UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF NEW HAMPSHIRE

BETHLEHEM MINK FARM, INC., et al :

vs. :

JURGIELEWICZ, et al :

Deposition of

William B. Papageorge

SECOND DAY

Deposition taken by agreement of the parties at the offices of Wadleigh, Starr, Peters, Dunn & Kohls; 95 Market Street; Manchester, New Hampshire; Wednesday, February 13, 1974; commencing at nine-thirty in the forenoon.

PRESENT:

For Bethlehem Mink and Jubilee Food Supply:

McLane, Graf, Greene & Brown, by James R. Muirhead, Esq.

For Jurgielewicz and Related Interests:

Sulloway, Hollis, Godfrey & Soden, by Lawrence E. Spellman, Esq.

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For Defendant Monsanto:

Wadleigh, Starr, Peters, Dunn & Kohls, by Philip G. Peters, Esq., and Robert L. Chiesa, Esq.

For Agway and Related Interests:

Faulkner, Plaut, Hanna and Zimmerman, by N. Michael Plaut, Esq., and Stillman D. Rogers, Esq.

For Rozansky Feed Company:

Sheehan, Phinney, Bass & Green, by Thomas H. Richards, Esq.

Stenotype Reporter:

Ronald J. Hayward

It is stipulated and agreed that the deposition may be taken in the first instance by stenograph, and when transcribed and then signed by the deponent, may be used for all purposes for which depositions are competent under the Federal Rules of Civil Procedure. Form, filing, notice and caption expressly waived. Copy of deposition to be furnished deponent's counsel.

It is further stipulated and agreed that if the deposition remains unsigned

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thirty (30) days after delivery to deponent's counsel, signature shall be deemed waived; and the deposition may be used the same as if signed.

WILLIAM B. PAPAGEORGE

called as a witness, having been previously sworn, was further examined and testified as follows:

(Interrogatories by Mr. Spellman.)

1 Q. Mr. Papageorge, we referred somewhat yesterday to the answers to interrogatories which I understand were signed by you sometime this week, my copy isn't dated; when were those signed, sir?

A. I believe it was Monday or Tuesday morning.

MR. CHIESA: Monday, I believe.

2 Q. (By Mr. Spellman) Now, do those answers which you signed represent all the knowledge which is available to Monsanto with respect to the field inquired into by each answer?

A. Yes, sir.

3 Q. Do you have a copy in front of you some place so that you can take a look at them? If you will, refer, sir, to the last page in the affidavit,

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is the expression, "I have answered the questions to the best of my knowledge, information and belief," intended in any way to limit the scope of the answers given?

A. The statement itself, no, sir.

4 Q. So that where the information was not readily available to you and except where the answer declines to give certain information, I take it you have gone to others to find out what the answers were?

A. As necessary, yes, sir.

5 Q. So that we can assume that all of the answers to these interrogatories represent, so far as they are answered, at least, all the information available to Monsanto?

A. That is correct.

6 Q. Are all of these answers framed in your own language?

A. Very much so, yes.

7 Q. At least the substance of them, I take it?

A. Yes.

8 Q. Would you refer to interrogatory No. 4, please?

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Why do you believe that the issues raised by this question bear no relation to the issues in this litigation?

A. From my understanding of the issues raised in this matter, I personally do not understand what tradenames - what the information regarding tradenames would add to the knowledge of this. Let me back off. I don't understand how an understanding and a knowledge of tradenames will help in solving the problem as we face it.

9 Q. Would you tell me what research you think the request required of you other than to tell us what knowledge Monsanto has in response to the question?

A. It is conceivable that polychlorinated biphenyls are marketed under tradenames unbeknown to us, such as - similar to the situation where some of these tradenames mentioned represent mixtures of many different chemicals. It is very likely or highly probable that other tradenames exist that contain polychlorinated biphenyls as ingredients, so this list cannot be complete.

10 Q. Well, I guess my question is, What language do you

see in Interrogatory No. 4 which requires Monsanto to do any research to find out things not already known to them?

A. There is one thought that occurs to me. Monsanto, as you probably know, has thousands of employees. Many of them have been exposed to the problem or to the situation involving polychlorinated biphenyls. I personally do not know who all of these individuals are and I doubt if any one person in Monsanto knows who all these persons are and in order to ascertain to the best of Monsanto's knowledge, as I understand it, this would mean contacting each and every individual who works for Monsanto or had worked for Monsanto to establish the extent of that knowledge.

Q. Is it your suggestion, Mr. Papageorge, that as manager of product acceptability, you would be unable as a practical matter to determine from an investigation of all the employees of the company what the company's knowledge is with respect to the answer to Interrogatory No. 4?

A. That is correct.

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12 Q. Then, how do you contemplate in the concluding sentence in your first paragraph of the answer, that the other parties to this litigation are capable of doing the research, if you can't?

MR. PETERS: Well, that is obvious in your question. The PCB's manufactured by others and other tradenames, you can do that as well as Monsanto.

MR. SPELLMAN: Do you have an answer?

MR. PETERS: I answered it.

MR. SPELLMAN: I didn't know you were under oath.

MR. PETERS: Well, you guys are making it very difficult, that is all I can say.

THE WITNESS: I understand the question. Not to be facetious, but I frankly don't know how you could go about this, the mechanics of doing it, but it is conceivable that others can talk to thousands of people as well as we can and call them into a room and ask them, what

do you know about polychlorinated biphenyls and what do you know about names as well as we could. It is a matter of time and the mechanics of going through the motions of getting this information.

13 Q. Did you make any inquiry of others on your level of management or above your level of management in connection with making a response to this question?

A. Yes, sir.

14 Q. Now, can we assume that with the addition of Pyranol, that the list of tradenames or trade marks, as the case may be, shown in answer to Interrogatory No. 4 is a complete representation of Monsanto's knowledge of the subject to date excluding the lower echelon and the rank and file employees?

A. I think I misled you.

15 Q. All right.

A. It is possible for people in the higher echelons who in the past worked with these materials who geographically were remotely located or by business function are remote to this problem today, who were not contacted. So whether or not they were consulted really depends on their more recent

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exposures to polychlorinated biphenyls. Those that were recently involved were those consulted in establishing this list.

16 Q. Would you tell me what you did by way of contacting others to make an answer to Interrogatory No. 4?

A. I would telephone, say, the manager of research for this effort and review with him those names that I was aware of and ask him if he knew of anymore. I personally went to the literature and in fact found an article that I was well aware of in the Encyclopedia of Chemical Technology in which many of these tradenames appear. I talked to the business directors to determine whether or not in their marketing efforts they had run across other trade marks that might apply to this answer. Let's see, I contacted our people in Brussels, a research effort there, to determine the European tradenames. To confirm, if you will, if the tradenames I had were still in use and still proper. That is the type of activity I underwent.

17 Q. You made reference to the manager of research?

A. Yes.

Q. Who is he?

A. Dr. William Richard.

Q. What is his function as manager of research?

A. He is responsible for the research activities for products or potential products of interest to the specialty products group.

Q. Is his research in the nature of laboratory and other types of scientific research as opposed to bibliographical research?

A. I think he is involved with both, sir.

Q. Would he be the man in general charge of any research which Monsanto did on the environmental effects of PCB's?

A. In general charge, yes, sir.

Q. Now, you indicated that the list is given in the interest of cooperation and good faith, right?

A. Yes, sir.

Q. Now, does that spirit of cooperation and good faith characterize all the answers to the interrogatories, so far as you know?

A. That was our intent.

MR. PLAUT: May I interrupt

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a minute, Larry? You have been using the term "environment" quite frequently and so has Mr. Papageorge in his answers to questions. I think for purposes of this deposition, we ought to have a definition of what we are talking about in terms of environment.

MR. SPELLMAN: We will be getting to it later.

(Discussion off the record.)

24 Q. (By Mr. Spellman) Would you, Mr. Papageorge, define or explain what you mean when you use the terms "environmental effects of PCB's"; or if you prefer a different term, tell us what term you prefer and how you would define it?

A. Well, the term is a good term and I find myself generally using several definitions depending on the audience because I am trying to communicate with the listener. Personally in order to make sure that in carrying out my assignments that I don't overlook anything or something doesn't get by me without proper attention, I use the broadest

definition that I can conceive of; and this means anything that has to do with our surroundings, the world we live in and the impact on the living creatures on it. This is the broadest kind of concept I can give in my own thinking. However, I have found when talking to most audiences, when the word "environment" is used, it is generally applied to the untamed natural kind of situation found out on earth here. The oceans, the air, the woods, the lakes, the rivers; so I find that I have to orient my thinking when I speak to most people to confine the definition environment to that sort of situation as distinguished from the poultry farm or the silo or the food in the household kitchen and so on.

25 Q. What singular, if any, effects do you have in mind when you talk about environment effects?

A. Are we talking now of chemicals and effects on the environment or most anything?

26 Q. I am trying to find out from you if there is some content in your mind with respect to the meaning of the term "environmental effects" and, if so,

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what particular effects you can describe, if any?

A. Well, one of the most common ones we all hear of is the effect known as a smog over the Los Angeles metropolitan area. I consider that an effect on the environment.

27 Q. Will you narrow it down to some specifics in terms of the environmental effects of PCB's, if any?

A. Well, sir, after all the reading that I have done for over four years of studies made of the environmental effects of PCB's, I find that the majority of the articles referred to presence and in my thinking presence itself is not an effect. There has been many a speculation regarding effect, but I have not found any concrete evidence that ties the presence to this speculated effect, so from my point of view I find it difficult to say that PCB's are creating drastic effects on the environment. I have no evidence and I can't find anyone that has evidence. I find many people who speculate.

28 Q. You seem to indicate that, in your judgment, most of the speculation turns out to be unfounded?

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A. Most of the speculation, particularly that which drew the most attention in the earlier days, has since then been determined to be unfounded. For example, the softening of the eggshells which are alleged to have occurred in the brown pelicans off the California coastline and soforth, all of that has been disproved by our own government studying birds. The effect which was speculated with regard to the seals and birds in the North Sea, the latest report that I had was that this effect really cannot be traced to PCB's, although PCB's were present in the - I think the right word is dissipated carcasses that were found. The last report that I read seemed to indicate that these creatures underwent some serious stress relating to lack of nourishment, lack of food, and this is believed to have led to their demise and not the PCB's themselves. This is the kind of report that I find as time goes on.

Q. You indicate and I am trying to exclude, if necessary, that most of the reports appear to you to be poorly founded or unfounded, are there some

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which seem to have substance?

A. The reports I have found to have substance are those reports that relate to work conducted in a laboratory under test conditions and I have also found that where the work has been duplicated by more than one laboratory and the results lead to the same conclusion, then that information has true substance as distinguished from the isolated study, minimal work, rather unsophisticated procedures.

Q. Can you give us any examples of consistent laboratory studies, that is consistent as between two or more laboratories?

A. I don't recall right offhand which the laboratories are, but I do know that there is work done with the standard white laboratory rat, for example, and I recall this because the results obtained in that study was very much like the results obtained from the laboratory that Monsanto had performed some white rat work for us. I don't remember specifically the lab, but I know that there is a report out on the laboratory work.

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31 Q. Are the results in those reports described in Appendix A to the interrogatories?

MR. PETERS: The results of Monsanto's studies are.

THE WITNESS: Monsanto's studies are.

32 Q. The other studies which compare to Monsanto's studies, are they reflected anywhere in the materials supplied in the interrogatories ?

A. I don't recall. I don't think so.

MR. PETERS: I think what he means is in our rat study reports. Is it mentioned in the report?

THE WITNESS: No. I wish I could remember the dates. The report that I am referring to.

MR. PETERS: We will get it for you.

THE WITNESS: The report that I am referring to came after our work, as I recall.

MR. PETERS: We will mark it

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down and secure it and produce it. Do you think you can get it?

THE WITNESS: Yes.

33 Q. (By Mr. Spellman) You also used, Mr. Papageorge, the term "no drastic effects"; what do you mean when you say no drastic effects?

A. I have in mind such things as fish kills or demise of entire populations, deformed creatures, three-legged birds; this kind of thing.

34 Q. Do you mean to allow for some effect on living creatures which is caused by PCB's in the environment, but which you do not consider to be drastic?

A. It is conceivable to me that there are effects which are not drastic, yes.

35 Q. But you have not discovered them, as I understand it, other than through laboratory test work?

A. That is correct, sir.

36 Q. Have you in your capacity as product manager of product acceptability made any specific investigation or inquiries into the case at hand, this mink case that we are talking about here?

A. No activity other than that requested from

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Mr. Peters.

37 Q. You mean in respect to interrogatories or that sort of thing?

A. This kind of activity, yes, sir.

38 Q. Have you made any inquiry at all into whether Agway had occasion to put up new silos or repaint existing bins or something of that sort at its plant in Long Island?

A. No, sir.

39 Q. Aside from any specific inquiry, do you have any knowledge in that regard?

A. That is the first I heard of that.

40 Q. Would you turn, sir, to Interrogatory No. 11. Should we read your answer to me that there are no records available to indicate what prompted Monsanto to get into the PCB field generally?

A. I haven't been able to find any, sir.

41 Q. I take it from your answers yesterday that chemically in terms of the chemical structure, there has been no change in PCB's from 1929 to the present date?

A. To the best of my knowledge, no change.

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42 Q. But there would be changes in mixtures of various isomers, would there not, depending on product needs in the marketplace?

A. Sir, the mixtures were available from the very beginning, the marketplace dictated how much of each mixture was produced, so that really through the years no real change has been made in those mixtures as to percent chlorine, for example.

43 Q. Is the dielectric use, so far as you can determine, what first got Monsanto into the PCB business?

A. If I understand your use of the word "PCB business," I assume that is the marketing of a commodity or a product?

44 Q. Yes.

A. Yes.

45 Q. In reference to Interrogatory No. 12, is there nothing in your records after Monsanto took over Swan to indicate the first study which Monsanto made with respect to PCB's?

A. I have found nothing.

46 Q. So far as you can determine, what was the first study of the subject made by Monsanto? Make

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reference to anything available, if you want.

A. I have difficulty really defining the word "study." Is this a marketing study, a profitability study, a trade mark study, an application study?

MR. PLAUT: I thought we were talking about the effects of PCB's?

MR. SPELLMAN: I didn't ask it in terms of effect. Would you take the definition again on paragraph 4 on page 2 of the interrogatories and see if that helps?

MR. CHIESA: That is your list of definitions?

MR. SPELLMAN: Yes.

MR. CHIESA: I have it downstairs. I will get it. I didn't attach those to the answers. He doesn't have it in front of him.

MR. PETERS: You can't ask him to answer a question if he doesn't know what you are talking about.

MR. SPELLMAN: I agree. Did you have these references when you answered the question?

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A. Yes, and I must say I had difficulty then defining the word "study" even then. In the broadest term, any thinking concerning PCB's could be called a study and that thinking goes on day in and day out.

47 Q. Well, let me rephrase the question this way. What is your first report or document of which you are aware reflecting a study into PCB's for any purpose?

A. The earliest report I am aware of is an article that appeared in a journal in 1953, approximately, in which these materials were described as having all of these properties and the article went on to recommend uses in many applications.

48 Q. Would it be fair to describe that as a study of the marketing possibility of PCB's?

A. Yes, or application possibilities.

49 Q. When is the first such document that you can describe that is in the area of research and development?

A. I have never looked for that. Let's put it another way, I have never found one that relates to research and development. I don't know.

50 Q. What is the first study of which you areaware, using study in the same context, done by Monsanto having regard for environmental effects?

A. There were two studies that I believe occurred simultaneously, so time-wise I can't determine which was first. One involved studies with tests on animals to determine the toxicity of the materials and this occurred - I am getting my times confused. The animal studies started in late '68, early '69, but prior to that, which would then make it the first study having to do with the environment, was work done in our research department to establish or develop a very accurate analytical method and procedure for determining the presence of these materials in all types of samples.

51 Q. Is that methodology included in the materials produced?

A. Well, there is no study per se, a report on it. There is a method that evolved from all of this that became available.

52 Q. Is that included in the materials produced?

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A. I don't remember, is it - analytical methodology?

MR. PETERS: I don't think so.

MR. SPELLMAN: Off the record.

(Discussion off the record.)

53 Q. (By Mr. Spellman) We have on the table, Mr. Papageorge, a large mass of paper representing various reports.

A. Yes.

54 Q. Is it your understanding that each of the reports in that group is described in Appendix A?

A. That is right, sir.

55 Q. The methodology which you have just described is not included in Appendix A, I take it?

A. That is right, sir.

MR. SPELLMAN: Can we have a copy of that?

MR. CHIESA: Sure.

MR. PLAUT: Was that also 1968, approximately, that you are talking about?

THE WITNESS: Yes, sir.

56 Q. (By Mr. Spellman) Was that study producing a

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method of analysis prompted by the various reports of PCB presence in unexpected places?

A. That is correct.

57 Q. Now, having regard for the general timing of the methodology study, is Monsanto aware of any prior studies by anyone else into PCB's having regard for methodology or environmental effects?

A. We were aware of that work which was eventually published at one time, it fell really into the realm of rumor; unsupported reports that studies were being made to develop analytical methods and as a result of that work as almost a natural consequence of that work, the presence of polychlorinated biphenyls in all forms of matter, in animals and creatures, began to appear.

58 Q. Are all of the reports on studies to which you now refer included in the bibliography which is marked "Appendix C" to the interrogatories or the answers to interrogatories?

A. I can't speak for all reports. I can say that the reports that I am familiar with I found listed in that bibliography.

(Discussion off the record.)

59 Q. (By Mr. Spellman) If we restrict Question No. 22 to the issue or the subject of methodology, does Monsanto know of any other methodology conceived prior to the methodology of its own which you have just described?

A. There is the early report that came out of the University of Stockholm, Dr. Jensen and Dr. Widmark, that was the pioneer work upon which I am led to believe all subsequent methodologies are based.

60 Q. And when, approximately, did that word come out? When did Monsanto become aware of it?

A. We became aware of it in - Monsanto became aware of this work as referring to polychlorinated biphenyls in late '67.

61 Q. Was the work of those two men in response to what you have described as the North Sea occurrence or episode or incident?

A. No, sir, that is not my understanding.

62 Q. Okay; what did it respond to?

A. In my discussions with Dr. Widmark, he tells me that they were involved in pesticide surveillance

programs, particularly addressed to DDT. The investigators were continually frustrated by the presence of unidentifiable materials in their samples. Dr. Jensen then embarked on a program to identify these unknown materials and it is as a result of that work that led to the identification of the polychlorinated biphenyls.

63 Q. Did that work or the reports or studies or documents, the written materials that came out of it, relate in any way to what you would define of at least a possible environment effect?

A. All that work did, as I recall, was report the presence of these materials in several types of samples.

64 Q. Were there any earlier reports of which Monsanto became aware indicating the presence or the possible presence of PCB's?

A. No, sir.

65 Q. So is that the first report indicating the presence of PCB's in the environment?

A. To my knowledge, yes, sir.

66 Q. When was the first report or allegation or whatever

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term you want to use of which Monsanto became aware purporting to indicate some environmental effect beyond mere presence?

A. As best as I can recall, it was the report that the brown pelican off the coast of Southern California could not reproduce properly and the speculation that the soft eggshells or lack of eggshells was suspected as being due to the presence of polychlorinated biphenyls.

67 Q. And when did Monsanto become aware of that speculation?

A. As I remember, this was a newspaper article in the San Francisco Chronicle in early '69. I believe that is the date.

68 Q. I take it that by the time this first report came to Monsanto's attention, it had already started its own toxicity studies?

A. We had started some of the toxicity work, yes, sir.

69 Q. Can you tell me, having had no prior reports beyond mere presence, what prompted Monsanto to make the toxicity study?

A. I believe it was a natural evolution of the type that normally occurs. The responsible managers, once they become convinced that in truth what was being identified as polychlorinated biphenyls being found in all these unusual places, the next question that was asked was, Is it doing any harm? Then the question was addressed to what studies should be conducted to establish whether or not harm is possible or is being done. That was instigated by these materials.

70 Q. Now, would you turn to No. 23? We discussed the subject matter briefly, I am not sure that it is on the record. Appendix A attached to the answers to interrogatories purports to be studies conducted by whom?

A. Conducted by several laboratories at Monsanto's request.

71 Q. So all of those described in Appendix A Monsanto had some relation to?

A. That is correct.

72 Q. And am I correct in understanding that each one by description has the report copied in this pile

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of material?

A. That is correct.

MR, SPELLMAN: And that, Phil, is what is coming up by truck?

MR. PETERS: That is right.

73 Q. Now, does Appendix A include all such studies or reports to which Monsanto was related and all bibliographical material to the present date or is there a cutoff date in the answer?

A. That is all the information Monsanto has to date.

MR. PETERS: I would like to state for the record here because I haven't before, even though Monsanto feels that the cutoff date is April 1, '71, that we have listed as Mr. Papageorge states all of these reports or studies to date without waiving my right to stand on the April 1, '71, date. That is why we say that it is done in "good faith."

THE WITNESS: I am afraid I may have misled someone here. The use of the word "bibliography" in your latest statement, that bibliography is put out by the Library of Medicine

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and there was a cutoff date on it.

74 Q. That speaks for itself on its face.

A. Yes. There have been articles published since the issue of that bibliography.

75 Q. And those we could determine, I take it, by writing to the same source?

A. I do not know if the Library of Medicine is still active in this area or not.

76 Q. How could we find more recent articles?

A. The only way I know is to laboriously search available literature.

77 Q. Have you made such a search yourself for your own purposes?

A. I don't know that I made a thorough one, I do try to keep up to date.

78 Q. Do you have any kind of a list in supplement of the bibliography by Quimby?

A. I have not made a list, no, sir.

79 Q. Do you have a group of articles collected beyond that made by Quimby?

A. I believe I have a list since that time.

80 Q. Would it be too difficult to make a list of what

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those articles are?

A. No.

81 Q. Now, Mr. Papageorge, to clarify my understanding of the answers to 23 and 24; as I read 24C, Appendix A includes not only studies done by Monsanto personally, but studies subsidized by Monsanto as well as studies requested by Monsanto, does it not?

A. Yes, sir.

82 Q. Were there any studies requested by Monsanto from outside groups which it did not in some way subsidize?

A. I am not aware of any outside group asking us for a study, no, sir.

83 Q. I am sorry, I am asking about Monsanto asking for outside tests such as the Bio-Lab Testing, Inc.?

A. And not subsidized?

84 Q. Right.

A. No, not unsubsidized.

85 Q. And Appendix A includes all studies subsidized by Monsanto and all those done by Monsanto itself?

A. That is correct.

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86 Q. And the appendix is self-explanatory itself as to who did what?

A. That is correct.

87 Q. Now, apart from the final reports in connection with the studies as indicated in Appendix A, were there interim reports?

A. In some instances, yes, sir.

88 Q. Are those included in Appendix A?

A. No, sir.

89 Q. Are there any interim reports reaching conclusions which differed from the conclusions set forth in the documents described in Appendix A?

A. Not to my knowledge, no, sir.

90 Q. There is reference to answer to Interrogatory No. 28 to a summary of tests by the Industrial Bio-Test Laboratories; I was unable to determine which of the items in Appendix A describes that summary?

A. All right, sir.

91 Q. Can you tell me which is which?

A. They are the studies in Appendix A listed under Industrial Bio-Test Laboratories, Incorporated,

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Northbrook, Illinois. Items 2, 7, 8, 9, 10, 11, 12, 13, 14, 15, and that is it.

92 Q. Are those items which you have just identified the test results or the summary referred to in answer to No. 28?

A. The items I just identified are the final test results of the total study.

93 Q. My question is, Does the summary described in answer to No. 28 appear anywhere in the exhibits which you have supplied?

A. No, sir.

94 Q. Would you look at the answer to No. 33, Mr. Papageorge, and, if you will, tell me what that answer purports to say?

A. As I understand the question raised under Interrogatory No. 33, it is asking what changes were made in PCB's as a result of each effect noted in the answer to Interrogatory No. 30. Now, No. 30 refers to the initial study made by Monsanto and in turn by referring the interrogatory back to Interrogatory 12, what you were saying is that we don't really have anything that helps us

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to develop the history of what happened forty years ago; therefore, we are not able to respond directly to Interrogatory 33.

95 Q. Well, did you notice that Interrogatory 33 refers to Monsanto's knowledge of the conduct of others as distinguished from Monsanto?

A. Yes, we noticed that.

96 Q. And isn't the answer to Interrogatory No. 12 phrased in terms of Monsanto itself?

A. But I thought Interrogatory 33 was influenced by Interrogatory 30 which refers to the initial study.

97 Q. And is it your testimony that Monsanto made no initial study?

A. No.

98 Q. All right; can you tell me of any knowledge that Monsanto has with respect to changes made by persons other than Monsanto in respect to any chemical composition, mixture, labeling, warnings, cautions, and soforth, prior to 1970?

A. No, sir.

99 Q. You have no knowledge on the subject?

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A. No, sir.

100 Q. Has Monsanto inquired into that subject at all?

A. Yes.

101 Q. What has it learned by that inquiry?

A. Well, my personal discussions with producers of this material leads me to believe that there have been no changes in polychlorinated biphenyls through the years.

102 Q. Any changes by other manufacturers that are within Monsanto's knowledge with respect to the labeling on the packages or warnings or cautions?

A. Prior to 1970, no, sir, I could not determine any.

103 Q. Any changes after 1970? Not Monsanto, others, now.

A. Here again I am told that there are changes that have been made; I have not personally seen any recent labels.

104 Q. But you learned that as a result of your inquiry into the subject?

A. Yes, sir.

105 Q. In what respect did you understand that other

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manufacturers changed their labels?

A. I was led to believe - - -

MR. PETERS: Before we go any further, I object to this answer to anything after April 1, 1971, and I instruct the witness to limit his answer to that date.

MR. SPELLMAN: Well, I am sorry, I think we are entitled to know, Phil, to date and the question is intended to inquire to date.

MR. PETERS: I know what you intend, that is why I am instructing the witness. Now, it may be that he will finish before April of '71, I don't know, but you may answer.

THE WITNESS: My personal contact with producers of polychlorinated biphenyls in other parts of the world occurred fairly early in 1970 and at that time these representatives indicated that they were going to emulate Monsanto's approach as to the changes in the wording of their labels.

106 Q. Aside from changes in labels - - - Were there label changes made by other manufacturers so far

as you know subsequent to April of 1971? Just answer me that yes or no.

A. I do not know.

107 Q. With respect to the other manufacturers, were there any activities by them in the way of warnings or cautions other than changes in their labels?

MR. PETERS: Note my objection, please, but you can answer with an April 1, '71, deadline. Do you want him to read the question back?

THE WITNESS: I think I understand the question. It is a matter of timing. Prior to April, '71, I do not believe that other producers of polychlorinated biphenyls took any of these actions that you referred to.

108 Q. Do you have any knowledge of such action subsequent to April 1, 1971?

MR. PETERS: Note my objection.

MR. MUIRHEAD: I would just like to point out that April 1, 1971, is Brother Peters' date; I don't agree that it bears

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any relationship to anything.

MR. SPELLMAN: I understand that and I agree with you.

THE WITNESS: From reports that I have received, I am led to believe that after April 1, 1971, other producers world-wide of polychlorinated biphenyls have taken action regarding labeling, instructions and cautions.

109 Q. And have the actions taken by other manufacturers since April of 1971 been substantially similar to the things done by Monsanto?

MR. PETERS: Note my objection, you may answer, if you know.

THE WITNESS: They are less restrictive than Monsanto's actions.

110 Q. How do you mean, sir?

A. The other producers of polychlorinated biphenyls, I have to be more specific than that. I do not know what Russia is doing, I suspect that they are using them freely. That is a suspicion. The European producers of polychlorinated biphenyls sell the polychlorinated biphenyls as a dielectric

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such as Monsanto, but in addition they continued to sell polychlorinated biphenyls as a hydraulic fluid for use in machines in Europe and they also continued to sell them for use in heat transfer units, but not for human food-producing units. In Japan, they have ceased operations and marketing of any polychlorinated biphenyls.

111 Q. Have the labels or warnings by other manufacturers since April 1, 1971, warned specifically against ingestion by living creatures?

MR. PETERS: Objection; you may answer.

THE WITNESS: I have not seen any labels from the European materials other than Monsanto's labels.

112 Q. Other than labels that you have seen as a result of your inquiry to various people, have any warnings by way of labeling or otherwise been made by other manufacturers against ingestion of PCB's by living creatures?

MR. PETERS: Objection; you may answer.

THE WITNESS: From reports I get, the warnings that have been offered vary from country to country. I have not seen any of the labels, so I do not know if these warnings did appear on thelabels. I am led to believe, however, that through governmental representatives and through marketing representatives of companies that sell polychlorinated biphenyls, words of caution have been issued. What these words are, I do not know.

113 Q. You don't know one way or the other whether any warnings against ingestion by living creatures are given?

A. That is correct.

(Whereupon, a recess was taken.)

114 Q. (By Mr. Spellman) Mr. Papageorge, you referred earlier to toxicity studies commencing in 1968, do you recall that?

A. Yes, sir.

115 Q. So that we aren't talking about different things,

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what do you mean by toxicity studies? What does that term embrace, so far as you are concerned?

A. The term is used to describe studies in which animals are exposed to different materials in several ways, either through their digestive system or through their skin or through their breathing systems. The intent here is to observe these animals and determine whether or not any change is occurring either to these animals either physically or in their behavioral patterns and the like.

116 Q. Would you turn to page 3 of Appendix A under the heading "Younger Laboratories,"are you generally familiar with the reports described in Appendix A for Younger Laboratories?

A. Generally, yes, sir.

117 Q. Do those reports come within the meaning of a toxicity study as you have just described it?

A. Yes, sir.

118 Q. As I read those reports, they are as early as '58?

A. Yes, sir.

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119 Q. Now, those are different than the reports that you described beginning in '68?

A. That is correct, sir.

120 Q. In general terms, do you read these Younger Laboratory reports as indicating any toxicity effects on living creatures?

A. I read the results of these reports as toxic effects at fairly high levels of exposure.

121 Q. What, if any, action did Monsanto take in consequence of the reports by Younger Laboratories in 1958 and '62?

A. Well, the reports that we are discussing now are to establish what type of material this was in terms of storing and shipping; for storage and shipping purposes. The action taken as a result of these studies was to include on the label that was applied to containers of this material the appropriate words referring to containing chlorinated hydrocarbon, do not get on your skin, do not breath; these kinds of comments.

122 Q. Was there any warning at any time on the labels with respect to ingestion or warning against

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ingestion by living creatures?

MR. PETERS: Objection, please.

THE WITNESS: I don't remember those specific words, no, sir.

123 Q. Well, apart from those specific words, anything generally or similar that would warn against ingestion?

MR. PETERS: The letters - the warnings are included in our appendix here.

MR. PLAUT: Well, he may refer to the appendix in answering his question.

MR. PETERS: That is right.

THE WITNESS: If I would refresh my memory, the thought that I have in reading that label that existed at that time, I certainly wouldn't ingest the material. I don't know if others would feel the same way. The wording to which I refer which was on the labels that were designed at the time and in use at the time, and today that wording is still on the current label and reads as follows: "Caution, contains chlorinated hydrocarbons. Avoid prolonged breathing of vapors or

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mists. Avoid prolonged contact with eyes or prolonged contact with skin. If skin contact occurs, remove by washing with soap and water. Following eye contact, flush with water. If clothing becomes soaked with fluid, launder before wearing again."

124 Q. Is it fair to say that at no time has Monsanto ever issued a label or warning against ingestion by living creatures?

A. No, sir.

125 Q. What warning has been issued against ingestion by living creatures and when?

MR. PETERS: Objection. You may answer.

THE WITNESS: I am trying to recall the dating, the timing; there was a time in '71, I believe, in which we included on the label the reference to avoid - and I don't remember the exact words.

126 Q. If it is '71, we will come back to that later.

A. The reference was to human food, etc.

127 Q. Is it fair to say at the moment that prior to this

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change in '71, there was no warning or caution against ingestion of PCB's?

A. No more so than for any other industrial chemical.

128 Q. Reference is made to a thing called OS-95N2F. in the Younger Laboratory reports, what is that?

A. That is a mixture of chemicals. One of the ingredients was a polychlorinated biphenyl.

129 Q. That is a commercial mixture which sold under a tradename listed in answer to Interrogatory No. 4?

A. It was a material that was being looked at for potential commercial use. I do not believe - I have no evidence to indicate that it was a successful commercial product.

130 Q. Under Item 4 in the appendix are references to the Younger Labs and it is indicated that in 1962, eight different Aroclors were, right?

A. Yes, sir.

131 Q. I have lost track, you indicated yesterday how many Aroclors there were and I don't remember?

A. I believe those that I referred to yesterday are all included on this list except for the one that I referred to as 1272.

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132 Q. Again I am reaching back to yesterday, my memory is that there was testimony with respect to generally an oil or fluid used for preparing food or cooking food - strike it out. Was any product which used Aroclor used for cooking food in the fluid?

A. I am confused at which fluid you are talking about, sir.

133 Q. I am trying to get away from the heat transfer type of thing. Some foods are prepared in oils, cooked in them?

A. That is correct.

134 Q. Were you aware of any product in which food was cooked which employed Aroclor?

A. No, sir.

135 Q. Now, if you will, sir, look at Interrogatory No. 36. You indicate in your answer that the question should limit itself to the specific type of polychlorinated biphenyl germane to this case, do you read that?

A. Yes, sir, I see that.

136 Q. What specific type of polychlorinated biphenyl do

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you say is germane to this case?

A. It is my understanding that this polychlorinated biphenyl that is supposedly involved here is about the 40-percent chlorine content.

137 Q. Or higher?

A. I haven't heard a higher number. 40, 42, 48, somewhere in the forties.

138 Q. The closest is 1242, isn't it, or 48?

A. Both 42 and 48 have been referred to here. I don't remember just which document.

139 Q. All right; how do you say that 1242 and 1248 are germane to the case to the exclusion of others?

A. I have read some documents; I can't recall specifically where I saw these references.

140 Q. Aside from the documents,can you recall the context?

A. The context of which, sir, the document itself?

141 Q. Yes, the subject or the notion which led you to say that we are concerned in this case with the 40-percent chlorine group.

A. As best as I can recall, any material or references made to this case that I am aware of has never

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referred to 1221, 1232, 1254, 1260. As best as I can recall, the reference has been to 1242 and/or 1248, I am not really clear whether both or one or the other of these is mentioned; so, as best as I recall, only those Aroclor mixtures with numbers 1242 or 1248 are of some significance in this matter.

142 Q. Is that in connection with some testing that was done that you get these figures from?

A. I believe so, yes.

143 Q. And testing specifically with regard to mink?

A. I don't know of any testing regarding mink, no, sir, in this case.

144 Q. Do some living creatures react to smaller percentages of chlorine as opposed to higher percentages on lab tests?

A. Yes, there is a species variation.

145 Q. Then I am still at a loss, sir, to know why you select the 40 percent chlorine group as being germane to this case and say the 1221 or 1272 is not germane?

A. Well, first of all, to pick those two you just

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mentioned, they were produced in so limited quantities that I doubt seriously that they existed at the time this incident is alleged to have occurred. 1272 hasn't been produced since the middle fifties. 1221 has been produced at such low quantities and for very specific uses, I find it difficult to imagine that somehow it is involved in this case.

146 Q. Is the great mass of the company's production over the years concerned with 1242 and 1248?

A. Yes, sir.

147 Q. During the period, say, from 1965 through 1970, is it fair to say that the great majority of production was in the range of 40 percent chlorine?

A. Yes, sir.

148 Q. Was there any significant production of 1232?

A. No, sir.

149 Q. Any significant production of 1254?

A. That was fairly significant, yes, sir.

150 Q. How about 1260?

A. Less so than 1254.

151 Q. Is there any necessary relation between the

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percentage of chlorine and the particular application for which the product is sold?

A. Oh, yes.

152 Q. So that the quantities, I gather, depend on what the market requires?

A. Correct.

153 Q. Can you tell me principally the products for which - well, let me change that - the applications for which 1242, 1248 and 1254 were manufactured?

A. The principal applications of Aroclor 1242 included its use in electrical capacitors, as an ingredient in industrial hydraulic fluids and as a heat transfer fluid. The principal applications of 1248 - no, let me correct that - another major application of Aroclor 1242 was in the carbonless reproduction paper application. Now, addressing ourselves to Aroclor 1248, the principal applications there include its use in heat transfer fluids and some limited use in inks, adhesives. In any event, Aroclor 1248 was not a high-volume product. Aroclor 1254 found its principal application as a transformer fluid.

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MR. PLAUT: I am sorry, I missed that, that is 1254?

THE WITNESS: 1254 as a transformer fluid ingredient and an ingredient in adhesives and surface coatings.

154 Q. (By Mr. Spellman) When you say surface coatings, are you describing things like lacquers or paints?

A. Yes, sir.

155 Q. I have in mind now the milk problem which we discussed earlier which allegedly related to the surface on the silos.

A. Yes, sir, the application was primarily one of coatings for masonry surfaces and the application in silos was an extension of that type of application.

156 Q. Was there any test evidence of the presence of 1254 in any of the silos in question?

MR. PETERS: Objection, please; you may answer.

THE WITNESS: The early part of your question I didn't follow.

157 Q. Was there any evidence of the presence of 1254 in the surface finish on the silos?

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MR. PETERS: Objection.

THE WITNESS: Samples were taken and analyzed and Aroclor 1254 was determined to be present, yes.

158 Q. Was it determined that 1254 was present in the milk?

MR. PETERS: Objection, please.

THE WITNESS: Yes, sir.

159 Q. Were any other designations of Aroclor found present?

A. No, sir.

160 Q. Was the production of 1260 during the period '65 through '70 small or was that substantial?

A. It was a respectable business. Its primary use was as a transformer fluid. It is an ingredient in transformer fluids.

161 Q. How about 1262 during that period?

A. Again at lower volumes than the others we talked about. 1262 found its principal application in adhesives.

162 Q. Now, what about 1268?

A. Less so than the others and again an adhesive

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ingredient.

163 Q. I guess the only one we haven't talked about is 1232.

A. 1232 was a very low-volume product and it seemed to suit some of our customers as being a little less viscous than 1242 and for their purposes appeared more active.

(Discussion off the record.)

164 Q. (By Mr. Spellman) We have had some discussion earlier, Mr. Papageorge, about the poultry problem for lack of a better term in North Carolina in some cases that were pending down there; do you recall that?

A. Yes, sir.

165 Q. Were tests made to determine the presence of any PCB's in that case?

MR. PETERS: Objection, please.

THE WITNESS: Tests were made, yes, sir.

166 Q. Was the presence of any PCB's determined?

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MR. PETERS: Objection.

THE WITNESS: Yes, sir.

167 Q. Which?

MR. PETERS: Objection again.

THE WITNESS: Which of the Aroclors?

168 Q. Yes.

A. Aroclor 1242.

169 Q. Has Monsanto made any other tests disclosing the presence of Aroclor in the environment other than this milk question and the poultry question?

MR. PETERS: Now, I think you ought to - so there won't be a misunderstanding, your question was, Was there any tests made in North Carolina? Do you mean by Monsanto or by others?

MR. PETERS: I had meant to inquire on that one on Monsanto. Did Monsanto make any tests on the North Carolina problem?

MR. PETERS: Note my objection, but you may answer.

THE WITNESS: We made some

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determinations, yes, sir.

MR. PLAUT: May I ask for clarification, tests made by Monsanto Laboratories or tests by outside laboratories procured by Monsanto?

MR. SPELLMAN: Well, I haven't got that far yet.

170 Q. Let's back off so we all understand what we are talking about. You indicated that in respect to the milk problem, the milk cases - - -

A. Yes, sir.

171 Q. The presence of Aroclor 1254 was determined by tests?

MR. PETERS: Objection.

THE WITNESS: Yes.

172 Q. Were those tests done by Monsanto personally?

MR. PETERS: Objection.

THE WITNESS: A few tests were done by Monsanto personally.

173 Q. Were those tests or some of those tests made by outside laboratories by the request of Monsanto?

MR. PETERS: Objection.

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THE WITNESS: No, sir.

174 Q. Were tests made by others involved in the litigation?

MR. PETERS: Objection.

THE WITNESS: Yes, sir.

175 Q. And did all the tests disclose the presence of 1254?

MR. PETERS: Objection.

THE WITNESS: Not all tests, no, sir.

176 Q. Did all of the tests that disclosed the presence of Aroclor disclose 1254?

MR. PETERS: Objection.

THE WITNESS: Yes, sir.

177 Q. And no others?

MR. PETERS: Objection.

THE WITNESS: To the best of my knowledge, no others.

178 Q. Now, doing the same thing with respect to the poultry problem in North Carolina, were tests made by Monsanto personally to determine the presence of PCB's?

MR. PETERS: Objection.

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THE WITNESS: Yes.

179 Q. And were any found?

MR. PETERS: Objection.

THE WITNESS: Yes.

180 Q. Which?

MR. PETERS: Objection.

THE WITNESS: Aroclor 1242.

181 Q. Were tests made by any outside laboratory at the request of Monsanto?

MR. PETERS: Objection.

THE WITNESS: No, sir.

182 Q. Were tests made by any of the other parties to the litigation?

MR. PETERS: Objection.

THE WITNESS: I understand there were, yes, sir.

183 Q. Do you have any knowledge as to whether they found the presence of PCB's?

MR. PETERS: Objection.

THE WITNESS: I am told that they did find in some samples the presence of PCB's.

184 Q. And which PCB's did they find?

MR. PETERS: Objection.

THE WITNESS: They reported - predominantly the reports referred to Aroclor 1242.

185 Q. What other Aroclors were found?

MR. PETERS: Objection.

THE WITNESS: It seems to me I recall some reports that were confused as to whether it was Aroclor 1242 or Aroclor 1248, and, in some instances, the material was identified as Aroclor 1254.

186 Q. Now, those tests with varying results were not Monsanto's tests?

MR. PETERS: Objection.

THE WITNESS: That is correct.

187 Q. And do you question or does Monsanto question the reliability of some of those tests?

MR. PETERS: Objection.

THE WITNESS: In some instances, yes.

188 Q. But I take it it does not question the reliability of those which show 1242?

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MR. PETERS: Objection.

THE WITNESS: We question some of those also.

189 Q. Now, other than the tests made by Monsanto in respect to the milk problem and the test made in respect to the poultry in North Carolina, what tests have been made by Monsanto to determine the presence of PCB's in the environment?

MR. PETERS: Objection, since it is not limited to time.

THE WITNESS: Our laboratories have been trying through the years to be cooperative and we have on occasion been asked to look at samples. These samples were varied in nature. At the moment I don't recall specifics. I do recall in general they would be samples, for example, in water near one of our customer's plants. The specifics I just don't recall. I do know that we have looked at samples.

190 Q. Will all of those tests be reflected in the reports which you have provided copies for us of?

A. No, sir.

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191 Q. Are all of those tests made by Monsanto documented somewhere in the files?

A. As a matter of normal operation, our laboratory does document, yes, sir.

192 Q. And is that the kind of documentation that would be contained in the files which you maintained?

A. No, sir.

193 Q. Would the water test which you have referred to have occurred between 1965 and the end of 1970?

A. I don't remember.

194 Q. Have any tests been made to determine the presence of PCB's in turkeys? Tests by Monsanto?

MR. PETERS: Objection.

THE WITNESS: No, sir.

195 Q. Tests by any laboratories at the request of Monsanto?

A. No, sir.

196 Q. Did Monsanto make any tests on the pelican problem claimed out in California?

A. No, sir.

197 Q. Can you tell me of any tests made by Monsanto or at its request since 1965 showing the presence of

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PCB's in any subject matter in the environment other than this water test, the milk tests and the chickens we have referred to earlier?

MR. PETERS: Objection since it is not restricted as to time.

THE WITNESS: As I indicated earlier, we have analyzed many and varied samples. I have a problem in recalling the specifics because this became sort of a public service kind of activity. In some instances I was informed of the results and others I was not. We have analyzed some feed ingredients, do you have that in mind when you ask about samples?

198 Q. Yes.

A. Yes, we have analyzed feed ingredients. As best we I recall - let me back off. Monsanto has never gone out and deliberately looked for wildlife samples. Wild fish and pelicans and seals and this sort of thing. We decided very early that there were enough investigators involved in the governmental laboratories and universities that they could handle this. The samples normally involved a situation

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where someone thought he had a problem. He thought his problem was related to polychlorinated biphenyls and he would either ask for our direct assistance or for advice where they could go with their samples. In some instances we were able to refer them to a laboratory. In other instances, we were able to look at his sample and compare the results he got with other laboratories. This has gone on for years. It involved the cases referred to as the silo cases and the poultry feed cases and some of our customers wanted samples. That is all, really, that comes to mind right now.

199 Q. Who would maintain the records of this kind of analysis since 1965?

A. This would be the group leader or his technicians and chemists in our analytical services department of our research group.

200 Q. Would Dr. Richard be in general charge?

A. No, sir, this comes under the direct supervision of another - of other individuals.

201 Q. Suppose that I wanted to inquire as to Monsanto's records on these various tests and references of

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people to outside laboratories, who would I ask and what would I ask for?

A. All right; there are two answers to that. The references to outside laboratories, I probably made as many of those as anyone in Monsanto. The question of where would you get information regarding the samples that our laboratory worked on would have to be addressed to Dr. Robert Keller.

MR. PETERS: I have here, Larry, records indicating tests done for Rozansky Feed Company and Agway.

(Discussion off the record.)

202 Q. (By Mr. Peters) Mr. Papageorge, Mr. Peters has just produced correspondence on Mueller Company letterhead dated April 1, 1971, and April 19, 1971; and on the Rozansky Feed Company letterhead dated April 1, 1971, and April 29, 1971, together with some Monsanto reporting forms having to do with tests on Agway products; are those the kind of feed analyses that you were talking about?

A. Yes, sir.

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203 Q. And he is also including here the effect of dietary polychlorinated biphenyls on the growth and reproduction of mink, you are familiar with that?

A. This is concerning Dr. Ringer?

204 Q. That is correct.

A. Yes, sir, I am familiar with that.

MR. SPELLMAN: Can we just mark it and have copies?

(Whereupon, Papageorge Exhibit No. 1 was marked for identification.)

205 Q. (By Mr. Spellman) Would you tell me what Dr. Keller's title is again?

A. I am not positive, but I believe it is manager-applied sciences section.

206 Q. And that is part of the functional products group, is it?

A. No, sir, it is part of the research department of Monsanto Industrial Chemicals Company.

207 Q. Did Dr. Keller perform the same duties prior to the reorganization of the company which occurred

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back around '72, as I remember?

A. Yes, sir.

208 Q. What is the relationship, if any, between Dr. Keller's function and Dr. Tucker's function?

A. Dr. Tucker reports to Dr. Keller.

209 Q. Has he been in that same relation to Dr. Keller for the last four or five years?

A. Yes, sir.

MR. PLAUT: Is Dr. Keller in St. Louis?

A. Yes, sir.

210 Q. Now, in response to the interrogatories, we have an appendix designated as Appendix B, are you familiar with that?

A. Yes, sir.

211 Q. Is that other material representing form letters to customers, distributors and soforth a part of the exhibit Appendix B or is that something different?

MR. PETERS: It is intended to be Exhibit B.

THE WITNESS: I thought that

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was all a part of it.

212 Q. The reason I asked is Appendix B is headed "Warning Letters and Labels."

MR. PETERS: That is labels you have in your hand.

213 Q. This is the labels; the reference to warning letters is this section?

(Indicating)

A. That is correct.

214 Q. Just so the record is somewhat clear, the section including the warning letters has a letter, form letter of February 9, 1970, at the top and contains multiple copies of Chemical Week and of a 22-page document generally entitled Aroclor plastersizers, does it not?

A. What you have described in that collection of material, but there are other letters and other copies of other brochures, etc.

215 Q. Now, are all of the materials contained in Appendix B materials prepared in the ordinary course of Monsanto's business?

A. I don't quite know how to answer that because - - -

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Yes, this is what we would normally do in our course of business as we get information, that is correct.

216 Q. The first label in the labeling group indicates by longhand in the upper right-hand corner that it is an Aroclor label used from before May 2, 1947, do you read that?

A. Yes, sir.

217 Q. Parenthetically a reference is made to chlorinated diphenyls. D-i rather than b-i?

A. Correct.

218 Q. What is the difference?

A. There is no difference.

219 Q. What is the meaning of the word "technical" in the parens?

A. Normally in the chemical industry the word "chemical" applies to a mixture that is used for commercial purposes as distinguished from that material which is used in the research laboratory, a very high purity.

220 Q. There are indications in the second sheet that a different label was used when the tradename Aroclor

could not be used; what was the reason that Aroclor could not be used at that time?

A. This label would be applied in those situations when our customers would request that their label be affixed to the container.

221 Q. So that is customer satisfaction that you are trying to accomplish there?

A. Correct.

222 Q. Further on there is reference to pentachloro biphenyl, was that simply another name for PCB?

A. That refers to one of the names for one of the homologues of PCB. Homologues which means one of a subject group all of which contain chlorines. That is where the penta comes from. So there are many isomers forming a family or group called homologues.

223 Q. But those five chlorine elements as embraced in that name would still be generally embraced in the general term "polychlorinated biphenyls"?

A. Yes, sir.

224 Q. Now, if you will, sir, about the fourth sheet down

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in longhand on the upper part of the page, it indicates, "Labels July 25, '60, to October 18, '61, read same as May 7, 1969," right?

A. Yes, sir.

225 Q. And the only difference between them was a size change?

A. Yes, sir.

226 Q. Now, are the labels represented on that page where that language appears typical of the warning labels used from May, '59, through July, '60?

A. Yes, sir.

227 Q. Were they used previous to May, '59?

A. Previous to that, were the labels we referred to earlier when describing technical and chlorinated diphenyl.

228 Q. Was there a change in July of 1960 or did the same label continue after July, 1960?

A. The same label continued.

229 Q. And no change, I take it, was made until the next entry shown as May 11, 1970?

A. That is correct.

230 Q. And on the page in which the words "printed

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May 11, 1970," appear, there is an environmental message printed, is that right?

A. Yes, sir.

231 Q. What, if you can tell, was the message that Monsanto was trying to convey to customers by indicating that some studies have shown that PCB's may be an environmental contaminant?

A. In early 1970, we were getting these reports I referred to earlier that various investigators were able to determine that polychlorinated biphenyls existed in various samples obtained from the environment. So from that early information, we assumed here and used the words"may be an environmental contaminant," because we did not feel that we had all the information that we felt we should have to demonstrate that it was.

232 Q. Is that environmental information statement the same as Monsanto is using today?

A. I believe so.

233 Q. Was the intent of that environmental label merely to tell the customer of the possibility of PCB's being a possible environmental contaminant?

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A. That is correct.

234 Q. Was there any intent to warn against any possible danger from PCB's?

A. That is right, we had no evidence of any danger, but it could be implied that if you kept it out of the environment, if there were a danger, you would be preventing the danger from occurring.

235 Q. Do you today have any evidence of danger to the environment?

MR. PETERS: Objection.

THE WITNESS: As I indicated earlier, I have no reports that tell me that the polychlorinated biphenyls out there in the environment today are harming the environment.

236 Q. Apart from any reports, do you have any evidence that the presence of PCB's are dangerous to the environment?

A. No, sir, not at the levels that exist out there today.

237 Q. What level is dangerous?

MR. PETERS: Objection, please.

THE WITNESS: Well, this varies

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with the type of polychlorinated biphenyl, the species of wildlife or creature that is exposed and the conditions of the exposure; so there is no one number.

238 Q. Well, you indicate that at the existing levels, there is no danger, as I understand you?

A. As to the best of my knowledge, the levels of PCB's that are found out there in rivers, lakes and streams cannot be related to any known harm to living creatures.

293 Q. Then what is the maximum level of PCB's at which no danger is presented to any living creature?

MR. PETERS: If you know.

THE WITNESS: I don't think I have a number. I don't know.

294 Q. I am trying to explore what you mean by saying at the existing levels there is no danger and understanding that it varies with the different species, I am trying to find from you what level you say there can be of the presence of PCB's without representing any danger to anything?

MR. PETERS: If you know.

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THE WITNESS: I do know of one study which was conducted to demonstrate that juvenile shrimp when exposed to ocean water at a level of a part per billion are affected.

295 Q. You mean one part per billion?

A. One part per billion in the water in which these juvenile shrimp are exposed, the juvenile shrimp suffered mortality. This is one report, one study from a government laboratory. I do not know of any other reports or studies that give any information as to what levels of polychlorinated biphenyls other creatures can tolerate out in the environment.

296 Q. When did you learn of the report in respect to juvenile shrimp?

A. As best as I recall, it was sometime in 1971.

MR. PETERS: I move for the record to have the answer stricken because of the time.

MR. PLAUT: May I interrupt simply to inquire when you are talking of one part per billion, would that be expressed 1 p.p.b.?

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A. That is the common way to express it, yes, sir. And the billion, to help avoid confusion, is the American billion. This is ten to the twelfth. That is twelve zeros after the one. I am sorry, ten to the ninth; one and nine zeros.

297 Q. (By Mr. Spellman) Mr. Papageorge, there is something apparently inscribed under the words "environmental message" which didn't copy too well in the Xerox, do you know what that is?

A. No, I don't.

298 Q. I interpret the No. 2 as W-something notified; it sounds like it might be William Papageorge.

A. I can only guess. I do not know.

299 Q. Were you in general charge of the labeling changes?

A. I don't know what you mean by in general charge. I was - let's call me the stimulant that encouraged and promoted the label changes.

300 Q. And subject to whose approval was the label change made?

A. The approval is obtained from several individuals representing several functions, each of which is expected to have something to contribute in

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reviewing the proposed wording.

301 Q. Who drafted the language on the environmental message?

A. I believe I was the one to first put these words together, but my thinking was influenced by consultation with several other people.

302 Q. Was it your responsibility once the environmental message was approved by the appropriate authorities to see that it was put into effect?

A. Not a responsibility in the sense that if it weren't, I would be - what is the word I want here - negligent for not doing my duties, this kind of thing, no, sir.

303 Q. What I am trying to get at is once a decision is made by management to do something, somebody is generally responsible to see that it gets done?

A. That is correct, sir.

304 Q. Once management decided to use this environmental message on its labels, who had the responsibility to see that it was done?

A. The ultimate responsibility rests with the director of the business group which markets this product.

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The various steps in getting this label designed, printed, ordered, delivered to the warehouses and all other points of use rests withdifferent people in the organization.

305 Q. All right; all of the business groups were part of Monsanto Industrial Chemicals, were they not?

A. At what point in time?

306 Q. Well, that were concerned with the environmental message.

A. Well, when this message was designed, Monsanto Industrial Chemicals Company did not exist.

307 Q. That was back when you had eight or ten divisions, as I remember?

A. Yes, sir.

308 Q. So that it would have been approved by various business groups?

A. It is one business group and within the business group there is a representative of the manufacturing activity, a representative of the distribution and shipping activity, a representative of the research activity, a representative of the marketing activity; and, in addition to that, there is a

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staff function for total Monsanto which concerns itself or it has the responsibility for label design and ordering of these labels, placing the orders with the printing shops.

309 Q. What was the general name of the business group that was concerned with the product subject to this labeling change?

A. Specialty products group.

310 Q. And that was part of which division, then?

A. At that time it was called the organic chemicals division.

(Whereupon, the luncheon recess was taken.)

311 Q. (By Mr. Spellman) Mr. Papageorge, before we broke for lunch, we were talking generally about the environmental warning which was introduced into the labels which are used for the product and you indicated some discussion with other people before arriving at the final wording of the environmental message, right?

A. Right.

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312 Q. In the course of that discussion with others in the company, what consideration, if any, was given to providing warnings against ingestion by living creatures?

A. I don't recall any specific consideration given to that thought primarily because these materials were never intended to be used in any feed or food or anything of that sort, so this is not the normal train of thought that one would take with industrial materials of this kind.

313 Q. Did any of you in the course of these discussions have any thought that leakage might occur and find its way into material which would be eaten by living creatures?

A. I can't speak for the others that were involved. This thought did occur to me and this is what I had in mind when I referred to keep it out of the environment in this sentence here. In the paragraph.

314 Q. Apart from what the others may have thought, was there any discussion by you with any of the others in the company in respect to the prospects

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of warning against dangers from leakage into things that might be eaten by human creatures?

A. I don't recall any.

315 Q. Is it your testimony that the thought may have occurred to you and that you intended the thought in that final language that was adopted?

A. I don't know that I would express it that way. The reports I kept hearing was the presence of polychlorinated biphenyls in fish and fish-eating birds, for example. Primarily water-related creatures. And my line of thought, as I recall, was one that if we keep it out of the water, we automatically prevent it from exposure to fish and eventually consumption by fish-eating birds and other creatures.

316 Q. Was it your intention that the language chosen for the environmental message on the label would convey to customers a warning against leakage which might result in feed or living creatures?

A. I don't know that we intended that it convey that thought. The thought that we wished to convey was to keep the material away from the environment,

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period. That is the thought we wished to convey.

317 Q. What is the likelihood that a PCB content in one material, say ink, will migrate or flow to another material upon which the ink is printed?

MR. PETERS: If you know.

THE WITNESS: Migration does take place from material to material and it varies with time, type of polychlorinated biphenyl and other materials present.

318 Q. How long has this tendency to migrate been known to Monsanto?

A. I don't know.

319 Q. Was it known prior to 1970?

A. Yes.

320 Q. Was it known prior to 1969?

A. I personally don't have any information that tells me that, no.

321 Q. You don't know one way or the other?

A. No, sir.

322 Q. Do you know of any test work that was done at any point by Monsanto at its request to establish the tendency to migrate?

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A. No, sir.

323 Q. There is reference in this labeling file to the Crummick Plant. Is that the plant at Sauget?

A. That is right, sir.

324 Q. Where is Sauget in relation to St. Louis?

A. It is east of St. Louis on the Illinois side of the Mississippi River.

325 Q. How far?

A. How far from what point?

326 Q. How far, say, from the middle of St. Louis?

A. 5 miles. Across the bridge and down the highway.

327 Q. Now, the next question is in relation to one that has something embossed on it and it is hard to read; it follows one that is marked August 17, 1970, on Therminol. I guess it is the third one that starts with reference to Therminol FR1. Can you translate the longhand at the bottom of that page?

A. "Used prior to August, 1970." First printed August-something, 1969.

328 Q. Is the FR1 something which contains PCB's?

A. Yes, sir.

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329 Q. Can you relate that to the numbering system we used with the Aroclor like 1242?

A. Yes, it is equivalent to the Aroclor 1242.

330 Q. Further in the file is a Therminol labeling memo dated August 5, 1970, addressed by Mr. Sido to Virginia Koenig, again my problem there is translating some of the materials that are written on in longhand.

A. Any particular portion or all of it, sir?

331 Q. All of it, please.

A. The first note I see is near the top right-hand corner with an arrow pointing to an encirclement around the typed expression of FR-2 and FR-3 labels and the pencil note says, "Will be discontinued by end of year per Jack Falon."

332 Q. While we are talking about the FR-2 and FR-3, which Aroclors were used there?

A. FR-2 was analogous to Aroclor 1248. FR-3 was analogous to Aroclor 1254.

333 Q. I take it the next writing is a telephone exchange or number?

A. That is a telephone extension to Mr. Jack Falon's

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office. I see here July 30, 1970. The UL circle to go - I can't make out the next word; it starts with c-o. It looks like c-o-r something, authorized. Then it appears to me like the next word is Hallowing statement to be used. I can't make out the rest of it. The following line and the fourth line is to fire hazard only. Then there is a sketch, sort of a diamond-shaped figure with the initials F.M. inside the diamond-shaped sketch and the note to the right of it that says, will not be put on labels for time being. Above information from Jack Falon. It looks like someone's initials there. I believe it is M. L., 9-22-73. Then there is a date 8-25-70, reprinted. I can't make out the following word and it says another word I can't make out. On Therminols FR-1 and FR-2 and FR-3, to Papageorge to his requests.

334 Q. Who is Jack Falon?

A. Jack Falon at that time was the marketing manager for heat transfer fluids.

335 Q. What does he do now?

A. He works for another company; I have forgotten

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the name of the company or what his present assignment is.

336 Q. Is the reference to UL circle anything to do with Underwriter's Laboratory?

A. That is right, sir.

337 Q. Is there anyone in the company named Hallowing?

A. I am not familiar with that expression.

338 Q. And the statement Hallowing statement to be used, if I read it correctly, means nothing to you?

A. No, sir.

MR. ROGERS: Off the record.

(Discussion off the record.)

339 Q. (By Mr. Spellman) There is a memorandum from you next in the group of papers to Mr. Sido under date of May 27, 1970?

A. Yes.

340 Q. Calling for the inclusion on the labels of the statement, contact Monsanto representative regarding disposal?

A. Yes.

341 Q. When did that language begin to appear on the labels,

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if it did?

A. I do not remember, I would have to refresh my memory.

MR. PLAUT: May we ask at this time that there be a better copy made of that August 5, 1970, Therminol labeling letter to which we have just been referring so that the writing on it would appear a little more clearly?

MR. PETERS: All right; we will see if we can get a better one.

MR. PLAUT: Would you please, or preferably the original?

THE WITNESS: I do not recall when the statement referring to the Monsanto representative for disposal information finally appeared on the labels.

342 Q. (By Mr. Spellman) Is it your testimony that it did at some point appear on the labels?

A. Yes, in fact there is a specimen in the collection given to you that contains that statement, but I don't know that that is the earliest reference. This is a label referring to Therminol FR-1 with a

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note that it was printed February 11, 1971.

343 Q. Did that language appear on labels for products other than Therminol?

A. I believe so, sir, yes.

344 Q. In the same memorandum to Mr. Sido, there is reference to Therminol FR-0 and Therminol FR-lo temp.; how do they relate to Aroclor?

A. FR-0 is Aroclor 1221. No, let me think a bit. I am sorry; FR-lo temp. is Aroclor 1221. FR-0 is Aroclor 1232. I believe I have that correct.

345 Q. Did the label changes which occurred in 1970 and 1971 require any approval by any public agencies or any government agencies?

A. No, sir.

346 Q. Did you confer with any government agencies in connection with that label?

A. No, sir.

347 Q. If you move on, sir, there is a memo from Wheelock, I take it, to Louis dated November 21, 1947.

MR. PETERS: May 21?

MR. SPELLMAN: November 21, '47; do you have that?

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THE WITNESS: Yes, sir.

348 Q. There is reference to Aroclor 5460, do you see that in the second line from the bottom?

A. Yes, sir.

349 Q. Now, was that a Therminol?

A. Yes, sir.

350 Q. Further on in the same group there is a memorandum from Mr. Sido to Mr. Anway dated August 18, 1959; do you have that?

A. Yes, sir.

351 Q. I gather that indicates some requirements by the state of California with respect to labeling?

A. Yes, sir, that is what it indicates.

352 Q. And did the state of California require approval or insist on approving of labels before they were used?

A. I do not know.

353 Q. Was the label change adopted in 1970 and/or 1971 submitted to the state of California for approval?

A. No, sir.

354 Q. Was it submitted to any state?

A. No, sir.

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355 Q. Was it submitted to any state?

A. No, sir.

356 Q. The next memo I simply can't read at all; I don't know whether your copy is legible or not.

A. I believe this is the August 19, 19 - I can't even read the date.

MR. PLAUT: Let's have an original of that one?

MR. MUIRHEAD: 1959.

357 Q. (By Mr. Spellman) It looks like it is from Mr. Sido.

MR. PLAUT: Why don't you try to get a better copy.

THE WITNESS: Sido to Sigler.

MR. SPELLMAN: And, Bob, the next sheet is probably simply an order form, but it also is pretty illegible.

MR. CHIESA: All right. Now, also there is one dated August 20, 1959, to Mr. Sido from Mr. Sigler which apparently refers back to the other one we couldn't read and there is some longhand at the bottom which I am having

WATER_PCB-SD0000057768

difficulty with; can you translate that?

A. I will attempt to read this one copy I have of that same memo. Penciled note marked No. 1 says no I.C.C. labels are required. Then the symbol for that, that is the triangular symbol, three dots. No changes needed in present freight classification book. Note No. 2, medical department advises the exposure during T/C unloading is not considered prolonged or such that special T/C labeling or placards are called for! Now, Subnote A is less clear, it says this, I believe: The caution statement recommendations which are requested for drums should be placed in the - I can't make out the final two words. It looks like some kind of publication. I am sorry, trade bulletins, that is it. It should be placed in the trade bulletins.

358 Q. Do you understand what the reference is to T/C?

A. Tank car.

359 Q. Now, towards the back, Mr. Papageorge, there are order forms or invoices, I am looking at one dated 9-4-1970.

A. Yes, sir.

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360 Q. There is language near the bottom, "For the control reduction or elimination of air or water pollution and exempt for sales and/or use tax." Do you know what that refers to?

A. Yes, sir.

361 Q. What?

A. In the state of Alabama, there is provision whereby sales and use tax need not be paid for supplies, material, equipment, what have you, that is purchased in that state that in any way relates to air and water and pollution control.

362 Q. Now, so far as your labeling was concerned, you were having regard for water pollution, but not air pollution, I take it?

A. No, that is for air pollution also.

363 Q. There is an exemption in the tax law for sales concerned with air or water pollution control?

A. That is correct, sir.

364 Q. From Monsanto's point of view, its concern in labeling was with respect to water pollution as opposed to air pollution, was it not?

A. No, sir, its concern was from keeping the

polychlorinated biphenyl from getting into the environment, whether it be air or water, we did not make that distinction.

365 Q. Have you found any evidence of air pollution; that is, contamination, by PCB's?

A. I have been present when discussions were held and I have seen some reports that attribute some of this polychlorinated biphenyl that is found worldwide from having been transferred via some air routes, so it could indicate that air pollution has played a part here.

366 Q. Have you been able to figure out at Monsanto how it gets into the air and travels through the air?

A. We can only speculate, sir.

367 Q. What is your speculation?

MR. PETERS: Objection, please, but you can go ahead and answer.

THE WITNESS: We can reasonably assume that many items which contained polychlorinated biphenyls; for example, carbonless reproduction paper when disposed improperly through the normal municipal incinerator which doesn't

reach the proper high temperatures, could well result in a vaporization of the polychlorinated biphenyls which, of course, would then find their way up the stack into the air. That would be an example of air pollution by polychlorinated biphenyls.

368 Q. Has Monsanto made any tests which disclosed the presence of PCB's in air?

A. We have made tests as it relates to our plant operations, yes, sir.

369 Q. Has Monsanto caused or had tests made by outside people which establish the presence of PCB's in air?

A. No, sir.

370 Q. What level of PCB's have you found in tests of the air around the plants?

MR. PETERS: Objection, please.

THE WITNESS: Nondetectable.

371 Q. By that, you mean less than .05 parts per billion?

A. That is correct, sir.

372 Q. Where were these tests made, at what plants?

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A. At the plant located in Sauget, Illinois.

373 Q. Were those tests at Sauget run over a period of days or was it all one shot, one operation?

A. These tests were run over a period of days. Enough to satisfy us that we had the operation under control.

MR. PLAUT: When was that?

THE WITNESS: They were run in - let me think - they were run following the installation of a polychlorinated biphenyl incinerator which, as I can best recall, occurred in 1971, and they were again run in 1972.

MR. PETERS: For the record, I move to have the answer stricken.

374 Q. (By Mr. Spellman) Were any tests made by Monsanto for perspective air contamination other than in connection with an incinerator?

A. The teststhat were run did not only include the incinerator, but they included all activities involving polychlorinated biphenyls.

375 Q. When was the incinerator erected at Sauget?

A. As best as I can recall, it was erected starting

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in late '70, early '71, and I believe it was put into operation about the third quarter of 1971, as best as I can recall.

376 Q. This, I take it, was a part of the program which you were launching with the label change inviting people to consult your people about disposal?

A. That is right, sir.

377 Q. How could you distinguish on the tests, if you did, whether the PCB's found in the air were the product of the incineration or the product of manufacture?

A. Well, the two units are geographically separate. I don't recall the exact distance between the two units, but I am certain it is several hundred yards' distance. The samples of the air that were taken were taken near exhaust vents where we expected the highest concentration to occur, if it were there. It is possible again if the wind were from the right direction and the polychlorinated biphenyls were present, it is possible that the samples could have been contaminated by the other source, but since we didn't find any detectable levels, we didn't believe that this was a problem.

WATER_PCB-SD0000057774

378 Q. Were any tests made for air pollution prior to the erection of the incineration plant?

A. No, sir.

379 Q. Have any tests been made at any location where there is not any incineration plant; for example, Newport Wales?

A. I do not know at Newport Wales.

380 Q. Did the tests show readings however small in respect to the manufacturing plant at Sauget as well as at the incinerator?

MR. PETERS: Objection, please.

THE WITNESS: I did not see the laboratory chart that is developed during the analysis. I did see written reports and I was present at discussions at which the no-detectable answer was given in response to the question. Now, whether the laboratory saw something on the chart, I do not know.

381 Q. Have any tests been made of air separate and apart from one of your plants to see if there is any evidence of it just generally in the air?

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A. I am not aware of any activity involving Monsanto in looking for polychlorinated biphenyls in air, no, sir.

382 Q. I think you indicated earlier, and correct me if I am wrong, in municipal incineration some of the stuff is vaporized and gets into the air?

A. If you recall, I was speculating. This is a very possible - a good possibility that this would happen.

383 Q. Am I correct in understanding that basically the process of manufacturing PCB's is a vaporization process?

A. I don't understand the expression vaporization. As part of the purification of the product, there is a distillation that takes place which involves vaporization and condensing the vapors and collecting them. Now, all of this is done in a closed system. However, there are devices on these vessels to allow for any excess pressure to build up to vent to prevent explosion and these were the vents that were monitored to see if there was any leakage around the connections and so on.

WATER_PCB-SD0000057776

A. I am not aware of any activity involving Monsanto in looking for polychlorinated biphenyls in air, no, sir.

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384 Q. There has been no explosions at the plants in the process of manufacture, has there?

A. No, sir.

385 Q. Did the test determine whether or not the negligible quantities, however much there were, were carried by air currents or dropped immediately out of the air in the vicinity of the plant?

MR. PETERS: Objection.

THE WITNESS: I don't know that; the tests don't show that.

386 Q. I am not sure I know how to phrase the question, but let me try it descriptively. If you assume that you have something less than .05 parts per billion in the air on Monday, and the same amount on Tuesday and the same amount on Wednesday, will that total, will that add up, if it all drops in one location?

MR. PETERS: Objection.

387 Q. So that you now have .15?

A. Yes, simple arithmetic would say that if it all drops in one location and nothing is dispersed or destroyed, it would all add up, yes, sir.

WATER_PCB-SD0000057778

388 Q. So if you assume this hypothetically that these PCB's in air were carried by an air current and specifically dropped in a specific location, then you would have a buildup in that location?

MR. PETERS: Objection.

THE WITNESS: If we assume all these things, yes, sir.

389 Q. In general terms, Mr. Papageorge, there are a collection of letters which you supplied in response to the interrogatories, some of which went to customers and I understand some to distributors and soforth?

A. Correct.

390 Q. Do they all follow a general pattern?

A. Yes, the general pattern is one of attempting to keep our customers and distributors informed of developments as they became apparent to Monsanto so that they could take appropriate action as it relates to their business.

391 Q. The letters were sent out by various people in Monsanto, were they not?

A. That is correct.

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392 Q. Who was responsible for drafting the master form?

A. I do not know.

393 Q. Did each individual who sent out one of these letters prepare his own?

A. I can only guess that, sir, I don't know.

MR. PLAUT: Which way do you guess, yes or no?

MR. SPELLMAN: I don't think it helps one way or the other, but go ahead.

THE WITNESS: Either way. It could go either way. Sometimes individuals prepare their letters, sometimes another party prepares them and sometimes it is a composite of several inputs.

394 Q. I take it this packet of letters and various attachments were also done in the ordinary course of business in Monsanto?

A. That is right.

395 Q. My first reference is to a letter dated April 13, 1970, addressed to Dr. Hayes at the USDA by Dr. Kelly?

A. Yes, sir.

WATER_PCB-SD0000057780

396 Q. First, who is Dr. Kelly?

A. Dr. Emmett Kelly is Monsanto Company's medical director.

397 Q. Does that put him on the high levels of the company?

A. Yes, sir.

398 Q. He is at the top level rather than in one of the operating companies, I gather?

A. That is correct.

399 Q. Does he serve on the board of directors?

A. No, sir.

400 Q. But he is responsible directly to the board, is he?

A. Not directly, sir.

401 Q. To the president, then?

A. He is responsible to the individual we talked of yesterday, Mr. Throdahl.

402 Q. Is he the chief medical person in the employ of Monsanto?

A. That is right.

403 Q. Referring to the second paragraph, can you describe for me what is meant in the letter by the

WATER_PCB-SD0000057781

suggestion that, "chlorinated polybiphenyls improved the residual effect of lindane and possibly chlordane"?

A. All right; the expression chlorinated polybiphenyls is used to describe the chlorinated biphenyls and the chlorinated terphenyls; and the expression improved residual effect of lindane and possibly chlordane is meant to indicate that these non-pesticides, lindane and chlordane, remain effective longer in the presence of these chlorinated polybiphenyls. Does that help?

404 Q. Yes. Are either lindane or chlordane of the DDT group?

A. I don't believe they are considered to be of that group, no, sir.

405 Q. Was the use of Aroclor in lindane and/or chlordane one of the applications for which the product was sold?

A. Yes.

406 Q. Over what period of time was it sold for that application?

A. From the 1950's as indicated in the letter that we are looking at. Until the date of this letter,

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the records indicate a very sporadic, a very small volume of sales of polychlorinated biphenyls to this application.

407 Q. Which number designation of the Aroclors was used in this application?

A. My search indicated Aroclor 1254 was the preferred mixture.

408 Q. Was it used at any part of the country as opposed to some other part?

A. I do not know.

409 Q. When that product was sold for that application, were there any warnings in that context given with respect to possible dangers if consumed by living creatures? Strike it out.

A. No, sir.

410 Q. Strike it out. Were the same labels used on that Aroclor for that application as we previously discussed?

A. These Aroclors were labeled just like all the other Aroclors, yes, sir.

411 Q. Would you look at the first sentence of the last paragraph of page 1?

WATER_PCB-SD0000057783

A. Yes, sir.

412 Q. Is that a correct statement as of the time it was made?

A. I don't believe so, sir.

413 Q. As a practical matter, would you say it is a correct statement?

A. If we are considering the definition of practical in the same light, I tend to agree, then, yes. Again a primary producer seems to fit better.

414 Q. It is fair to say that they produced substantially greater quantities than anybody else in the United States?

A. That is correct.

415 Q. Now, I take it that this letter by Dr. Kelly was part of the program which was launched in 1970?

A. That is correct.

416 Q. With respect to withdrawal and change of labeling and soforth?

A. That is correct.

417 Q. From whom would Dr. Kelly get approval of this letter, if he needed approval?

A. I don't know that Dr. Kelly needed approval, but

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if he had to have approval, it would have to be one of discussion with his immediate superior.

418 Q. Mr. Throdahl?

A. At that time it was not Mr. Throdahl, it was another vice-president; but, in any case, he would normally discuss it with his superior.

419 Q. Was anything done by the USDA in response to this letter about re-registration of pesticide formulations?

A. As I recall, several months after our letter to the USDA, we saw a copy of a bulletin or a memorandum that went to pesticide formulators addressing itself to the use of polychlorinated biphenyls. I don't remember the exact time, however, but it seemed to me that there was a several-month interval of time that elapsed before the USDA reacted or took any action.

420 Q. I am not clear that I understand what action that they took.

A. The action was informing - as I remember the bulletin or the memorandum, it in essence said that as the formulators applied for a registration or

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re-registration of their product, the use of polychlorinated biphenyls would not be acceptable, or words to that effect.

421 Q. I seem to be out of sequence here. The next one I am looking for is 4-29-70, by Mr. Schalk - - -

(Discussion off the record.)

THE WITNESS: That is Mr. Turriff of Tab Chemical Company.

422 Q. Okay; I think you may have answered the question I had on that in respect to the letter by Dr. Hayes. At what point in time did Monsanto remove Aroclors from manufacturers of pesticides?

A. In April, 1970.

423 Q. With this letter; was that the announcement that went to the various customers?

A. That is typical of the type that went to the customers. This particular one went to a distributor of our material.

424 Q. Was Tab a distributor?

A. That is correct, and this is where the pesticide formulators got their polychlorinated biphenyl.

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425 Q. Did all pesticide formulator manufacturers purchase through Tab?

A. I am sorry, I misled you. The best information I can gather is what little polychlorinated biphenyls went into pesticide formulas was obtained by the formulators via a distributor rather than direct from Monsanto.

426 Q. The next one is 5-25-70, by Mr. Schalk to Mr. Giloth at Central Solvents; now, is Central Solvents a distributor?

A. Yes, sir.

427 Q. As opposed to a direct customer?

A. That is right.

428 Q. In the first paragraph of Mr. Schalk's letter of May 25, he indicates an examination of the PCB matter now indicates that their use in modifier and plasticizer applications may be a source of the alleged environmental contamination; do you know what is meant by that statement?

A. I suspect that statement is intended to cover the overall impression that we had gathered up to this point in time from the various reports that

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we were reading and hearing about.

429 Q. Did Mr. Schalk consult with you before making the statement in the letter?

A. Not before he made the statement, but I saw the draft of the letter before it was sent out.

430 Q. And you approved of the draft?

A. Yes, sir.

431 Q. You may have answered this, Mr. Papageorge, but what is meant by modifier and plasticizer applications?

A. These are ingredients added - let me back off and take one at a time. The modifier reference is to the use of these polychlorinated biphenyls in wax formulations - to extend the wax is the expression that is used - to give it certain properties, temperature or dimensional stability or whatever the formulator is looking for that he found PCB's provided for him. As a plasticizer, this refers to the property which describes the ability of a material to be flexible, to remain flexible under different conditions of temperature or different exposures to other materials.

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432 Q. The next reference I have is a letter by Mr. Falon on June 8, 1970, do you have that?

A. Yes, sir.

433 Q. That is not addressed to anybody in particular, I take that to be a standard form that went to several places?

A. That is correct.

434 Q. Prior to June, was the program to notify distributors, and then in June to notify direct customers?

A. No, sir.

435 Q. Would you tell me, then, how that was arranged?

A. Prior to June, we notified customers on record to whom we sold directly and to distributors that represented us in the sale of this material; and we sent to them the letters that you noted earlier in the collection that you have. I'd like to at this time point out that the distributors were used only in the marketing or the distribution of Aroclors that went into miscellaneous type of applications as distinguished from the heat transfer applications, the hydraulic fluid application or the carbonless copy application and so on.

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Now, this letter that you just referred to dated June 8 by Mr. Falon is a letter that is addressed specifically to customers on record who purchased Therminols which were used in food-related operations. Human food-related operations. Therminols were never sold through distributors.

436 Q. So that all Therminols were direct sales?

A. Right.

MR. PLAUT: Was your answer to that yes?

THE WITNESS: Yes.

437 Q. (By Mr. Spellman) On the bottom paragraph of the first page, he says, the application of Therminol FR fluids in food processing such as to heat cooking oils for food preparation and to heat edible oils in the deodorizing process does present a potential source for contaminating food products with PCB's. Do you know the factual circumstances upon which that statement is based?

A. The only report we had was the one I referred to yesterday, as I recall, garbled though it was, from Japan; and, when we considered that situation,

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we decided that perhaps we would be wiser to approach our customers as we did in this letter.

438 Q. Generically we have been using the expression heat transfer fluid, is that what he is talking about there, the heat transfer fluids?

A. Yes, sir. In what part?

439 Q. In the sentence I just read.

A. Yes, sir, these are heat transfer fluids.

440 Q. And are those commonly employed in closed systems when they are used as heat transfer fluids?

A. Yes.

441 Q. Have you at any time at Monsanto had any reports of leaks from a closed system for heat transfer?

A. Yes.

442 Q. What were those reports?

MR. PETERS: I object to anything after April of '71.

THE WITNESS: Well, the reports that I am aware of came after April of '71.

MR. SPELLMAN: Well, he is objecting; you can answer.

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THE WITNESS: The fish meal pasteurizing unit in North Carolina developed a leak of the type we were referring to.

443 Q. Any others?

MR. PETERS: Objection.

THE WITNESS: I am not aware of any others, no, sir.

444 Q. Do the American Monsanto operations sell in Canada as well as the United States?

A. Yes, sir.

445 Q. I don't recall in your list that you gave us earlier any Canadian producers.

A. There are none, to my knowledge.

446 Q. Is it fair to conclude that the bulk of the PCB's used in Canada come from the American branches of Monsanto?

A. Yes.

447 Q. Was there a substitute found for the Therminol heat transfer fluids which did not make use of PCB's?

A. Yes, sir; however, it did not have the fire-resistant properties.

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448 Q. Now, do I read this letter correctly in indicating that that product was taken off the market?

A. Which product?

449 Q. The Therminol FR series fluids containing PCB?

A. They were taken off the market only insofar as the food-type application is concerned.

450 Q. How could you generally determine what was going to be used for food-type application and what was not?

A. We did as best we could from a knowledge of the customer and with our marketing representatives when they make their calls to determine what type of application this material was going to.

451 Q. For example, was the Mueller Company a customer?

A. I don't think so, no, sir.

452 Q. Can you indicate for me any direct customers for Therminol heat transfer fluids containing - which used to contain PCB's that were then involved in food preparation?

MR. PETERS: When was that?

MR. SPELLMAN: When they were still supplying PCB's for that use.

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THE WITNESS: There were, I guess, hundreds. Many of the names are the types that you would recognize, so-and-so bakery company and so-and-so food company; this is the way we run down our records.

453 Q. In other words, it might be a national company like Nabisco? Not necessarily Nabisco, but it could be?

A. It is that type, that is correct.

MR. PLAUT: Off the record.

(Discussion off the record.)

454 Q. (By Mr. Spellman) Can you tell me whether any of the feed suppliers such as Agway are on the direct customer list at Monsanto for Aroclors?

A. No, I am not aware of companies like Agway being on that list.

455 Q. Are you aware of companies such as Agway purchasing through distributors while you were still using distributors for Aroclor distribution?

A. No, sir.

456 Q. Would you turn, sir, to the letter by Mr. Benignus

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dated August 6, 1970. He discusses there an experimental product identified as MCS 1016?

A. Yes, sir.

457 Q. Has that product gone beyond the experimental stage now so that it is in production?

A. Yes, sir.

458 Q. Has it replaced the product formerly sold containing PCB's?

A. Yes, sir.

459 Q. And am I correct in reading that to say that there are no PCB's in MCS 1016?

A. No, sir.

460 Q. How am I incorrect?

A. This material referred to in this letter as MCS 1016 is a refined version of the original material which was sold as Aroclor 1242. The difference in the two materials is the amount of polychlorinated biphenyls which contain four or more chlorines per biphenyl group. The intent here is to remove from this material those polychlorinated biphenyls which are more resistant to degradation. So that if this material should escape accidentally into the

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environment, the environment has a better chance of coping with it more quickly.

461 Q. What is the percentage of chlorine in this MCS 1016?

A. It is about 42 percent still.

462 Q. But the refining process makes it more degradable, is that it?

A. Yes, sir.

463 Q. Maybe I can pick up the next one in the technical bulletin which accompanies several letters that went out, but I have it in the 8-14-70 letter from Mr. Schalk. I guess it follows his letter to direct customers of that same date.

MR. PETERS: What is it? What are you inquiring about?

MR. SPELLMAN: The technical bulletin.

464 Q. Do you have the letter of August 14, 1970, for direct customers?

A. Yes, sir, I have found that.

465 Q. On page 2, the second paragraph, he says the latest available bulletin on our line of Aroclors is enclosed for your use.

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A. Yes.

466 Q. Now, is that bulletin the material which follows under the title "Aroclor Plasticizers"?

A. Yes, sir.

467 Q. And it runs, I think, about twenty-two pages, is that right?

A. That is correct.

468 Q. What was the publication date of that bulletin?

A. It is the date of that letter, sir, August,1970.

469 Q. Now, if you will, sir, on page 2 - - -

MR. PETERS: Page 2 of what?

MR. SPELLMAN: Of the bulletin.

470 Q. It is there indicated that with respect to the plasticizers, at least, the PCB's have been removed and they are manufactured in substance out of another chemical?

A. Correct.

471 Q. At this point in time, August 14, 1970, what applications were you still serving with PCB's?

A. If you will remember, in announcing our phase-out program, we had targeted August 30, 1970, as the date when we would terminate sales of the

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polychlorinated biphenyls to all of these open-type uses - - -

472 Q. By open-type uses, the miscellaneous things that you have referred to as plasticizers?

A. True. So in response to your question, on August 14 we would still honor a request for polychlorinated biphenyls for those uses, so that on August 14 polychlorinated biphenyls were sold to all the uses that were common to these materials in years past.

473 Q. Did you ever engage in what the industry generally now is terming recall of a product?

A. If by recall - I don't know that I understand the term recall totally. There was provisions permitting customers to return unused material.

474 Q. At the same time that you were selling material?

A. Yes.

475 Q. So what was returned by one customer might go out to another?

A. Yes.

476 Q. Was it in announcing that, for example, in the plasticizers, you would not be using PCB's, was

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it your intent to run out whatever inventory you had remaining to the extent that customers wanted it?

A. No, the intent was not that because we still had uses for the material that would be continuing beyond August 30.

477 Q. Again ultimately, as I recall, you eliminated all PCB's except in the dielectrics?

A. Ultimately, yes, sir.

478 Q. In respect to the Therminol, as I recall you had something that was a little less fire-retardant?

A. Considerably less.

479 Q. With respect to the other applications, forgetting the dielectrics for a minute, forgetting the Therminol, were you able to replace in your product line a product which had as good a quality as the Aroclor products, the PCB products, for the various applications?

MR. PETERS: Note my objection, but you may answer.

THE WITNESS: In some instances, we were able to offer alternative

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material with no sacrifice in performance. In some cases, we lost the business entirely because of our inability to supply an alternative material. In many cases, we do not know where our customer went for the alternative material.

480 Q. Can you give me any specific examples of a product line which lost customers completely?

A. Yes, the one that comes to mind immediately is the use as an ingredient in waxes used in metal casting. When we discontinued supplying the polychlorinated biphenyls, some of these wax formulators were able to substitute the polychlorinated terphenyls. Some could not for reasons unknown to us make this substitution and we do not know where they went for their alternative material.

481 Q. Can you give me examples of a particular product line where you were able to substitute satisfactorily or better?

MR. PETERS: Note my objection, but you may answer.

THE WITNESS: Yes, the

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carbonless reproduction paper; after some technological difficulties, we were finally able to supply the paper people with an alternative material.

482 Q. Was that based on technology known, say, prior to 1969 or was it based on technology discovered sometime after 1970?

A. This technology was developed by the paper people after we informed them we would no longer supply them with polychlorinated biphenyls.

483 Q. The paper people developed the technology?

A. Yes, sir.

484 Q. And then what did you people do, try to accommodate their development with a new product?

A. Yes, sir, we, in essence, custom-made a solvent for their needs.

485 Q. I have one question, Mr. Papageorge, in reference to the Schalk letter of August 14, 1970. One is the direct customer and one is the distributor. He makes reference to a February 27 letter reviewing some of the potential hazards of PCB's in environmental conditions in general and I am

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not sure which letter in this group you are referring to.

A. It is a letter that is near the front of the selection; I believe you have it there.

486 Q. Is it the one marked in longhand (Feb. 27, '70, mailing)?

A. Correct, sir.

487 Q. I guess I am concerned and confused by his use of the term "potential hazards of PCB's" and of environmental pollution in general as reviewed in that letter. What are the potential hazards that he refers to, if you know?

A. I suspect he is referring primarily to that first paragraph. And keep in mind that in early 1970, the picture was not clear at all.

488 Q. Was it common at that point in time; that is to say, February, 1970, to use the term "environment" as related only to marine, aquatic or wildlife environments?

A. Yes, sir.

MR. PETERS: Yesterday you also added beasts.

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489 Q. Can you give us a point in time at which Monsanto became concerned about the environment in a narrower sense? Not just limited to wildlife, marine or aquatic environments.

A. I don't know if there was any one fixed date. The thinking was influenced by the information as it was available over the past three or four years; and, to this day, we still get information that helps clarify the picture. The information that we received helped in arriving at some of the decisions that we made as time went on and these letters are an example of the steps we took based on the information as it trickled in. Initially all we heard and what we were able to support with our own laboratory was that PCB's are present out there, let's notify our customers. As a result, the February letters occurred. Then we heard the information about the Japanese incident and we said, all right, there may be something to this and, as a result, the June letter occurred. I don't know that there was any one time when something dramatic happened and we took immediate action.

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It is a sort of phasing-in to this program.

490 Q. At some time this included populated areas rather than just wild areas?

A. I am confused by populated areas. The concern did change with more information and I don't know quite how to respond to your question.

491 Q. Let me try a different question. The early parts of your program in early 1970 withdrawing various products were indicating to your customers that they were going to be withdrawn arose out of concern, as I understand you, for wildlife, so-called, and water and water creatures?

A. That is correct.

492 Q. And that, as I understood your definition this morning, would be in a more, say, natural setting as opposed to a heavily populated area?

A. This is where my confusion comes in. A river running through an industrial, a highly industrial location, could be reported as containing detectable and fairly highly detectable levels of polychlorinated biphenyls. This leads us to think that the users - we couldn't establish for

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sure - but could be careless with the way that they controlled the product that we were selling them and this is why in our labels that we talked about we warned them about spillage and leakage and this kind of expression and this is why in our February letters we wanted to put them on notice - be careful, there is a lot that we don't know, but there is something that we do know - so if you talk about a highly populatedarea, yes, industrial areas highly populated were part of this original thinking.

493 Q. Maybe that suggests another way. What I am trying to do is come together between the two of us of what we are talking about. Is it fair to say that as of early 1970, say these February letters, you were concerned about the effect man and his use of PCB's would have on life not necessarily located right where the plant is?

A. All right; that is one of the big concerns we had, yes, sir.

494 Q. Now, in terms of the location where the people were and the animals surrounding them in the

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locations where PCB's were being used, did you also have concern in February of 1970 for those areas?

A. Well, we have always had concern about an area that I think for lack of a better word lets call it the industrial hygiene practices. The worker and how he handles the material. This relates to the original instructions on the label that we read earlier this morning; it said,caution,don't get on your skin; don't breathe. These are industrial hygiene words of caution to the worker who is very closely associated or exposed to the material in an industrial application.

495 Q. What reflects that concern in the incineration process at Sauget?

A. The incinerator at Sauget was installed to give our customers an acceptable way of disposing of material that they were now collecting as distinguished from sewering. Prior to February, 1970, the customer had nowhere to go with the material. He was forced to store it in temporary containers, storage tanks, whatever he had

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available to him. Eventually he began running out of space and didn't know where to go with this material. We offered to take it off his hands and store it on our property until the day that the incinerator could be put into service and we could destroy it properly.

496 Q. Am I correct in assuming that there was no effort at incineration of the product until the plant at Sauget became operative?

A. There was no affluent or incineration?

497 Q. No, no effort to incinerate the productuntil Sauget went into operation as an incinerator.

A. My hesitation is due to the fact that I do not know when a commercial incinerator went on stream in New Jersey. I believe their unit went on stream a little bit before the Monsanto unit went on stream.

498 Q. That is somebody other than Monsanto?

A. That is correct.

499 Q. Who is that?

A. That is Rawlins-Purle, Incorporated. I do not know what they go by today. Rawlins is still in

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the name.

500 Q. Was their unit designed for the disposal of PCB's?

A. It was not designed specifically for polychlorinated biphenyls, but it had the capability for reaching the temperatures that are necessary for the proper disposal of polychlorinated biphenyls.

501 Q. Did you arrange for access or did your customers arrange for that?

A. I heard from our associates in England that the Purle Brothers Company in England had a connection in the United States with the Rawlins organization and they were engaged in setting up industrial disposal sites throughout the United States and it was indicated that perhaps this company was going to install incinerators capable of properly disposing of PCB's. I eventually got ahold of individuals within the Rawlins-Purle organization, as it was known at that time, and visited their operation. I have forgotten the exact date now.

502 Q. Now, are we talking in 1970 somewhere, maybe '71?

A. It is either late '70 or early '71, somewhere in

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there, and I was satisfied that they had the capability for destroying PCB's. At about that time, we also had gotten approval for our unit and we were in the midst of procuring and installing our own. So I was able to recommend to customers the Rawlins-Purle people or, if they wished, they could send it to us.

503 Q. And was a charge made by you or Rawlins-Purle, as the case may be?

A. That is correct.

504 Q. Prior to 1970, were there any incineration facilities anywhere in the country utilized for destroying PCB's?

A. Not that I know of.

505 Q. At what temperature do you incinerate?

A. Our unit operates at about 2700 degrees fahrenheit.

506 Q. And what pressure?

A. It is inches of water; there is no significant pressure.

507 Q. What takes place under this heat treatment?

A. The elements that make up polychlorinated biphenyls are oxidized - combined with oxygen - such that

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the carbon ends up as carbon dioxide; the hydrogen ends up as water and the chlorine ends up as hydrochloric acid, HCL. This gas is eventually scrubbed from the stack gases by means of a water-scrubbing system which makes a weak hydrochloric acid commonly known as muniatic acid which is neutralized and disposed of safely.

508 Q. Is there any salable product as a result of the incineration?

A. No, sir.

509 Q. How do you dispose of the acid?

A. In our particular plant, this weak acid is blended with alkaline wastes from other operations and one neutralizes the other and the total mixture is totally treated before it is discharged into the Mississippi River.

510 Q. It is neutral on discharge, you mean?

A. After it is all treated, yes, in a municipal sewage plant.

511 Q. Is it a solid residue?

A. No, sir.

512 Q. Is it liquid?

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It is a weak water solution.

513 Q. And, I take it, by this time all the PCB's are broken down?

A. That is right.

514 Q. You also produce water in the process you indicate?

A. Yes, that water is - of course the minute it hits this cold water spray system, it condenses and joins the bulk of the water and becomes a part of this weak acid system.

515 Q. And then there was a third residue?

A. Carbon dioxide.

516 Q. What do you do with that?

A. It goes up the stack.

517 Q. It goes into the atmosphere?

A. That is right.

518 Q. And are the PCB's all broken down before it gets in the atmosphere?

A. Yes.

519 Q. Have any tests been made at the stack?

A. Yes, I indicated that earlier.

520 Q. Are there any exhaust devices in the plant other than the stack?

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A. No, sir. Are you talking about the incinerator plant?

521 Q. Yes.

A. No, sir, just the stack.

522 Q. Would you refer, Mr. Papageorge, to Interrogatory No. 60?

A. Yes, sir.

523 Q. Would you give me an answer to that question, assuming it to be limited to the manufacturer of PCB's?

MR. PLAUT: What is that number again, Larry?

MR. SPELLMAN: 60.

THE WITNESS: If I understand you correctly, you want to limit this question now only to those divisions that are involved with polychlorinated biphenyls?

524 Q. Right.

A. The only division within Monsanto involved is the division referred to as Monsanto Industrial Chemicals Company.

525 Q. And will you describe for me what the environmental

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control program is within the Industrial Chemicals Company other than your own involvement which you have described?

A. Other than my involvement, the other facet of this work is that effort that concerns itself with controlling the affluent from the producing unit either by affluent - I am referring both to water and air - and there are people involved in this activity.

526 Q. Prior to termination of the manufacture of PCB's at Anniston, who was responsible for the control of affluent at Anniston?

A. Well, of course, the plant manager is the man totally responsible and he has working for him a team of people all of whom contribute according to their particular expertise in this area.

527 Q. Was there no one in charge with direct responsibility in turn being responsible to the plant manager?

A. Not with that title.

528 Q. Did the same situation prevail at Sauget?

A. The Sauget, Illinois, plant being a bigger operation has within its organization a group of individuals

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that concern themselves with environmental activities which include polychlorinated biphenyls as well as all other materials manufactured at that site.

529 Q. Did any of the other divisions or operating companies in respect to their various product lines acquire Aroclors from the Industrial Chemicals Company for use in their product?

A. Yes. No. I don't want to confuse anyone here. They use polychlorinated biphenyls in the production of their product, but not as an ingredient in their product.

530 Q. Now, they would use them in their own plant?

A. Correct.

531 Q. But they would not be contained in the product actually manufactured and sold to a customer?

A. That is correct.

MR. PLAUT: Would you give us an illustration of that?

THE WITNESS: Operating an air compressor requiring a fire-resistant air compressor fluid. They would use the pydraul fluid;

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or in operating a heat transfer process where they are heating something, they would buy the Therminol fluid.

532 Q. In respect to question 70, Mr. Papageorge, more particularly subquestion C and D, without asking you to launch a research project, does Monsanto have any knowledge of any activities undertaken by other companies other than Monsanto with respect to termination of product lines or warnings or safety precautions?

MR. PETERS: Objection; you may answer, if you know.

THE WITNESS: Product lines of all types?

533 Q. No, Aroclors, I am sorry, I should say polychlorinated biphenyls.

A. And this is with respect to anywhere in the world?

534 Q. Yes.

MR. PETERS: Objection, please.

THE WITNESS: Other producers of polychlorinated biphenyls worldwide have all taken, to the best of my knowledge, some restrictive

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action; except for the operations east of the Iron Curtain, I cannot speak for them. As I indicated earlier, the Japanese producers terminated operations altogether. At the time they terminated it, I was led to believe from my contacts in Tokyo that the restrictions placed on polychlorinated biphenyls by the Japanese government became so severe that the producers could not economically stay in the business; therefore, they chose to terminate. The European producers have, through the organization referred to as the OECD, which stands for the Organization for Economic Cooperation and Development or something of that order, which is a group of industrialized countries throughout the world. They have through this organization agreed to respect each other's desires, laws, regulations, whatever exists, regarding polychlorinated biphenyls and they have also agreed to terminate the sale of polychlorinated biphenyls to many of the uses that Monsanto had terminated; but they retained the uses in heat transfer systems that were nonfood-related and retained the use of

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hydraulic fluids in the mines in Europe. The last two were justified by these producers in Europe as being very necessary because they felt that fire resistance, the benefit of fire resistance, overwhelmed any adverse consequences they could visualize from the continued use in these two areas.

535 Q. Is it fair to infer that the chemical industry pretty much worldwide has developed a fair amount of concern over the presence of PCB's in various places in the environment?

A. I don't have any evidence that the chemical industry in general has adopted this kind of thinking.

536 Q. Is it fair to say that Monsanto has adopted that kind of thinking?

A. Yes.

537 Q. Would you look at Question 72. That has been objected to as being too broad, immaterial and irrelevant. Would you read it strictly in terms of complaints in respect to PCB's and tell me where they are collected, if any place?

MR. PETERS: If there are any,

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shouldn't that be included?

MR. SPELLMAN: All right; if there are any.

MR. PLAUT: Are you suggesting that a lawsuit isn't a complaint?

THE WITNESS: It would help me personally in responding to your question if we tried to define what is meant by a complaint. There are many types, at least from my vantage point. There are complaints referring to late deliveries, dented drums, illegible labels.

538 Q. Mueller spaghetti is concerned about PCB's in their product and they wrote a letter. In this case they wrote to you; where else would the letter be kept?

MR. PETERS: I object, that is not a complaint.

MR. SPELLMAN: It was an expression of concern.

MR. PETERS: I don't believe it was a question of concern, it is something that Mr. Rozansky started.

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MR. PLAUT: Off the record.

(Discussion off the record.)

THE WITNESS: I'd like to answer, but I am still confused by what is meant by a complaint.

539 Q. (By Mr. Spellman) Well, would you tell me how you would define a complaint and see if that resolves the problem for all of us?

A. All right; when Monsanto - and I am not saying this is right or wrong, this is our way of doing the business - a complaint is used to define customer dissatisfaction either with the quality of the product we sold him or the service which we are offering to him.

540 Q. All right; I see your problem. I am not concerned with service provided by Monsanto nor quality control per se, whether it meets specifications or not, I am concerned with a suggestion by some person that he has suffered some loss or his animals have suffered some injury or he has otherwise been damaged by PCB's.

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A. All right.

541 Q. When someone in Monsanto receives such a notice or suggestion, where does it go from there. Who collects it?

MR. PETERS: As I understand it, this is limited to PCB's?

MR. SPELLMAN: Yes.

THE WITNESS: I am under the impression that the overwhelming majority of these eventually end up at my desk. However, I do not know that occasionally someone within Monsanto's organization upon receiving some of these inquiries or telephone calls or letters does not attempt to answer it without my knowledge.

542 Q. Is there any policy established anywhere in a policy manual or something to indicate that these should all be called to your attention?

A. No, sir.

543 Q. If the suggestion or concern that someone might have is reflected in a lawsuit, would that as a matter of policy reach your desk?

A. No, sir.

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544 Q. What I have described as complaints come to you, but lawsuits don't necessarily?

A. The informal inquiry, telephone call, memorandum, letter, is apt to come to my desk. The formal legal documents go to our legal counsel within Monsanto and I am only consulted when it is time for me to contribute to whatever activity is planned in response to this document.

545 Q. Well, let me try a hypothetical. Suppose someone writes a letter to Monsanto at St. Louis and says, Dear Monsanto, I grow mink up in Minnesota and I have had a large loss of crop and I think it is PCB's, who does that letter go to as a matter of policy?

MR. PETERS: I object to the question, but you may go ahead.

MR. PLAUT: Because it is hypothetical, is that it?

MR. PETERS: Contrary to fact.

THE WITNESS: That letter, unless it is addressed to a specific individual, will end up in what we have in Monsanto called a

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customer service inquiry group. The girls in there now know that polychlorinated biphenyls are sent to W. P. Papageorge in a certain mailing zone and it eventually gets to my desk. At this point, I have to make a judgment, a decision on how I respond to this. If it appears that from my previous exposures I have the information requested, I go ahead and dictate a letter and respond. If, however, a new area or a new question is raised, I then, depending on the question, must go to the right place, whether it be research, legal department, manufacturing department, marketing department, and it may involve all three or four groups. By this time, I have an idea of what is required in the response and then it can go one of many ways. Any one of the people involved could compose the response. Sometimes I will go back and compose a draft and have all the individuals involved review it for their input and comments. Eventually we get the finished response and it is mailed. Does this help a bit?

546 Q. Yes. Now, tell me if I misstated in trying to do

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it briefly; if someone writes in to Monsanto and claims that they have suffered some losses in some way in the consequence of PCB's, that ought as a matter of policy reach your desk?

A. I don't know if I would call it a policy just yet, it is not that formal.

547 Q. It should in the majority of cases reach your desk?

A. All right.

548 Q. You would have more knowledge of that kind of communication than anybody else in the company, I would think?

A. That is why it comes to my desk, yes.

549 Q. Now, when you refer it to some other group and that other group responds, do they copy you?

A. Most of the response is oral, face-to-face. In fact, I can't imagine any time when it was put in writing.

550 Q. Would you be present at the time of the response or might it be done in your absence, the oral response?

A. I misled you. The oral response is back to me.

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551 Q. All right; so that the communication of whatever the answer is or whatever the response is comes through you?

A. In most instances.

552 Q. Then if any hypothetical claim of that kind is reduced to litigation, the legal department gets into it?

A. That is correct.

553 Q. And you are not necessarily informed on what the legal department is doing about it?

A. That is correct.

554 Q. Have you had occasion to discuss any particular problems of this kind with Mr. Corey?

MR. PETERS: Well, what kind? Problems of this kind, you said.

MR. SPELLMAN: Yes.

MR. PETERS: The legal kind? You were last talking about the legal kind.

MR. SPELLMAN: I am sorry; if I confused you that way, I apologize.

555 Q. Let me start by saying, have you had letters from people indicating that they thought they had

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suffered some loss as a result of PCB's?

A. Yes.

556 Q. Have you had any occasion to discuss correspondence of this kind with Mr. Corey?

A. I have discussed it with Mr. Corey, but in this instance in my discussions with Mr. Corey, it is really one of informing him of the contemplated action after I have reviewed this with other individuals in Monsanto so Mr. Corey is exposed only, let's say, to the finished product of my efforts and he can then concur or advise otherwise.

557 Q. And is he the fellow that authorizes the particular response that you make? Take out the word authorizes; does he have to approve the response that you make?

A. He doesn't have to. It is a decision I must make, whether I involve him in this point in time or go ahead and act on my own.

558 Q. I gather that you have involved him on something?

A. I eventually involved Mr. Corey depending on what I think is the seriousness of the situation. I involve him before I take action or I inform him

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after I have taken action, but eventually Mr. Corey is aware of what I am doing.

559 Q. Can you tell me any of the circumstances about which you inform Mr. Corey?

MR. PETERS: Objection, please.

THE WITNESS: Well, let me think of some now. There are many. For example, I may get a call from a dairy farmer who informs me of his problems he is having with the state authorities because his milk shows the presence of polychlorinated biphenyls. He says that he was told that Monsanto sells this material, can I help him. Well, from previous experience, I know the general area in which these particular cases might occur, I amaware of the other information that we have picked up as we have handled previous cases. I then consult with my legal department counterparts and we agree that we will handle this telephone call or memo, whichever it was, or letter, just the way we had several other previous letters and we go ahead and take action. And at some opportunity when I am talking with Mr.Corey

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about my activities in general, I will mention that a Mr. so-and-so from a certain county in a certain state had a silo problem that would be took care of the way we did the previous cases; and Mr. Corey will agree, okay, I am glad you told me, that kind of response.

560 Q. Have you discussed with him anything other than milk or poultry?

MR. PETERS: Objection, please.

THE WITNESS: Yes, I have discussed with him railroad accidents involving tank cars of polychlorinated biphenyls. I have discussed with him a situation where someone drained the transformer out on the roadside, these kinds of things that come over the telephone.

561 Q. Anything else that you can think of?

A. Not at the moment.

562 Q. Would you refer to Interrogatory 91; having regard still for the context of the telephone call or the letter in which someone claimed some loss, have you had any such communication in regard to serial mixes including, but not limited to, breakfast foods,

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cereals, alfalfa meal, soy bean meal?

A. If I understand this interrogatory, it wants a response to knowledge or reason to believe that PCB's could come into contact - - -

563 Q. And you answered that by saying the thing was too speculative. My question now, in the same context, sir, is, Have you had any communications by telephone, letter, memo, in the same kind of context as we discussed with the milk and the poultry which relates to Item 91A?

A. I think I know what you are striving for. I have had telephone calls and occasional letters in which polychlorinated biphenyls are mentioned as being in some ingredient of that type, yes.

564 Q. Do you compile this information anywhere?

A. No, sir.

565 Q. Do you keep any file on it?

A. There is no specific file set aside for PCB's in cereals or PCB's - is that what you mean?

566 Q. Yes.

A. No.

567 Q. But somewhere in your files there would be records

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as to what you did with respect to complaints listed in 91A?

A. The only thing that would be in that file would be a letter, if one were sent to me, I would retain that in the file. I do not operate in such a way that I keep notes of all my activities.

568 Q. Have you had such communications in respect to vitamins?

A. No, sir.

569 Q. Other than in this case, duck byproduct?

A. No, sir.

570 Q. How about beef byproduct?

A. No, sir.

571 Q. Liver?

A. No, sir.

572 Q. Fish meal?

A. Yes, sir.

573 Q. Would you describe those communications as some or a lot?

MR. PETERS: Objection, please.

MR. MUIRHEAD: Objection.

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THE WITNESS: I was asked if there were some or a lot?

MR. SPELLMAN: Yes, how would you characterize the volume, let's put it that way.

MR. MUIRHEAD: I will object to that.

MR. PETERS: Objection.

THE WITNESS: I am having difficulty quantifying it. I don't think there were a lot considering the magnitude that developed later.

MR. MUIRHEAD: I will move to strike that.

574 Q. (By Mr. Spellman) I don't think I understand that.

A. I got some phone calls from a few individuals relating to the fish meal situation that occurred in North Carolina.

575 Q. Now, what was the lot that developed later?

A. By a lot, I refer to the number of companies involved and the geographic area that was later

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on defined as being affected. I really didn't get the calls that were in proportions to these later developments.

576 Q. Did they all arise out of that situation in North Carolina, is that what you are saying?

MR. PETERS: Objection.

THE WITNESS: These phone calls I got?

577 Q. Yes.

A. Yes.

MR. MUIRHEAD: I will withdraw my earlier objection.

578 Q. (By Mr. Spellman) How about cracklings?

A. Never.

579 Q. And middlings?

A. I don't know what middlings are.

580 Q. How about raw fish?

A. Raw fish?

581 Q. Yes.

A. I received word - - -

MR. PETERS: Objection; you can go ahead.

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THE WITNESS: I received word referring to polychlorinated biphenyls in fish from the Great Lakes, but my hesitation is brought about because I did not construe these so much as complaints as they were information for my use if I needed it.

582 Q. How about dry bakery products, excluding Rozansky for the moment?

MR. PETERS: Objection, please.

THE WITNESS: No.

583 Q. Have you had any correspondence or communication relative to PCB's in Rozansky dried bakery products?

A. Yes.

584 Q. Excuse me, other than this case or the Campbell Soups situation in Sullivan County, New York?

A. No, sir.

585 Q. How about chicken byproduct?

MR. PETERS: Objection again.

THE WITNESS: No.

MR. SPELLMAN: I guess that

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is all for now.

(Interrogatories by Mr. Rogers.)

586 Q. Mr. Papageorge, during the course of the deposition we have referred to the so-called chicken soup incident and the Sullivan County incident; in connection with that incident, did Monsanto conduct any testing of any product or ingredient for any person involved in those activities?

A. Yes, sir.

587 Q. And for whom were those tests conducted?

A. As I remember, it was for the Agway Company. I don't know their official name. The Rozansky Company or operation and the C. F. Mueller Company.

588 Q. And when you did the testing for the Agway Company, was there any correspondence with the Agway Company in connection with the work done?

A. I recall seeing some copies of correspondence. I am trying to recall now if they were addressed to me or to the laboratory personally. It may be that both of us got copies. There was correspondence.

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589 Q. What would the names of the laboratory personnel be?

A. That was Dr. E. Scott Tucker.

590 Q. What was the first inquiry made of Monsanto by - let me rephrase the question. How did Monsanto come to be involved with Agway in connection with the Sullivan County matter?

A. I will speak for my particular exposure to this. I was called by our vice-president and general manager of the then organic chemicals division within Monsanto.

MR. PLAUT: What was his name?

THE WITNESS: Howard Mickler. When I arrived in his office, he said that one of our good customers is having some difficulties; they think polychlorinated biphenyls are involved, will you call and see if we can be of any help. I don't remember at this time whose name I was given, which individual within the Agway organization I was asked to approach.

591 Q. (By Mr. Rogers) When did this occur?

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A. I believe it was very early '71. Right after the Christmas holidays, January, somewhere in there.

592 Q. After your conversations with Mr. Mickler, what did you undertake to do at that point?

A. I reached by telephone this individual whose name was given to me and I can't recall who that was, and at that time I was given a very brief description of the situation in which someone in New York state in attempting to - while looking at some poultry tissue for pesticide residue detected poly-chlorinated biphenyls. I was not told it was the Campbell Company until several weeks later. I was also told at this point that this poultry was what was referred to as spent laying hens. Not knowing much of the poultry industry, that didn't mean much to me until it was further described to me that these are relatively older birds that were used for egg-laying purposes until they became inefficient and at that point they are ready for other uses.

593 Q. Did these conversations all take place during the first telephone conversation?

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A. As best I recall, this was the background information I was given in that first conversation and I also believe that a Gary Rumsey was given to me for further contact.

594 Q. Was any record kept of the substance of that telephone call? Did you make notes or memos?

A. No, sir.

595 Q. Did you write any memos to any other person in connection with that?

A. No.

596 Q. Did you report to Mr. Mickler?

A. Yes, I reported to Mr. Mickler that I had made contact and reported to him my understanding of the problem as I knew it then and I do not know what Mr. Mickler did with that information.

597 Q. After this telephone conversation with the Agway official that you just referred to, what was the next step that you or any other person in Monsanto took with regard to the substance of that telephone conversation?

A. I recall the name Gary Rumsey and I recall talking to Mr. Rumsey and offered at this time - let me

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think - the conversation was fairly typical in that I was asked what our polychlorinated biphenyls, where were they used, how could they have gotten into the poultry; and I went through the kind of discussions that we have had these past two days and this was done over the telephone and sometime during the conversation the question came up of analytical methodology and the need for standard samples to be used in a laboratory and I offered to send samples as needed and analytical methodology as required and even offered and suggested, as I remember, that one of the best ways to learn is to have someone from their laboratory spend some time with our people in our laboratory learning the method. I don't recall if that idea was accepted immediately, but very shortly thereafter it was decided by the Agway people that they would send Dick Rice, Dr. Rice, to St. Louis and he would bring with him some samples that the Monsanto people could analyze for polychlorinated biphenyls.

598 Q. Do you have any recollection or any records that would indicate the date that he arrived?

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A. I don't know that I have the records. This is not my normal way of doing business where I write down when people arrived, but it could be that I may have jotted it on my calendar pad, but I do recall that this was about the middle of January. A week or two about after the call I made back to the Agway people.

599 Q. Is that calendar pad still available or has it been destroyed?

A. I still have it, yes.

600 Q. Would you refer to it and give us the date?

A. If there is anything there. It is a very informal kind of thing. I sort of jot informal notes to myself to remind me that something is going to take place.

601 Q. When Dr. Rice arrived at Monsanto, did he have an initial discussion with you or someone else?

A. No, the details of the visit and all were arranged through Dr. Tucker; and, as I recall, Dr. Tucker communicated with Dr. Rice and worked out the details.

602 Q. At the time of your conversations with Mr. Mickler,

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initially about this matter or at any point subsequent to that, did Monsanto ever send anyone into the field to attempt to make a determination of the source of this substance?

A. No, sir.

603 Q. When did you receive your first call from Mr. Rozansky?

A. I don't remember the exact date, of course. It would have to be shortly thereafter. The early part of '71 as best as I can remember.

604 Q. Was your initial contact with Mr. Rozansky by telephone or by letter?

A. By telephone.

605 Q. Was the call initially made to someone else and referred to you or did it come directly to you?

A. I have no way of knowing.

606 Q. Would you tell us the substance of your conversation, your first conversation, with Mr. Rozansky?

MR. RICHARDS: Just note my objection, but you can go ahead and answer.

THE WITNESS: Of course I don't remember it all in detail, but, as I recall, he

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introduced himself over the telephone, described very quickly - - - Well, first of all, he wanted to know what polychlorinated biphenyls were and I don't think he pronounced it quite right the first time and I had difficulty at first understanding his problem; and, after considerable time on the telephone, I finally understood what he was talking about. That he was in the business of collecting, as I understood it, then, stale bakery goods, crushing, grinding, sifting and packaging them and selling to poultry feed formulators this material, the meal; and it seems as best I can recall Mr. Rozansky's purpose of that call was to try to determine how these strange chemicals - strange to him - could have gotten into his product. And not knowing anything about his kind of operation, it was my objective to determine as best I could over the telephone what is it he does; and he described his truck fleet. He described his crushing operation and he asked where were PCB's used and I told him, well, in many, many areas, and I started enumerating transformers,

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capacitors, coatings, heat transfer fluids, these kinds of things that we have talked about here lately, and we talked, as I remember, too, about adhesives and inks, and he mentioned the plastic wrappers. I told him, well, I am not aware of any useful purpose that polychlorinated biphenyls would serve in a plastic wrapper; on the other hand, it is conceivable that they might be in any markings or inks involved and this is when I found out that package and all are included along with the bakery goods in this crushing and grinding and also at this point I was told - I raised the question, you mean you don't empty the contents and separate the package and the contents and he said, no, we crush everything. I said, you mean you don't remove the paper, the plastic or the box or what have you, and he said, no, we just take out the big pieces.

MR. RICHARDS: Please note my objection to this.

THE WITNESS: I didn't get into how he takes out the "big pieces" I believe

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that was the essence of our first conversation over the telephone, as best I can recall.

607 Q. How long was the conversation?

A. Half an hour, I don't clock them. It was a long telephone call.

608 Q. Referring back to - well, I guess we are still on the Sullivan County problem - did you have any communications with anyone from an organization known as Inter-County Farmers Cooperative?

MR. PETERS: Objection, please.

THE WITNESS: Not to my knowledge.

609 Q. Did you have any communications with any feed manufacturers or inquiries from any feed manufacturers in the Sullivan County, New York, area?

MR. PETERS: Objection, please.

THE WITNESS: I personally don't know where Sullivan County is, so I don't know if the people I talked to came from that county.

610 Q. Let me put it another way, Did you have any other

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inquiries from feed manufacturers other than Agway in connection with the Campbell Soup matter?

MR. PETERS: Objection, please.

THE WITNESS: No, sir.

611 Q. Have you ever received any information or have you ever been made aware in any manner of any litigation involving a feed manufacturer other than Agway in the state of New York?

MR. PETERS: Objection.

612 Q. Involving PCB's.

A. Yes, I am aware of some litigation; I am not aware of any details.

613 Q. Do you know the names of the parties?

MR. PETERS: Objection again and I believe that Mr. Spellman went through that list yesterday.

MR. SPELLMAN: Well, I went through the list of suits naming Monsanto; I don't think his question is now limited to Monsanto.

MR. PETERS: It is not limited to Monsanto?

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MR. ROGERS: No.

THE WITNESS: The only other name I have heard mentioned is Inter-County Cooperative or something, that is all I remember.

614 Q. And in what context have you heard the name Inter-County Cooperative mentioned?

MR. PETERS: Objection.

THE WITNESS: A brief exposure similar to the one I had yesterday when I was shown a list someone had.

615 Q. Who would have a file on that at Monsanto, if such a file were to exist?

MR. PETERS: Objection.

THE WITNESS: I don't know the individual, but it only seems to me logical that it would have to be in our legal department somewhere.

616 Q. Who would you communicate with to determine whether or not such a file existed?

MR. PETERS: Objection.

THE WITNESS: I would go to the top legal man in the Monsanto Industrial

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Chemicals Company.

MR. PLAUT: Is that the general counsel whose name you gave us yesterday?

THE WITNESS: The general counsel is for the Monsanto Company as a corporation.

617 Q. (By Mr. Rogers) What is the name of the person that you just mentioned?

A. John Stapleton.

618 Q. Is he in the legal department?

A. Yes, sir.

619 Q. Organic - - -

A. Monsanto Industrial Chemicals Company.

620 Q. Was he in the same position under this former organization?

A. No, sir.

621 Q. What was the name of the person in that equivalent position at that time?

A. In the older organization, each division in Monsanto did not have its own legal department, it was just a corporate department.

622 Q. Have you had discussions with the general overall

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corporate legal department concerning these PCB problems?

MR. PETERS: Objection.

THE WITNESS: On occasion, yes.

623 Q. Do you have discussions with the legal department of the Industrial Chemicals Company with regard to these?

MR. PETERS: Objection.

THE WITNESS: Yes, sir.

624 Q. What is the name of the person within the legal department with whom you have contact in the Industrial Chemicals Company?

MR. PETERS: Objection.

THE WITNESS: John Stapleton.

625 Q. What is the name of the person within the legal department of the Monsanto Company that you have contact with?

A. There is more than one person.

626 Q. What are the names of those persons?

MR. PETERS: Objection.

MR. PLAUT: Again with respect

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to only PCB's.

THE WITNESS: This varies from time to time and incident to incident. It goes from the general counsel, Mr. Putzell, who I mentioned yesterday, to Mr. Rodney Harrison, the director of the law department, and several members of the staff and there is a different individual involved at different times.

MR. PLAUT: Off the record.

(Discussion off the record.)

(Whereupon, the deposition in the above-entitled matter was continued.)

THE STATE OF _____)

Subscribed and sworn to before me this _____ day of _____ 19_____.

_____
Justice of the Peace and/or
Notary Public

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