which
 5 was produced together, but I recognize they're two
 6 separate documents.
 7 A. Okay.
 8 Q. Now, going back to I guess it's the second page,
 9 that is marked FIS 000891.
 10 A. Yes.
 11 Q. Now there's a reference to a plan of action
 12 that's being presented to the corporate development
 13 committee.
 14 A. Yes.
 15 Q. And there's a statement that in plasticizer uses
 16 evidence is not available as to whether Aroclors escape
 17 from end products either through leaching or by dispersal
 18 in burning.
 19 A. There you have it, you already knew the answer
 20 before you asked the question.
 21 Q. Does that confirm that Monsanto --
 22 A. Based on the information presented in this
 23 document, it appears it was still, the potential was still
 24 known, but there wasn't specific evidence that that vapor,
 25 or that loss occurred.

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1 Q. And to your knowledge, was any testing done by
 2 Monsanto to conclusively determine either leaching or
 3 dispersal in burning?
 4 A. Not to my knowledge.
 5 Q. Flip ahead to the page that says FIS 001001.
 6 A. Okay.
 7 Q. This is a chart in one of the materials being
 8 presented to this corporate development committee.
 9 A. Okay.
 10 Q. And it refers to possible contamination
 11 sources. And although I recognize the copies that were
 12 produced are a little difficult to read, I think you'll
 13 see that there are a list of different applications and a
 14 list of different manners in which there may be
 15 contamination under the source column. And in that column
 16 that indicates as to whether Aroclor 1254 and/or 1260 are
 17 used in that application?
 18 A. Yes.
 19 Q. Now, under the first couple, there are
 20 references to coatings used from marine paints and water
 21 tank linings and swimming pool paints. Do you see that?
 22 A. Yes.
 23 Q. And you see also in the far column these are
 24 applications for which Aroclor 1254 or Aroclor 1236 are
 25 used?

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1 A. Yes.
 2 Q. And source of potential contamination was
 3 leaching, correct?
 4 A. Yes.
 5 Q. Now, so it's clear, at least as of November of
 6 1969, those had been identified by Monsanto as potential
 7 contamination sources, correct?
 8 MR. DIMURO: Objection. Beyond the scope of the
 9 notice. You can answer it, Doctor.
 10 A. As far as I can tell from this document, yes.
 11 Q. (By Mr. Turet) Again, no testing had been done
 12 by Monsanto to conclusively determine the extent to which
 13 leaching occurred out of those coatings?
 14 MR. DIMURO: I'm going to object to the question
 15 as being beyond the scope of the notice. I'm going to
 16 allow the Doctor to answer, but you're getting far field
 17 of toxicity here. You're now asking if tests are
 18 performed to determine leaching. I'll let him answer but
 19 note my objection.
 20 A. Not that I'm aware of.
 21 Q. (By Mr. Turet) And the next item is carbonless
 22 copy paper, but it says is not an application which uses
 23 Aroclor 1254 or 1260, correct?
 24 MR. DIMURO: Same objection. You can answer
 25 it.

1 A. Correct.
 2 Q. (By Mr. Turet) The one that has the wax
 3 modification listed as potential source of vaporization
 4 and it is an application for Aroclor 1254 and 1260,
 5 correct?
 6 A. Just what the document says, yes.
 7 Q. And again, there's no testing that's been done
 8 by Monsanto to conclusively determine whether vaporization
 9 happened from wax modification of PCBs?
 10 MR. DIMURO: Same objection.
 11 A. I'm not aware of such testing.
 12 Q. (By Mr. Turet) And the next one down is
 13 emulsion adhesives which also contained Aroclor 1254 and
 14 1260, correct?
 15 A. That's what the document says, yes.
 16 Q. And source of potential contamination was
 17 contact with product via packaging or incineration, is
 18 that --
 19 A. Yes.
 20 Q. And again, to your knowledge Monsanto had done
 21 no testing to conclusively determine whether contamination
 22 was occurring from emulsion adhesives with Aroclor 1254?
 23 MR. DIMURO: Same objection.
 24 A. I have no knowledge of such testing.
 25 Q. (By Mr. Turet) And the last one, sealants, used

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1 for automotive, I think it says construction although it's
 2 difficult to read.
 3 A. I think it's transmission.
 4 Q. Okay. Or joint sealants?
 5 A. I think it's one word. I think it's
 6 transmission joint sealants.
 7 Q. Okay.
 8 A. Because I think that was one of the applications
 9 that I'm aware of, so I think it was transmission joint
 10 sealants.
 11 Q. And that's an application in which Aroclor 1254
 12 or 1260 was used?
 13 A. That's what this document says, yes.
 14 Q. And the potential contamination source was long
 15 term leaching?
 16 A. That's what the document says.
 17 Q. And again, to your knowledge -- not to your
 18 knowledge. Again, Monsanto had done no testing to
 19 conclusively determine whether long term contamination
 20 occurred from sealant that used Aroclor 1254?
 21 MR. DIMURO: Same objection.
 22 A. I have no knowledge of such testing.
 23 Q. (By Mr. Turet) Now if you would flip ahead to
 24 the pages, I guess it's Bates numbered at the bottom FI
 25 001012 number 3 at the top, this section specifically

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1 relates to terms of toxic or harmful effects from the
2 presence of PCBs.

3 I think you'll find, if you go back to the
4 beginning, that there is a -- there's a reference to, here
5 you go, on the very first page of the PCB presentation,
6 I'll represent to you there's a statement that in a few
7 moments Elmer Wheeler will describe the problem in
8 detail.

9 A. Where are you?

10 Q. I flipped back to the beginning. I could tell
11 you were trying to look for the source of the document.

12 A. I was trying to get some idea of what it was
13 purported to be and who might have said it.

14 Q. There's reference at the beginning that Elmer
15 Wheeler was to be one of the presenters to the committee
16 that day, but let me direct you back to the document to
17 Page 001012.

18 A. All right.

19 Q. And the presenter states that in terms of toxic
20 or harmful effects from the presence of PCBs, we can make
21 these statements supported by a growing amount of
22 toxicological research data.

23 A. I see that.

24 Q. The first one is Aroclors are not highly toxic
25 from an acute standpoint to man, animals, birds or fish.

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1 Was that Monsanto's position as of November of 1969?

2 A. Yes, I assume it was. It was so stated and
3 that's consistent with my understanding, yes.

4 Q. Is it your understanding that that remained
5 Monsanto's position throughout 1970 as well?

6 A. I would agree with that, yes. Basically, I
7 agree with it now.

8 Q. Did that remain Monsanto's position all the way
9 through, the notice goes through the end of 1985?

10 A. As a -- basically, a general assessment, I think
11 that's true. I think we talked earlier and I think I saw
12 something in here, PCBs are particularly toxic to shrimp.
13 I think there are some exceptions where it might not
14 necessarily be true. But in general, I believe that.
15 Then for the time period you have framed, I believe that
16 is a generally accepted statement within Monsanto, but
17 there were certain exceptions to that.

18 Q. Such as shrimp for example?

19 A. That's one that apparently is pointed out here.
20 Not apparently, but it is the one that's pointed out here.

21 Q. Now, No. 2 says from a chronic toxicity
22 standpoint the PCB's may be considered moderately toxic to
23 man, animals and fish. In that context what does
24 moderately toxic mean?

25 MR. DIMURO: I object.

1 A. I was going to say in quotes, the fact that he
2 has in it quotes suggests that maybe he didn't know what
3 it meant when he said it. I don't know what the basis of
4 that is, what the end point is he's talking about. I
5 don't know.

6 Q. (By Mr. Turet) Is it a term of art in the
7 toxicological field to refer to a particular chemical as
8 moderately toxic?

9 A. There are a variety of classification schemes
10 that have been proposed from time to time or been used
11 from time to time. I believe that moderate is in some of
12 those schemes, but I don't know number one, whether
13 they're consistent with one another and what the specific
14 guidelines, the high and low toxicity of those might be,
15 so I don't have any specific information what this might
16 mean.

17 Q. I have no further questions on that document.

18 (Exhibit T-30 was marked for identification by
19 the reporter.)

20 Q. Dr. Kaley, you're being shown a document that is
21 entitled possible customer questions on PCBs publicity
22 Bates numbers MAE 034803 through 814.

23 A. Yes.

24 Q. And I'm going to direct your attention
25 specifically to the page that's numbered 034809.

1 A. Okay.

2 Q. Now, under toxicity, you'll see that there's a
3 question posed if PCB is a danger to fish and birds, how
4 about humans. And the answer, the amounts being found in
5 the environment are not considered a factor to humans or
6 fish. The whole question is on chlorinated pesticides
7 relating to birds. Now was that the position of Monsanto
8 as of January of 1970?

9 MR. DIMURO: Objection.

10 A. Based on this document, I think that's probably,
11 I mean whoever wrote this, that's their representation. I
12 think it's probably a fair representation. Again, I think
13 there are possible exceptions to that, but in general, I
14 would think that is basically a correct position.

15 Q. (By Mr. Turet) Now, Question 2 under toxicity,
16 there's a question posed, are Aroclor 1254 slash 1260 etc.
17 more toxic than other Aroclors, why. And the part of that
18 question I want to ask you about is the one that says the
19 alleged PCB problem is not really related to degree of
20 toxicity. Do you see that?

21 A. Yes.

22 Q. Was that -- did that accurately reflect the
23 position of Monsanto back in January of 1970?

24 MR. DIMURO: I'm going to object to it. I mean,
25 there's a whole couple of sentences before that last

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1 sentence and I don't know if it needs to be put into
2 context. Subject to that, he can answer it:
3 A. I mean, I think certainly, and I know you're not
4 asking about the first two sentences in that answer I
5 think, but I would say that I think those are consistent
6 with what I said before, there's no easy answer to are the
7 more highly chlorinated more toxic than the lower
8 chlorinated. I think it is consistent with that.

9 With regard to the third sentence, I'm not sure
10 if you're asking me if that's allegedly Monsanto's
11 position or the statement is Monsanto's position. If you
12 want to clarify that, or you just want to talk about the
13 whole sentence --

14 Q. (By Mr. Turet) How about the statement that the
15 PCB problem is not really related to the degree of
16 toxicity?

17 MR. DIMURO: It says the alleged.

18 Q. (By Mr. Turet) I understand, but when I put
19 alleged in --

20 A. I had a question whether he was focusing on the
21 alleged or not. If we remove that word alleged, I would
22 think that is in general a true statement. It's
23 personally with regard to the differences between 1254 and
24 1260. The environmental occurrence of PCBs which led to
25 all these issues that we're talking about here in this, I

1 you did depose Mr. Papageorge on this document. Subject
2 to that, you may answer the question.

3 A. Without going back and reviewing specific
4 documents, I don't know for sure. But I know that these
5 kinds of discussions, maybe not this specific, but were
6 being held within Monsanto. And, in fact, within months
7 of this document, the company, you know, essentially
8 ceased sales for these kinds of applications. So I don't
9 know if there are specific documents that talk about those
10 discussions. But certainly, I would, I think that there
11 are discussions like that in some of those minutes of
12 those meetings of potential actions where there's contact
13 with other kinds of materials.

14 Q. (By Mr. Turet) Had Monsanto at any time before
15 March 30th of 1970 told its customers not to use any
16 Aroclor in any paint formulation that contacts food, feed,
17 or water for animals or humans?

18 MR. DIMURO: I'm going to object to that
19 question as being beyond the scope of the notice.

20 A. I don't know.

21 Q. (By Mr. Turet) You notice the last sentence of
22 that paragraph Dr. Kelly says that it may be that some of
23 the customers will assure themselves on the basis of
24 non-extractability that a particular formulation might be
25 safe, but I think we should make a blanket recommendation

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1 don't know what the date of this is, but late 1960's early
2 1970's time frame was focused on the fact that it was
3 Aroclor 1254 and 1260 that were being detected in the
4 environment as opposed to the more, the lower chlorinated
5 material, Aroclor 1242. And so the problem was focused on
6 the premise of those materials on the environment and not
7 really focused on relative toxicity, if that made any
8 sense.

9 Q. Yes, that makes sense.

10 A. Good.

11 (Exhibit T-31 was marked for identification by
12 the reporter.)

13 Q. For the record, T-31 is an exhibit that's dated
14 March 30th, 1970. It's a memorandum from R. Emmet Kelly
15 to William B. Papageorge.

16 A. Yes.

17 Q. Okay. Dr. Kaley, down at the bottom, you'll see
18 that Dr. Kelly had emphasized what he called a very
19 serious point, when are we going to tell our customers not
20 to use any Aroclor in any paint formulation that contacts
21 food, feed, or water for animals or humans. Are there any
22 other instances within Monsanto where that same concern
23 was voiced before March 30th of 1970?

24 MR. DIMURO: Objection. That question goes
25 beyond the scope of the notice and I will also note that

1 against these uses. Just going back to the question I
2 asked you before, you talked about extractability as being
3 one type of test to determine whether PCBs or other
4 substances could get out of a product and into something
5 that was in contact with it?

6 A. Yes.

7 Q. So when Dr. Kelly is talking about customers
8 assuring themselves on the basis of non-extractability
9 that a particular formulation might be safe, is that
10 meaning that PCBs wouldn't get out of paint that contacted
11 feed or food and into the feed or food?

12 MR. DIMURO: Object to the form of the
13 question. Also object to the question as being beyond the
14 scope of the notice. Doctor, you can answer it.

15 A. I think paint is too specific. I think. But
16 generally, your characterization is correct. If what I
17 think, what it suggests is that customers may formulate
18 PCBs into a product which is going to be in contact with
19 food, feed, or water and that they might very well do
20 those FDA extractability tests and find that PCBs did not
21 migrate from those products and therefore, as he says,
22 convince themselves or assure themselves that such a
23 formulation might be appropriate.

24 Q. (By Mr. Turet) And would you agree that
25 Dr. Kelly is saying that Monsanto should tell its

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1 customers not to use Aroclor in any formulation that comes
 2 in contact with food or feed or water or animals or
 3 humans?
 4 A. That's, yes, that's what Dr. Kelly is saying.
 5 (Exhibit T-32 was marked for identification by
 6 the reporter.)
 7 Q. Dr. Kaley, just for the record, you're being
 8 shown a document that's been marked as T-32, Bates numbers
 9 MAE 049443 to 446. It's an April 28th, 1970 letter from
 10 John Mason of Monsanto to Representative Ryan.
 11 Now, again, on Page 2, the paragraph that begins
 12 it should be emphasized the apparent PCB problem relates
 13 only to the possible effect on some species of birds, do
 14 you see that?
 15 A. Yes.
 16 Q. And I asked you this out of another document,
 17 but is that a fair representation of Monsanto's position
 18 at the time?
 19 MR. DIMURO: I'll object to the form.
 20 A. I think to the extent that the toxicity isn't
 21 implied in this, I think it would be a fair representation
 22 that the apparent PCB problem with regards to toxicity, to
 23 wild life species relates to the possible effects on
 24 birds. I think there were other concerns with regard to
 25 its presence in other media, but they did not appear with

1 Q. (By Mr. Turet) Dr. Kaley, for the record,
 2 you're being shown two documents that have been marked as
 3 T-33A and T-33B. The first is Bates numbers MAE 048640;
 4 the second is marked 048716. Would you agree that these
 5 are labels, warning labels that had been applied to
 6 Aroclor 1254 by Monsanto at some point in time?
 7 A. Yes, I'll agree to that.
 8 Q. Now, the one that's been marked as 33A,
 9 actually, I should look --
 10 A. That's one without the environmental label.
 11 Q. Okay. And is that, Dr. Kaley, as to the exhibit
 12 that's been marked as T-33A, you'll note that the caution
 13 is shorter than the one that appears on 33B.
 14 A. Are you talking about number of words or actual,
 15 physical measurement? I'm sorry, yes.
 16 Q. I know, it's been a long day.
 17 A. 33B does have an additional wording concerning,
 18 warning the recipient of this label to go to extreme
 19 measures, extreme care to prevent entry into the
 20 environment.
 21 Q. This I will represent to you was produced in its
 22 present form to us. Would you agree that the one that is
 23 marked as 33A was used prior to May of 1970 whereas the
 24 one that is marked as 33B was printed in or after May of
 25 1970?

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1 a few possible exceptions to be a toxicity issue.
 2 Q. (By Mr. Turet) And the sentence that follows
 3 it, that manufacturing and use experience for thirty
 4 years, earlier animal toxicity studies and the interim
 5 reports on current extensive toxicological studies with
 6 various species of animals indicate that there is no
 7 threat to the public health. Again, on the issue of
 8 toxicity, was that Monsanto's position as of April of
 9 1970?
 10 A. Yes, I believe that's a fair characterization.
 11 Q. And down at the very, very end of that page,
 12 where it says when used in other products the Aroclors are
 13 usually present in only very small quantities and when
 14 used alone they are normally in closed systems and
 15 consequently represent no hazard to human health, and
 16 again it concludes, that it's incorrect to assume there is
 17 a health hazard to the public, in that same, in that
 18 sentence that follows, is that an accurate statement of
 19 Monsanto's position as of April of 1970?
 20 A. Yes, I believe that's a fair representation.
 21 Q. I have nothing further on that document. I'll
 22 tell you what, off the record for a second.
 23 (A short break was taken.)
 24 (Exhibits T-33A and T-33B were marked for
 25 identification by the reporter.)

1 MR. DIMURO: I'm going to object as being beyond
 2 the scope of the notice. If the Doctor knows, he can
 3 answer the question.
 4 A. I will note that those, those designations are
 5 hand-printed on these labels. That's what they say. It
 6 is consistent with the actions that Monsanto was taking
 7 based on documents we've discussed previously today.
 8 They're vital warning labels to the product labels, yes.
 9 I don't know the exact dates, whether they're correct or
 10 not. I'll take your word and the document's word for it.
 11 Q. (By Mr. Turet) Take the document's, because my
 12 only knowledge comes from the documents.
 13 Are there any other toxicity warnings other than
 14 these that were placed on containers of PCBs back in 1969
 15 or 1970 to your knowledge?
 16 MR. DIMURO: I'm going to object to the question
 17 as being beyond the scope of the notice, but I'll permit
 18 the Doctor to answer if he knows.
 19 A. I don't know specifically.
 20 (Exhibit T-34 was marked for identification by
 21 the reporter.)
 22 Q. (By Mr. Turet) Okay. Dr. Kaley, you're being
 23 shown a document that's been marked as Exhibit T-34 which
 24 is a July 16th news slash press release from Monsanto.
 25 A. I would note it's 1970.

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1 Q. I'm sorry?

2 A. You just said July 16th, I just wanted to note

3 it was 1970.

4 Q. Yes. Correct. Now on the second page,

5 Dr. Kaley, up at the top, there's a quote attributed to

6 Howard Minckler, company vice president and general

7 manager of the organic division that Monsanto is not aware

8 of any scientific data that indicates PCBs may cause birth

9 defects. The results of comprehensive toxicity studies

10 sponsored by Monsanto in using the usual species of

11 laboratory animals failed to produce such effects. Does

12 that accurately reflect the knowledge of Monsanto as of

13 July of 1970?

14 A. As far as I know, yes.

15 Q. Okay. Did Monsanto learn at any time after July

16 of 1970 that, in fact, PCBs could cause birth defects in

17 humans?

18 A. In humans?

19 Q. Yes.

20 A. No.

21 MR. DIMURO: Objection.

22 A. There is no such knowledge as of today, as of

23 1985, as of today, there is no information that PCBs cause

24 birth defects in humans.

25 Q. No further questions on that one.

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1 (Exhibit T-35 was marked for identification by

2 the reporter.)

3 Q. Dr. Kaley, you're being shown a document that's

4 Bates numbered MAE 040935 through 949 and it's been marked

5 as Exhibit T-35. And that's technical bulletin

6 O/PL-306A.

7 A. Yes.

8 Q. Now, if you flip ahead in this technical

9 bulletin, Dr. Kaley, to the page, I guess it reads 12 in

10 the bottom left corner and says toxicity and safe

11 handling.

12 A. Yes.

13 Q. You're going to love this, you could even take

14 O/PL-306 which is --

15 A. All right.

16 Q. -- which was marked as T-7 and flip ahead I

17 think, it was Page 50.

18 A. Okay.

19 Q. And as you put the two side by side, would you

20 agree with me that the entire Page 50, the entire toxicity

21 and safe handling section of 306 was incorporated into

22 306A and more material was added on the following page as

23 well?

24 A. Okay. I will take your word without checking

25 each word. I'll take your word for the fact that the

1 inhalation and skin contact sections are word for word or

2 essentially so, and on it, on the next page in T-35 there

3 is a section entitled environmental hazards.

4 Q. Okay. As to the first part, I don't want you to

5 take my word for it. I don't want you to look at it word

6 for word, but at least generally does it appear --

7 A. The first words of each paragraph appear to be

8 the same.

9 MR. DIMURO: If you notice any difference and

10 you want to bring it to his attention, he'll look at it.

11 Q. (By Mr. Turet) So the environmental hazards

12 section is the part that's been added in 306A?

13 A. Apparently so, yes.

14 Q. No more questions on that one.

15 (Exhibit T-36 was marked for identification by

16 the reporter.)

17 Q. And for the record, the document being shown and

18 that's been marked as T-36 is an October 28, 1970 press

19 query Bates numbered MAE 033947 through 949.

20 Dr. Kaley, I'll direct you to the second page

21 where it states the question, State of Ohio officials say

22 that PCB can build up in the liver and kidneys and in

23 fatty tissues, but to their knowledge it doesn't harm

24 humans. Farmer's son had been drinking raw milk

25 containing PCB could this have caused the problem. And

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1 the answer from Monsanto, this is a Monsanto document, is

2 we agree with Ohio officials that humans exposed to PCB by

3 the environment would not attain levels at which it could

4 be harmful. Does that accurately reflect the position of

5 Monsanto as of late October 1970?

6 A. I believe so, yes.

7 Q. Now down below it says question has Monsanto any

8 evidence that PCBs could affect humans.

9 A. I'm sorry, I was pondering.

10 Q. A little bit lower, it says question has

11 Monsanto any evidence that PCBs could affect humans. And

12 the answer is there's no evidence that an environmental

13 exposure, PCB could harm humans. Again, that -- is that

14 an accurate statement of Monsanto's position back in

15 October of 1970?

16 A. I believe so, yes.

17 Q. Now, it then goes on to address an incident in

18 late 1930 where there was an accidental exposure at

19 excessive levels which resulted in liver damage; is that

20 correct?

21 A. I'm not sure I would agree with that. I mean

22 the exposure in late 1930's was a mixture of PCB and

23 polychlorinated naphthalenes, and I'm not sure there is an

24 exposure to PCBs per se that resulted in that liver damage

25 so that may be slightly incorrect. But generally, that's

1 correct.

2 Q. I have no further questions on that one.

3 (Exhibit T-37 was marked for identification by
4 the reporter.)

5 Q. Okay. For the record, the document you're being
6 shown that's been marked as T-37 and yesterday was marked
7 as an exhibit during the deposition as well is Bates
8 numbers MAE 032743 through 744 and this too is a press
9 query dated February 19th, 1971.

10 Now, Dr. Kaley, you'll note that this press
11 query contains a question from the Chemical Week author
12 and an answer from Monsanto that says first let me say
13 that PCB has never been considered to be a highly toxic
14 material. There are many examples of common products
15 which are more toxic than PCB. For example, iodine, lye,
16 gasoline, insecticides, paint thinner, lighter fluid, and
17 various cleaning compounds. Is that an accurate statement
18 of Monsanto's position back in February of 1971?

19 MR. DIMURO: Objection.

20 A. Without specific knowledge of the toxicities of
21 those various other materials, I think certainly I would
22 agree with the first sentence that PCB has not been
23 considered to be a highly toxic material. I don't really
24 know the relative toxicity of PCB on an acute basis to
25 these other things, but it could very well be true.

1 Q. (By Mr. Turet) Are there documents within
2 Monsanto that evaluated on a comparative basis the
3 toxicity of PCBs and the toxicity of some of these other
4 common household items?

5 A. Not that I'm aware of.

6 Q. And later in that same answer there's a comment
7 that the problem is not its toxicity, but its
8 persistence. Again, in terms of toxicity, we addressed
9 this before, does that accurately reflect Monsanto's
10 position as of February of 1971?

11 A. I think that is generally a true statement, but
12 there are some exceptions to that.

13 Q. Now also down below there's a comment that if
14 PCBs had been introduced today, meaning February of 1971,
15 we would also do more extensive toxicity studies including
16 not just acute toxicity but also subacute parentheses
17 chronic studies, show effects over longer exposure times
18 at lower exposure levels. Is that an accurate statement
19 of Monsanto's position in February of 1971?

20 MR. DIMURO: Objection. You can answer it.

21 A. Yeah, I think I would say that's a fair
22 characterization based on what Monsanto and the rest of
23 the chemical industry was learning about the potential for
24 environmental persistence and the effects that could have,
25 so I think they's a fair statement, yes.

1 Q. (By Mr. Turet) No further questions on that
2 one.

3 Dr. Kaley, did Monsanto keep track of the
4 medical examinations of its own employees over the course
5 of years?

6 MR. DIMURO: Objection. Beyond the scope of the
7 notice. You can answer it, Doctor.

8 A. I'm sure they did.

9 Q. (By Mr. Turet) Do you know specifically whether
10 Monsanto tracked the medical conditions of those employees
11 that were employed in Department 246, the one that
12 manufactured PCBs at the Krummrich Plant?

13 MR. DIMURO: Same objection.

14 A. Well, my understanding would be that all
15 employees at the Krummrich Plant or any plant were given
16 yearly physicals and to the extent records were kept, they
17 would, you know, those records would be there. I don't
18 think there was any specific, if you're asking was there
19 specific attention paid to the Department 246 employees, I
20 think the answer to that is no.

21 MR. TURET: I'll mark this as an exhibit.

22 (Exhibit T-38 was marked for identification by
23 the reporter.)

24 Q. (By Mr. Turet) Dr. Kaley, you're going to be
25 shown a document marked as Exhibit T-38 which is Bates

1 number MAE 021600 which is a May 10th, 1972 letter from
2 Emmet Kelly to Dr. Clarence Davies.

3 MR. DIMURO: For the record, the highlighted
4 portions on the document T-38 are your own.

5 MR. TURET: Yes, and I fully expect to
6 substitute a clean copy for the transcript.

7 A. Okay.

8 Q. (By Mr. Turet) Is it fair to say that Dr. Kelly
9 at some point in time at least conducted a review of the
10 medical conditions of the various employees at Department
11 246 over time?

12 A. Yes, I was answering the question with regard to
13 general procedure, I was going to, I almost said
14 something. I know subsequent to some point in time, this
15 work was done and, in fact, later, a small epidemiology
16 study was done looking at those workers also. So, I'm
17 sorry. I was going to go back and ask was your question
18 stated around that particular date. I wouldn't have known
19 this exact date but the answer to your question is, yes,
20 Dr. Kelly did do a specific examination of the workers
21 employed with the polychlorinated biphenyls in the Sauger
22 Plant.

23 Q. Was there any increase in incidents found of
24 cancer in those employees?

25 MR. DIMURO: Objection.

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1 A. With regard to this 1972 document, a cursory
 2 reading tells me, I don't see any reference to cancer
 3 specifically in here. With regard to the later study in
 4 19 whatever it was, the late 1970's, I don't -- there was
 5 no elevations in cancer specifically attributable to the
 6 PCB exposure. I believe there was a slight excess in lung
 7 cancer, but there's an excess in St. Clair County,
 8 Illinois and that was felt accountable for that excess.
 9 Q. (By Mr. Turet) Other than that one type of
 10 cancer, was there any increase of any other type of cancer
 11 found among the Department 246 employees?
 12 A. My recollection is, no, but I would qualify that
 13 that was a very, very small study. It had essentially no
 14 statistical, you know, statistical -- bearing weight
 15 there -- there just weren't enough workers.
 16 (Exhibit T-39 was marked for identification by
 17 the reporter.)
 18 Q. (By Mr. Turet) Dr. Kaley, you're being shown a
 19 document that's been marked as T-39 and it's a document
 20 that is dated December 6th, 1974 from Frederick Johannsen
 21 of Monsanto to George Roush.
 22 A. Yes.
 23 Q. And George Roush was the medical director back
 24 in 1974?
 25 A. Yes.

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1 Q. Now down at the bottom there's a handwritten
 2 notation, our fate may be decided one way or another in
 3 six months. I hope your feelings that it is not
 4 carcinogenic are born out. Do you know who that
 5 handwritten notation comes from?
 6 A. I see initials W.R., I can -- I mean I know
 7 there is a W.R. that it could have come from, but I don't
 8 know his handwriting well enough to know if that's his.
 9 Q. Who is W.R. that it could have come from?
 10 A. It could have been William Richard. I don't
 11 know for sure though.
 12 Q. Was there a concern back in Monsanto back in
 13 December of 1974 that PCBs could be proven to be
 14 carcinogenic within the next six months?
 15 A. Well, based on that note and based on the fact
 16 that we were doing carcinogenic studies and were aware
 17 that other people were, I think there was obviously
 18 interest in the outcome of those studies.
 19 Q. Okay. But my question was, was there concern
 20 about the possibility that the studies to be released
 21 within the next six months could show carcinogenicity?
 22 MR. DIMURO: Objection. Answer it if you can.
 23 A. That is certainly a potential or possible
 24 interpretation of that handwritten note. It's not
 25 inconsistent with what it says. I mean, the six months

1 comes from apparently a note up -- let me read this.
 2 The note specifies that Aroclor 1254 has been
 3 under tests at NCI and that the histopathology completed
 4 within the six months, which I think is the trigger for
 5 that six month date, and it notes when that study came out
 6 that Aroclor 1254 was not carcinogenic.
 7 Q. Okay. I have no further questions on that
 8 document.
 9 (Exhibit T-40 was marked for identification by
 10 the reporter.)
 11 Q. (By Mr. Turet) Dr. Kaley, you're being shown a
 12 document that's been marked T-40. It's Bates number MAE
 13 051600 through 608 and it is a PCB Q and A preparedness
 14 information dated August 14th, 1975.
 15 Dr. Kaley, if you'll direct your attention
 16 specifically to the second page of this Q and A
 17 memorandum --
 18 A. Okay.
 19 Q. -- you'll see Question 6, it's been reported
 20 that PCBs have produced carcinogenic responses in
 21 laboratory rats. There have also been occasions where the
 22 material has contaminated animal feed which is later
 23 accidentally fed to cattle and chickens. What effect has
 24 or will this have on the people who unknowingly ate the
 25 PCB infested food Isn't there a chance they might develop

1 cancerous tumors.
 2 And the answers provided in this particular Q
 3 and A document are that, you know, we know of only one PCB
 4 test in one animal strain that tends to suggest a possible
 5 carcinogenic relationship and our data does not confirm
 6 this test. Taking that sentence, is the one test to which
 7 this refers the study done by Renate Kimbrough?
 8 A. I'm sure it is.
 9 Q. And what was the particular PCB product that was
 10 tested in the study?
 11 A. Aroclor 1260.
 12 Q. And what was the particular cancer that she had
 13 alleged was found in the lab rats under that study?
 14 A. Liver cancer, hepatocellular carcinoma.
 15 Q. What did Monsanto do to prove or disprove the
 16 results of this study?
 17 MR. DIMURO: Objection. Beyond the scope of the
 18 notice.
 19 A. I mean there was nothing Monsanto could do to
 20 prove or disprove the results of that study. The results
 21 of that study spoke for themselves. Monsanto had early on
 22 in 1968 and 1969 commissioned feeding studies of a variety
 23 of Aroclors at IFT. The results of those studies
 24 suggested that PCBs were not carcinogenic. There were
 25 discussions I know with Dr. Kimbrough and other

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1 pathologists after her paper was published, and there is
 2 an on-going discussion as to whether -- what the results
 3 are vis-a-vis one another, but there was no way for
 4 Monsanto to go to prove or disprove another study.
 5 Q. (By Mr. Turet) Now Monsanto commissioned
 6 certain pathologists to take a fresh look at the Kimbrough
 7 samples or the Kimbrough results?
 8 A. I'm not sure of the exact, who commissioned who
 9 but I know there was a review of the relative pathologists
 10 of those studies conducted. I'm not sure if Monsanto did
 11 it or the government did it or who did what.
 12 Q. Do you know if any of the pathologists retained
 13 to review the Kimbrough findings found that she was
 14 correct?
 15 MR. DIMURO: Objection.
 16 A. I have no doubt that they found that she was
 17 correct. I think there's no doubt that the rats in her
 18 studies showed evidence of a hepatocellular carcinoma.
 19 Q. (By Mr. Turet) Is there any question as to --
 20 do you know one way or another whether Dr. Kimbrough
 21 ultimately changed her conclusions from that study?
 22 A. I'm sure she did not.
 23 Q. As of today, does Monsanto believe that exposure
 24 to Aroclor 1260 can cause liver cancer?
 25 A. Yes, Monsanto believes that exposure to -- high

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1 level exposure to Aroclor 1260 in laboratory rats can
 2 cause liver cancer under conditions of some tests, yes.
 3 Q. And does Monsanto take the position that
 4 exposure to Aroclor 1260 under any circumstances can cause
 5 liver cancer in humans?
 6 MR. DIMURO: Objection.
 7 A. Monsanto's position was and is that based on the
 8 available human evidence of worker populations exposed to
 9 a variety of Aroclors, including Aroclor 1260, that
 10 there's no consistent evidence that PCBs or Aroclor 1260
 11 specifically cause liver cancer in humans.
 12 Q. (By Mr. Turet) Am I understanding you
 13 correctly, did Monsanto accept the findings of
 14 Dr. Kimbrough at the time that --
 15 A. There was -- there were discussions to try to
 16 elucidate the differences between Dr. Kimbrough's studies
 17 and the studies Monsanto commissioned at the Industrial
 18 Bio-Test laboratory. Without knowing the specifics as I
 19 sit here today, I think there were, those discussions were
 20 held and my understanding, my recollection of the basic
 21 conclusion was that Dr. Kimbrough's studies did, in fact,
 22 show those carcinogenic and the Monsanto studies did not.
 23 And for whatever reasons, there was in inconsistencies.
 24 It could have been strain of rat or any number of things.
 25 You know, I don't have any evidence or knowledge that

1 Monsanto disputed, I mean obviously, we -- we would have
 2 preferred the material not be carcinogenic in rats under
 3 the conditions of those tests.
 4 I think we had questions about her study and the
 5 pathology of those tumors, but once those had been
 6 resolved, I don't know if there was any on-going doubt.
 7 Her results were what they were and certainly, today, I
 8 certainly accept the results of those studies at face
 9 value.
 10 Q. Okay.
 11 A. As I do the Monsanto studies. Or the other
 12 studies that have been done.
 13 Q. Now, at the end of the answer to No. 6 which we
 14 were just referring to, it says we are not aware of any
 15 case relating PCBs to cancer in humans. And is that an
 16 accurate statement of Monsanto's position back in August
 17 of 1975?
 18 A. Yes.
 19 Q. And is that -- was that still Monsanto's
 20 position up and through, all to the end of 1985?
 21 A. Basically, yes. Let me qualify, and I don't
 22 know exactly when the studies were or weren't published,
 23 but there have been epidemiology studies published which
 24 one or another may state an elevation of a particular
 25 cancer at a particular cite. Those studies taken as whole

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1 show no consistent information that PCBs are carcinogenic
 2 in humans. So in any case, I think clearly there's never
 3 been a case where someone could say with specificity that
 4 PCBs caused cancer in this individual human being that has
 5 never been done. There have been studies where there have
 6 been particular elevations in a particular population
 7 between a particular cancer but this finding has not been
 8 substantiated in other studies.
 9 (Exhibit T-41 was marked for identification by
 10 the reporter.)
 11 Q. Dr. Kaley, you're being shown a document which
 12 is Bates numbers MAE 004888 through 889 and it is a July
 13 18th, 1978 letter from R. C. Isham to Mr. Thomas Dustin of
 14 the Izaak Walton League.
 15 Anyway, and just to confirm, I'm not going to go
 16 through this with every single document, but, just a
 17 couple of examples, you'll notice in the middle paragraph
 18 of the first page it says there is no evidence that PCBs
 19 cause cancer. And was that the position of Monsanto as of
 20 July 18th of 1978?
 21 A. The next sentence says PCBs have very low acute
 22 toxicity to man. I'm assuming that sentence was meant to
 23 apply to human beings although it doesn't say so
 24 specifically. With that assumption, I think that is
 25 Monsanto's position. I think by then there was certainly

1 evidence that PCBs caused cancer in laboratory rats, and
2 that would be Aroclor 1260 specifically caused cancer in
3 laboratory rats. But with regard to humans, yes, I think
4 that was a correct statement.

5 Q. And the sentence a little farther down quotes
6 from the Federal Register in finding that according to a
7 summary of the report included -- withdraw the question.

8 Farther down there is a reference to a summary
9 of a report which had been released in the Federal
10 Register Aroclor 1254 was not carcinogenic to rats under
11 the test conditions; is that right?

12 A. Well, there was an announcement in the Federal
13 Register that was the results of that study, yes. That
14 was in fact the conclusion I mentioned to you earlier.

15 Q. And this was, and the position being
16 communicated from Monsanto to the Izaak Walton League in
17 July of 1978 was these are the medical facts?

18 A. That sentence is in this document, so yes.

19 Q. Okay. And again that the primary concern over
20 PCBs involves the persistence in the environment and their
21 build-up in the food chain not carcinogenicity?

22 A. True then; true now.

23 MR. TURET: Mark that as T-42.

24 (Exhibit T-42 was marked for identification by
25 the reporter.)

1 Q. Dr. Kaley, you're being shown a document that's
2 been marked as T-42.

3 A. Yes.

4 Q. And it is a statement from Monsanto dated
5 October 15th, 1979. Specifically, I'll refer you to Page
6 5 of the document.

7 A. Okay.

8 Q. You'll see in the middle there has never
9 underlined, never been a documented case of human death or
10 irrecoverable harm from PCBs.

11 A. Yes.

12 Q. Was that the position of Monsanto back in
13 October of 1979?

14 A. I'm sure this was the position then. It's the
15 position now.

16 Q. So at least all the way through 1985?

17 A. Yes.

18 Q. No further questions on that document.

19 A. Again, assuming the irrecoverable harm also
20 refers to humans as does human death.

21 Q. Okay.

22 (Exhibit T-43 was marked for identification by
23 the reporter.)

24 Q. And, Dr. Kaley, you're being shown a document
25 that's been marked as Exhibit T-43 Bates numbered MAE

1 007032 to 033.

2 A. Yes.

3 Q. And this is a note to the editors from Monsanto
4 Company dated September 23rd, 1980?

5 A. Yes.

6 Q. Entitled PCB hazards facts and fallacies?

7 A. Yes.

8 Q. I want to direct your attention to, I think I've
9 asked you about not being human cancer causing enough
10 times. Can you flip to the second page?

11 A. Yes.

12 Q. The top sentence begins there has never been a
13 single documented case in this country where PCBs ever
14 caused serious human health problems. Now is that an
15 accurate statement of Monsanto's position back in
16 September of 1980?

17 A. Well, I guess, I'm sure that if you asked
18 somebody with a case of chloracne whether that was a
19 serious health problem he or she might say it was, but
20 with the exception of chloracne, I believe that that was
21 the case, yes, attributable to PCBs, yes.

22 (Exhibit T-44 was marked for identification by
23 the reporter.)

24 Q. Dr. Kaley, you're now being shown a document
25 that's been marked as T-44, it's Bates numbered MAE 006686

1 to 87, you'll see it's also a note to the editors dated
2 September 11, 1980.

3 A. Yes.

4 Q. It's entitled PCB and cancer, what are the
5 facts?

6 A. Yes.

7 Q. And I'll refer you to the second page, in
8 particular all the way just before the summary where it
9 says they, referring to PCBs, are considered only mildly
10 toxic on an acute basis when ingested by humans about on
11 the same order as common table salt.

12 A. Yes.

13 Q. Did that accurately state the position of
14 Monsanto back in September of 1980?

15 A. I believe so, yes. I hate that analogy, but I
16 think's that some basis and fact for that, it's been used
17 elsewhere, so I think it's basically true.

18 Q. Is it fair to say without belaboring this that
19 PCBs were not cancer causing and PCBs had not irreversibly
20 injured any human beings other than chloracne?

21 A. That's not irreversible. I question the term
22 serious, not irreversible injuries. Chloracne is
23 irreversible, but some people consider it to be serious.

24 Q. PCBs are not carcinogenic to humans, PCBs have
25 not caused serious injury to humans except chloracne as a

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1 possible exception, have not cause irreversible harm to
2 humans, and are not acutely toxic when ingested by man on
3 the order of table salt. Are those the same positions
4 that were held by Monsanto and communicated all the way
5 through until 1980?

6 A. I believe so, yes.

7 MR. TURET: I have no further questions at this
8 time.

9 MR. DIMURO: Adam? Carolyn?

10 MS. O'CONNOR: I don't have any questions.

11 MR. O'CONNOR: I have no questions.

12 MR. DIMURO: I may have some. I just want to
13 take a two-minute break.

14 EXAMINATION

15 QUESTIONS BY MR. DIMURO:

16 Q. Doctor, I want to put in front of you what
17 Mr. Turet marked as T-44 and ask you to take a look at the
18 third paragraph under here. Are the facts, does this
19 refresh your recollection as to whether Dr. Kimbrough's
20 study was reviewed by anybody?

21 A. Yes. This document states Dr. Kimbrough's 1975
22 PCB study was subjected to extensive independent review by
23 the Eppley Institute for Research in Cancer and this
24 document --

25 Q. And what did the Eppley Institute find according

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1 to the writer of T-44?

2 A. This document states that this review did not
3 concur with her diagnosis, i.e., her findings were not
4 confirmed. That's not necessarily consistent with the
5 recollection I mentioned earlier, but could very well be
6 the case.

7 I would however go on to state that I think
8 Dr. Kimbrough's findings then are consistent with other
9 studies of Aroclor 1260 fed at high doses to laboratory
10 rats.

11 MR. DIMURO: I don't have any further
12 questions.

13 MR. TURET: I have no further questions.

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1 NOTARIAL CERTIFICATE

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2 STATE OF MISSOURI)
3 CITY OF ST. LOUIS)

4

5 I, Tammie A. St. Arbor, Certified Shorthand Reporter
and a duly commissioned Notary Public within and for the
6 States of Missouri and Illinois, do hereby certify that
7 there came before me at the offices of Taylor*Schroeder
Reporting & Video, 7494 Ethel Avenue, St. Louis, Missouri,

8

DR. KALEY,

9 who was by me first duly sworn to tell the truth and
nothing but the truth of all the knowledge touching and
10 concerning the matters in controversy in this cause; that
the witness was thereupon carefully examined under oath
11 and said examination was reduced to writing by me; and
that this deposition is a true and correct record of the
12 testimony given by the witness.

13 I further certify that I am neither attorney nor
counsel for nor related nor employed by any of the parties
14 to the action in which this deposition is taken; further
that I am not a relative or employee of any attorney or
15 counsel employed by the parties hereto or financially
interested in this action.

16 IN WITNESS WHEREOF, I have hereunto set my hand and
17 seal this 5th day of March, 1999.

18

19

20

Tammie A. St. Arbor, CSR

21

22

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1 STATE OF MISSOURI)
2 CITY OF ST. LOUIS)

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I, DR. KALEY, do hereby certify:

That I have read the foregoing deposition;
That I have made such changes in form and/or
substance to the within deposition as might be necessary
to render the same true and correct;

That having made such changes thereon, I hereby
subscribe my name to the deposition.

I declare under penalty of perjury that the
foregoing is true and correct.

Executed this day of
19 , at

DR. KALEY

My Commission Expires: _____

Notary Public: _____

Signature Page to Witness _____

Witness Letter Sent to Witness _____

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DR. KALEY
NAME OF DEPONENT

DEPOSITION CORRECTION SHEET

In re: Maertin, et al. vs. Monsanto, et al.

Reported By: TSA

Upon reading the deposition and before subscribing
thereto, the deponent indicated the following changes
should be made:

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SIGNATURE OF DEPONENT

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Taylor * Schroeder Reporting & Video
7494 Ethel Avenue
St. Louis, Missouri 63117
Phone (314) 644-2191

March 3, 1999

Dr. Kaley

RE: Maertin, et al. Vs. Armstrong, Monsanto & American
Mineral Spirits

Dear Dr. Kaley:

Please find enclosed a copy of your deposition taken on
March 3, 1999 in the above-referenced case. Also enclosed
is an original signature page and errata sheets.

Please read the copy of the transcript, indicate any
changes and/or corrections desired on the errata sheets,
and sign the signature page before a notary public.

Please return the errata sheets and notarized signature
page to my office at the above stated address within
thirty days of the receipt of this letter and deposition.

Please do not hesitate to call me at 314/644-2191 with any
questions.

Sincerely,

Tammie A. St. Arbor, CSR

Enclosures

cc: Mr. Taylor
Mr. DiMuro
Mr. O'Connor
Ms. O'Connor
File

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DEPOSITION OF DR. KALEY, 3/3/99

STATE OF MISSOURI)
CITY OF ST. LOUIS)

I, DR. KALEY, do hereby certify:

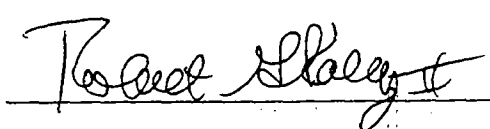
That I have read the foregoing deposition;

That I have made such changes in form and/or
substance to the within deposition as might be necessary
to render the same true and correct;

That having made such changes thereon, I hereby
subscribe my name to the deposition.

I declare under penalty of perjury that the
foregoing is true and correct.

Executed this _____ 1st _____ day of _____ April _____,
19 99 _____, at _____ St. Louis, Missouri _____.


DR. KALEY

My Commission Expires: 8/4/2000

Notary Public: Mae Christina

Signature Page to Witness _____

Witness Letter Sent to Witness _____

DR. KALEY
NAME OF DEPONENT

DEPOSITION CORRECTION SHEET

In re: Maertin, et al. vs. Monsanto, et al.

Reported By: TSA

Upon reading the deposition and before subscribing thereto, the deponent indicated the following changes should be made:

Page 14 Line 13 Should Read: manufacture
Reason assigned for Change: transcription error

Page 51 Line 13 Should Read: styrene latex
Reason assigned for Change: transcription error.

Page 54 Line 8 Should Read: basis, that
Reason assigned for Change: transcription error

Page 58 Line 5 Should Read: secured
Reason assigned for Change: transcription error

Page 60 Line 1 Should Read: Treon
Reason assigned for Change: misspelling

Page 61 Line 14 Should Read: He was the one who
Reason assigned for Change: missing word = one

Page 62 Line 22 Should Read: it's more an aside
Reason assigned for Change: transcription error

SIGNATURE OF DEPONENT

DR. KALEY
NAME OF DEPONENT

DEPOSITION CORRECTION SHEET

In re: Maertin, et al. vs. Monsanto, et al.

Reported By: TSA

Upon reading the deposition and before subscribing thereto, the deponent indicated the following changes should be made:

Page 68 Line 17 Should Read: Presumably; I don't know
Reason assigned for Change: transcription error

Page 75 Line 3 Should Read: Treon
Reason assigned for Change: misspelling

Page 88 Line 13 Should Read: route
Reason assigned for Change: transcription error

Page 98 Line 16 Should Read: more toxic
Reason assigned for Change: misstatement

Page 113 Line 1 Should Read: dibenzo (both occurrences)
Reason assigned for Change: transcription error

Page 121 Line 22 Should Read: lining
Reason assigned for Change: transcription error

Page 133 Line 11 Should Read: more significant than in the
Reason assigned for Change: transcription error

SIGNATURE OF DEPONENT

DR. KALEY
NAME OF DEPONENT

DEPOSITION CORRECTION SHEET

In re: Maertín, et al. vs. Monsanto, et al.

Reported By: TSA

Upon reading the deposition and before subscribing thereto, the deponent indicated the following changes should be made:

Page 137 Line 24 Should Read: "1236" should read "1260"
Reason assigned for Change: transcription error

Page 167 Line 25 Should Read: site
Reason assigned for Change: misspelling

Page 168 Line 4 Should Read: human being; that has
Reason assigned for Change: punctuation

Page 172 Line 16 Should Read: basis in fact
Reason assigned for Change: transcription error

Page Line Should Read:
Reason assigned for Change:

Page Line Should Read:
Reason assigned for Change:

Page Line Should Read:
Reason assigned for Change:

SIGNATURE OF DEPONENT