

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA
ANDERSON DIVISION

CAROLE M. WHITFIELD, ET AL.,)
)
 Plaintiffs,)
)
vs.) C.A. No. 8-84-3184-14
)
SANGAMO WESTON, INC., ET AL.,)
)
 Defendants.)
)
)
)

1:06 P.M.
March 15, 1985
Greenville, South Carolina

DEPOSITION OF
MONSANTO COMPANY
BY AND THROUGH ITS AGENT
WILLIAM B. PAPAGEORGE

ROMELIA M. ADAMS
DIANN C. HOLT



DEPOSITIONS
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* * * *

1 This is the deposition of MONSANTO COMPANY
 2 by and through its agent WILLIAM B. PAPAGEORGE, being taken
 3 by Notice and in accordance with the Federal Rules of Civil
 4 Procedure before Romelia M. Adams, Notary Public, in the
 5 offices of Ogletree, Deakins, Nash, Smoak & Stewart, 1000
 6 East North Street, Greenville, South Carolina, on the 15th
 7 day of March, 1985, beginning at 1:06 P.M.

8 IT IS STIPULATED AND AGREED by and between
 9 counsel for the parties that review and signing of this
 10 transcript by the witness is waived.

11 * * * *

12
 13
 14 I N D E X

15		<u>By</u>	<u>Pages</u>
16	Examination	Mr. Richardson	4 - 131
17	Examination	Mr. Geddie	131 - 135
18	Further Examination	Mr. Richardson	138 - 139

19
 20 * * * *

1 WILLIAM B. PAPAGEORGE, being first duly
2 sworn, was examined and testified as follows:

3 E X A M I N A T I O N (By Mr. Richardson):
4

5 Q. State your full name and address for the record,
6 please.

7 A. William B. Papageorge. Would you want my business
8 address?

9 Q. That's fine.

10 A. Business address is 800 North Lindbergh Boulevard,
11 St. Louis, Missouri 63167.

12 Q. Your employer?

13 A. Monsanto Company.

14 Q. Your age?

15 A. Sixty-two.

16 Q. I believe you've been involved with PCB's for some time
17 with Monsanto?

18 A. Yes.

19 Q. Since when?

20 A. My earliest involvement was, the best I remember, about
21 1963 or thereabouts.

22 Q. What happened in '63 to bring you into touch with PCB's?

23 A. I was a supervisor of functions at a Monsanto plant
24 that used PCB's.

25 Q. What was that function?

1 A. Maintenance Supervisor and later Maintenance Superin-
2 tendent.

3 Q. For what facility? What was Monsanto making that used
4 PCB?

5 A. Monsanto at this site made hundreds of chemical
6 products. The PCB's were involved in electrical
7 equipment associated with those manufacturing units.

8 Q. So, you weren't at that time involved with the sale
9 of PCB's as a raw material to other facilities such
10 as Sangamo?

11 A. No.

12 Q. At that time, did you know there were hazards or
13 dangers associated with PCB's?

14 A. I was never made aware of any hazards. There are
15 precautions to be taken as with any chemical.

16 Q. Even today you don't recognize there are any hazards
17 involved with PCB's?

18 A. That is correct.

19 Q. Is that your position or is that the position of
20 Monsanto? Are you speaking for Mr. Papageorge or
21 is that a company position?

22 A. I believe I'm speaking for both of us.

23 Q. When you say there are certain precautions, why do
24 precautions need to be taken?

25 A. They should not be used in such a way that skin is

1 exposed, nor should any vapors that result from heating
2 these materials be inhaled. Those are the primary
3 precautions.

4 Q. Why should you not be exposed by skin to PCB's?

5 A. Eventually, and it varies from person to person, the
6 PCB's will remove the oils from the skin creating a
7 chapped skin condition, a reddening of the skin,
8 drying, cracking. And, this is why we caution
9 individuals exposed to them not to get it on their
10 skin; if so, to wash it off quickly.

11 Q. The other one I think you mentioned was the vapors
12 from having heated PCB's?

13 A. Yes.

14 Q. What effect does that have?

15 A. If enough vapors are inhaled, it would irritate the
16 breathing system, the nostrils, the lungs, and create
17 respiratory irritation and sometimes, if it's overdone
18 it can be a serious impact on the respiratory system,

19 Q. What does it do to the respiratory system?

20 A. It irritates the mucous membrane and it just hurts
21 like a bad cold.

22 Q. Is it a permanent effect on the mucous membrane?

23 A. No, not to my knowledge.

24 Q. Are there any other reasons you need to take precautions
25 with PCB's, to your knowledge?

1 A. I'm assuming your question has to do with human
2 exposure?

3 Q. Yes, sir.

4 A. No; I don't know of any others.

5 Q. What's the source of that information about those
6 needs for precautions? Any medical articles or research
7 Monsanto has done?

8 A. The specific source is Monsanto's Medical Department,
9 and they, in turn, conducted animal studies and
10 peruse the literature of any other studies that might
11 have been done by others or of similar types of
12 chemicals.

13 Q. The Medical Department keeps abreast of the current
14 literature in the technical fields in which Monsanto
15 markets products?

16 A. Yes.

17 Q. Did you receive that information on needing to take
18 those precautions in 1963 when you first became involved
19 with PCB's?

20 A. Yes; uh-huh.

21 Q. To your knowledge, did Monsanto know about those needs
22 for precautions prior to 1963?

23 A. Yes.

24 Q. How far back?

25 A. As best I remember, as far back as Monsanto made and

1 sold the material.

2 Q. Nineteen twenty-nine or something like that?

3 A. Well, Monsanto was not, as a company, involved until
4 the early '30's. They bought a predecessor company
5 that made the material in 1929.

6 Q. Who was that company?

7 A. Swan Chemical Company.

8 Q. Was that a merger or complete purchase or just purchase
9 of the PCB function of the Swan Company?

10 A. As I understand it, it was a purchase of all the assets
11 of Swan Chemical Company.

12 Q. Where was Swan Chemical located?

13 A. As I remember, the home office was in Birmingham,
14 Alabama; they had a plant in Anniston, Alabama; a
15 plant in Camden, New Jersey; and a plant in St. Louis.

16 Q. Did you have any dealings with Sangamo at any point in
17 time?

18 A. Yes.

19 Q. When was that first involvement with Sangamo?

20 A. Nineteen seventy.

21 Q. In what capacity?

22 A. I was at that time assigned the responsibility for
23 keeping abreast of PCB issues. And, as part of my
24 assignment, I visited the Sangamo plant in Pickens,
25 South Carolina.

1 Q. Prior to that visit in 1970, you had not had any
2 correspondence or communications with Sangamo?

3 A. Not personally, no.

4 Q. Did you have files to review in preparation for your
5 visit?

6 A. Yes.

7 Q. What were those files that you reviewed?

8 A. Oh, I don't remember exactly, but certainly the -- the fa
9 there were a -- a name on a list of customers.

10 Q. Sort of a customer file of correspondence and sales
11 and that type thing?

12 A. And, the type of products they purchased.

13 Q. What was the purpose of your visit in 1970?

14 A. To share with the appropriate people at the plant what
15 we at Monsanto had learned about PCB's from laboratories
16 and governmental agencies in this country, and we had
17 just returned from a trip in Europe and we wanted to
18 share what we learned with them there and -- just let them
19 know all we knew, I guess -- that was our intent really.

20 Q. Did you go to Europe?

21 A. Yes.

22 Q. So, when you said we went to Europe, we, Monsanto,
23 you are one of the team that went to Europe?

24 A. Yes.

25 Q. To do what over there?

1 A. We talked with the governmental representatives in
2 some of the European countries; we talked with representa-
3 tives of companies in Europe, Western Europe that made
4 PCB's; and we talked with representatives of universities
5 that had analyzed for PCB's and knew something about
6 the sampling and analytical methodologies.

7 Q. How long did you stay in Europe?

8 A. About a month; three weeks to a month.

9 Q. How many people went with you?

10 A. Two others.

11 Q. Who were they?

12 A. Elmer Wheeler --

13 MR. WHITE: I'm sorry?

14 WITNESS: Elmer Wheeler.

15 A. -- and Robert Keller.

16 Q. Are they still with Monsanto?

17 A. Dr. Keller is. Mr. Wheeler is retired.

18 Q. In St. Louis?

19 A. No.

20 Q. Where?

21 A. I'm not certain.

22 Q. Did you also have some information from your own
23 Medical Department or medical directors on the studies
24 you mentioned earlier that Monsanto had been doing on
25 PCB's, animal studies, I think you mentioned?

1 A. Yes, we did.

2 Q. Were those animal studies ongoing in 1963 when you
3 first became involved with PCB?

4 A. No. In 1963, the original studies had been terminated,
5 completed.

6 Q. Did you have access to the final reports on those
7 studies in '63?

8 A. No.

9 Q. They were in existence, but you didn't see them until
10 later?

11 A. That is correct.

12 Q. When did you see them?

13 A. Sometime in 1970. I don't remember exactly which
14 month.

15 Q. Who did you meet with at Monsanto in 1970 when you
16 came -- I'm sorry -- with Sangamo in 1970 when you
17 visited Sangamo?

18 A. I only remember one name, a Mr. Hydrick.

19 Q. First name?

20 A. It starts with a J.

21 Q. Where did you visit Sangamo?

22 A. In Pickens, South Carolina.

23 Q. Had you been to any other Sangamo location or head-
24 quarters prior to the visit to Pickens?

25 A. No.

- 1 Q. How many people at Sangamo did you meet with? Was it
- 2 just this one man or was there a team and he was the
- 3 top dog?
- 4 A. There was a group. I don't know if I would call them
- 5 a team and I don't know if he was the top individual,
- 6 but there was a group of people, several people.
- 7 Q. Did they have anyone from locations other than Pickens
- 8 present?
- 9 A. I don't remember. That was not discussed, to my
- 10 knowledge.
- 11 Q. Have you ever had any dealings with a company called
- 12 Schlumberger?
- 13 A. Yes, but not with PCB's. I don't want to mislead you.
- 14 Q. Alright. They have some corporate relationship with
- 15 Sangamo, is that your understanding?
- 16 A. That's what I was told recently. I was not aware of
- 17 it.
- 18 Q. So, you've had dealings with Schlumberger totally
- 19 independent of Sangamo and PCB's?
- 20 A. That is correct.
- 21 Q. Did any of that involvement have anything to do in
- 22 South Carolina?
- 23 A. No.
- 24 Q. What were the conclusions of those animal studies you
- 25 say you saw in 1970 done by the Medical Department of

- 1 Monsanto with regard to PCB?
- 2 A. In 1970, the information we had on completed studies
- 3 indicated that we could expect the respiratory
- 4 irritation that I mentioned earlier; we could expect
- 5 skin problems that I discussed earlier. That's the
- 6 extent of our knowledge in mid-1970.
- 7 Q. Were you aware at that time of the Japanese studies?
- 8 A. I'm not aware of any Japanese studies.
- 9 Q. Even as of today?
- 10 A. I may have the wrong definition of studies.
- 11 Q. In Japan in '68 or so, they had some studies of PCB's
- 12 and the hazards and dangers or precautions associated
- 13 therewith.
- 14 A. There were investigations in 1968, not studies.
- 15 Q. Are you aware of that today?
- 16 A. Yes.
- 17 Q. Were you aware of that in 1970, of those investigations?
- 18 A. Yes.
- 19 Q. What is your understanding of what those investigations
- 20 concluded?
- 21 A. After talking with representatives of the Japanese
- 22 industry and government and hearing their presentations
- 23 at meetings in this country, I concluded that individuals
- 24 were exposed to a cooking oil or an oil intended for
- 25 human consumption that had been contaminated with PCB's

1 and that many ailments were reported; nauseas, headaches
2 nervousness, pigmented infants. I don't recall all the
3 others; there were a list of problems that were reported
4 And, at that time in 1970, there was still some question
5 as to what was the cause of all these symptoms that were
6 being described. And, later, the conclusion -- also,
7 I talked with the Food and Drug Administration individual
8 who went to Japan to personally investigate this incident.
9 The conclusion, as I understand it today, is that there
10 was a contaminant created in this situation, in this
11 accident, that is perceived to be the cause of these
12 symptoms.

13 Q. What contaminant?

14 A. I believe it's the chlorinated dibenzo-furans. I
15 don't know which one, but it's one of the chlorinated -
16 or one or more of the chlorinated dibenzo-furans.

17 Q. Did you make Sangamo aware of those Japanese
18 investigations in 1970 when you visited?

19 A. That was part of my discussion points.

20 Q. Did you tell Sangamo in 1970 any levels of PCB's that
21 were either hazardous or dangerous levels or which was
22 a safe level, any parts per million, or any types of
23 units at which there would be a risk or no risk, what
24 I would refer to as a threshold limit value?

25 A. That's right; there were threshold limit values

1 established before that 1970 discussion. And, the
2 users of PCB's were aware of those, and all I had to
3 do was review once more the fact that they existed and
4 that the levels in the workplace should be kept below
5 those numbers.

6 Q. What were those numbers in 1970?

7 A. For one of the PCB's, if memory serves me right,
8 the aroclor 1254, which is the 54 percent chlorinated
9 PCB, the recommended level, as I remember, was a half
10 milligram per cubic meter of air.

11 Q. Sangamo was aware of that at your visit in 1970?

12 A. Yes.

13 Q. How about for the 1242?

14 A. Twelve forty-two, it was one milligram per cubic
15 meter, if I remember it correctly.

16 Q. What other information did you and Sangamo discuss at that
17 1970 visit?

18 A. We discussed the fact that we had strong indication
19 that PCB's were being found out in the environment
20 in areas that were surprising in that they were not
21 necessarily industrial areas. Since this was an
22 industrial chemical, that was the surprising feature.

23 Q. When you say not in industrial, you mean in environmental
24 areas such as Twelve Mile River and the banks of the
25 river?

1 A. I don't know the Twelve Mile River, but --

2 Q. The river running by and away from Sangamo Weston
3 in Pickens County.

4 A. I don't know.

5 Q. Where did you hear then that these PCB's were being
6 found?

7 A. They were being found in the Great Lakes.

8 Q. Oh, you weren't talking specifically about Pickens?

9 A. No, no, no. These are reports coming in -- they were
10 being found off the coast of California; they were found
11 up in Sweden, in forests, in pine needles and in lakes
12 and riverstreams in Sweden. That's the kind of
13 information we shared with the Pickens representatives.
14 And we also shared with them that we had refined the
15 analytical methods and assured ourselves that the methods
16 used by these investigators were appropriate. that they
17 were getting the proper data, that it was not a misleading
18 number that they were seeing. And, we also told them
19 that up to that point, it was only the 54 percent PCB
20 that was being reported, which was, to us, a still
21 puzzling question, because what about the others, why
22 aren't they being found. So, our purpose was to bring
23 them up to date on what we knew. And we told them we
24 had some animal studies still underway and the report
25 wasn't in yet and also that we couldn't let the PCB's

1 get into the environment. By we, I'm talking about all
2 of us involved with them the users, the manufacturers,
3 as well as the consumer. And, we re-emphasized the need
4 to control the escape to the environment. That was the
5 purpose of the visit.

6 Q. Did you receive any information that there was, in
7 fact, any escape into the environment from the Sangamo
8 plant in Pickens County?

9 A. No.

10 Q. Did you ask that question?

11 A. I can't say specific for that plant, but it was a typical
12 question that we would ask. And, at that point in time,
13 the methodology for analyzing was not available, so
14 I don't know how anybody could have said with certainty:
15 Yes; we've analyzed and we have determined it is
16 escapement.

17 Q. I thought you said Monsanto verified that the reports
18 of PCB's in the Great Lakes and out in California and
19 in Sweden were, in fact, accurate reports?

20 A. Correct.

21 Q. So, the technology must have been available in those
22 locations to verify.

23 A. The technology was available in half a dozen laborator
24 in the world. We were in 1970 sharing that technology
25 with our customers. So, we handed them a copy at this meeting:

1 Here's the methodology; you either develop in your own
2 laboratory or find a nearby laboratory to help you
3 analyze samples. That was another purpose.

4 Q. So, that document you gave them would allow them then
5 to go out and determine whether or not there was any
6 environmental escape from their own facility?

7 A. That is right. That was the intent of that.

8 Q. Was that document such that you would need special
9 equipment or was it just the methodology more than the
10 equipment that was unique to that evaluation?

11 A. The equipment at that time was unique and not very
12 common. So, in almost every case, the laboratory had
13 to buy the equipment.

14 Q. Did the report that you handed them go into the details
15 about what type of equipment was needed and that type
16 thing?

17 A. It referred to the equipment Monsanto used. It did not
18 try to evaluate other available equivalent equipment.

19 Q. In this visit that you made in 1970, was it specifically
20 aimed at Monsanto -- at Sangamo or was it a program
21 of going to every customer of Monsanto who was purchasing
22 PCB's?

23 A. It was a program of going to every dielectric customer
24 that was still purchasing or had purchased PCB's from
25 Monsanto.

1 Q. Was it limited to purchases of 1254 or just PCB's in
2 general?

3 A. PCB's for dielectrics, electrical equipment use. So,
4 it would cover the 1221, 1242, 1232, 1254, 1260, 1240
5 all -- almost all of them.

6 Q. What was the proper method of disposing of PCB waste
7 in 1970?

8 A. The proper method in 1970 was landfilling in a permitted
9 facility, permitted by local authorities or State
10 authorities, whatever the permitting authority is.

11 Q. Did that ever change?

12 A. Yes; it did change through the years.

13 Q. When did it change after 1970?

14 A. Starting in 1971, Monsanto had an incinerator that we
15 installed specifically for destroying liquid wastes,
16 pumpable waste that could be pumped to a unit and
17 burned. About that time, as I remember, there were
18 some commercial incinerating facilities either just
19 starting up or planned. So, that was a change that
20 was evolving. And, in later years, the Environmental
21 Protection Agency, the Federal Agency, established
22 some rules as to where PCB's could be land-buried.

23 Q. In 1970, you said the use of landfills.

24 A. Uh-huh.

25 Q. Was that an industry practice or was there any specific

1 requirement from any Federal, State agency or from
2 the manufacturer such as Monsanto to its customer?

3 A. The requirement on the part of the regulatory
4 authorities was general in that it referred to
5 chemicals. So, the permission that was granted for
6 many of these landfills was to distinguish between
7 what it was called a sanitary landfill, that takes care
8 of normal household wastes, and chemical landfills.
9 Different permission were granted, okay?

10 Q. Who was setting that up? Was that the Federal
11 Government?

12 A. No. The Federal Government in 1970 was really -- the
13 organization was not in place just yet. EPA was just
14 organizing, so they did not have, to my knowledge,
15 any regulations established as yet.

16 Q. So, that was a State regulation you were talking about?

17 A. State or in some areas counties or cities, municipalities.

18 Q. Did you have any familiarity with the South Carolina
19 regulations on that point?

20 A. No; not per se, no.

21 Q. So, the statement you made about using the chemical
22 landfills is more just the normal regulations for states
23 nationwide or --

24 A. It's the typical regulation, yes, sir. And, it was
25 up to each customer to check with his own locality to

1 determine where he could go with his waste.

2 Q. So, the first time that Monsanto ever used an
3 incinerator to dispose of PCB waste was in 1971,
4 or did I read too much into that statement?

5 A. Yes; yes, that is correct.

6 Q. Prior to that time, had the research facility or Medical
7 Department done research into using incineration as
8 disposal for PCB waste?

9 A. Prior to that time. Well, we did some research and
10 studies before the incinerator was designed and built.
11 Those studies began in the late '60's and into the
12 '70's and then the unit was placed on order -- and
13 designed based on those studies, and finally it was
14 placed in service in '71.

15 Q. In Anniston?

16 A. No; in Illinois.

17 Q. What physical location in Illinois?

18 A. That's the Monsanto plant in Sauget, S-a-u-g-e-t,
19 Illinois.

20 Q. Was that under your control and supervision, --

21 A. Yes, sir.

22 Q. -- the incineration project?

23 A. Yes, sir.

24 Q. Have you ever given any prior depositions such as
25 we're doing today?

1 A. Yes.

2 Q. Approximately how many?

3 A. Six, eight, ten; about a dozen.

4 Q. Have you ever given any prior trial testimony?

5 A. Yes.

6 Q. About how many?

7 A. About three that I remember, three.

8 Q. I'm going to ask you to try to identify them, unless, Frank,
9 you might have a list of all that.

10 MR. RICHARDSON: Frank, do you have a
11 list?

12 MR. MARION: At this time, I do not.

13 Not that I don't know of, I don't
14 have a list, no.

15 Q. Mr. Papageorge, we've got to go through it. How about
16 start with the depositions and tell me case names and
17 approximate dates.

18 A. I may not remember the case names in the formal fashion,
19 but --

20 Q. You can refer to it as the Westinghouse case or what-
21 ever.

22 A. There was a North Carolina poultry case, in which I gave
23 deposition.

24 Q. Do you remember the plaintiff's counsel in that case?

25 A. No.

lbDic

1 Q. It was in where, around Raleigh? Do you remember where?

2 A. I don't remember Raleigh, North Carolina. I remember
3 Greensboro.

4 Q. Have you got a file that has all these old depositions
5 in it?

6 A. I don't have any files.

7 Q. Does Monsanto have a file with all your old depositions
8 in it?

9 A. I don't know.

10 Q. Do you not ever see these depositions when they come
11 back?

12 A. Yes.

13 Q. You do?

14 A. Uh-huh.

15 Q. What do you do with them when you finish reading them?

16 A. I send them back to the Legal Department.

17 Q. If you wanted to see one, you'd call Tom or one of
18 his people and ask them for it?

19 A. Yes.

20 Q. Alright, sir; the next deposition?

21 A. These are not in chronological order; just as I recall
22 them.

23 Q. I understand.

24 A. I was deposed in Knoxville in a General Electric
25 transformer case. I was deposed in New Hampshire in a

1 mink case, m-i-n-k.

2 Q. What kind of mink? Is that the name of a company?

3 A. No, no; these are the animals that are used for fur
4 coats, ladies' coats.

5 Q. PCB's were contaminating the minks?

6 A. That was the allegation, yes. I was deposed in a case
7 involving a dental laboratory using one of our chemicals
8 in the mold formation or construction.

9 Q. What state?

10 A. The deposition took place in Missouri, but the case
11 was, as I remember, in Michigan.

12 Q. Alright, sir.

13 A. Speaking of Michigan, I was deposed in a dairy farm
14 case in Michigan. And, let's see, I was also deposed
15 in Indiana in a dairy cattle case. There was a case
16 out in, I believe it was, Montana, a transformer case
17 in a packing house. I believe I have them all. I
18 can't remember anymore.

19 Q. Of those, other than the mink case, how many involved
20 animals as opposed to personal injury to humans?

21 A. All but the dental laboratory case involved animals
22 or birds, chicken or cattle.

23 Q. Now, let's go through your trial testimony. What cases
24 have you testified in?

25 A. I testified in the General Electric transformer case

1 in Knoxville and the mink case in New Hampshire and the
2 dairy farm case in Michigan. I believe that's it.

3 Q. Did any of those involve a manufacturing facility
4 that used the PCB's as raw materials, and I'm saying that
5 as opposed to a facility which used an end product of
6 a manufacturing facility using PCB?

7 A. No; in none of those cases was a manufacturing plant
8 or its activities directly involved.

9 Q. To your knowledge, has Monsanto ever been sued on such
10 a case besides this one that we brought?

11 A. Oh, to my knowledge? That reminds me of another
12 deposition. There was a case up in Waukegan Harbor.

13 Q. Illinois?

14 A. Waukegan, it's just off Milwaukee. This has to do
15 with a customer who used PCB's in the resulting
16 contamination of the harbor. I was deposed on that
17 case. And, that's the only situation I'm aware of where
18 a manufacturing facility was associated with a PCB
19 contamination allegation.

20 Q. And, what was the manufacturing facility there?

21 A. They made engines.

22 Q. When did Monsanto last make PCB's?

23 A. Nineteen seventy-seven.

24 Q. When did they discontinue the manufacture of PCB's?

25 A. Well, it's a combination of many factors that were

1 taken into consideration. By 1977, we, of course,
2 had withdrawn from many of the uses that had existed
3 through the '30's, '40's, '50's and '60's. It appeared
4 that many of the previous users had found acceptable
5 alternates. That included the dielectric applications.
6 The industry had informed us that they had found
7 alternates that were not as good but acceptable.
8 Monsanto, as a company, just didn't feel that a man-
9 made chemical should be found out in the environment
10 the way PCB's were found. And, although we had
11 initially thought that certain applications, because
12 of the benefits PCB's could offer, could be managed
13 and controlled, we found that we were perhaps
14 unrealistic. No matter how closed a closed system
15 was, it still leaked and the material still could get
16 away. And, even with the electrical industry where
17 fire safety was a very important consideration, we found
18 that transformers and capacitors still had maintenance
19 problems and still PCB's would get into the environment.
20 So, Monsanto decided that its good name and its intent
21 to do what's right just almost demanded that we get out
22 of the PCB business. And, we finally got our customers
23 to accept the alternates they had at that time, and
24 we told them that as of a certain date, no more.

25 Q. Monsanto did not manufacture or sell those alternates?

1 A. Very few of them did we have in alternate form.

2 Q. In the dielectric area, did you have any alternates?

3 A. In the dielectric, we didn't get any of that business
4 anymore. We did not have the alternate.

5 Q. What was that alternate?

6 A. I can't claim to be -- to know totally. But, it was
7 my understanding that for transformers the industry
8 went to -- either back to mineral oil or to what is
9 called a gas-filled dry units or they used silicones,
10 silocone liquids, I believe that's the three alternates
11 that they had.

12 Q. Why was it such a concern of Monsanto that PCB's
13 being in the environment was a concern?

14 A. Well, it's a lot of subjectivity. It's a case of
15 wrestling with the concept of is it right to make a
16 chemical that finds its way into the environment just
17 about everywhere you sample; is this really the right
18 thing to do. And, apparently the environment can't
19 metabolize it, can't degrade it; there're some creatures
20 in the environment that will consume it and it builds
21 up in their bodies, and they, in turn, are consumed by
22 others, and you may have heard the expression, the
23 bio-accumulation that goes up the food chain. And,
24 Monsanto just didn't feel it was the right kind of
25 business to be in.

1 Q. The ingestion in that food chain by a human being, does
2 that have any effect on the human?

3 A. I'm not one qualified to say that. It's my understanding
4 that there are some allegations that if you get enough,
5 it might have some kinds of adverse effects. This is
6 why the FDA established some limits in certain foods,
7 and this is why some State authorities would establish --
8 would announce guidelines of how many -- how many pounds
9 of fish to eat in a week or some such guideline to help
10 people keep below what was perceived to be an acceptable
11 level.

12 Q. Do you know what those acceptable levels were at any
13 point in time?

14 A. I don't know. Personally, I didn't memorize any
15 number.

16 Q. And, you said you, of course, are knowledgable, but
17 that's not your area of specialty.

18 A. No. I'm not a toxicologist or medical doctor, so --

19 Q. Who at Monsanto would you call who would be knowledgable
20 about that, what department or what group of toxicologis
21 or scientists?

22 A. Well, personally, I would call the Director of our
23 Medical Department.

24 Q. Who is that now?

25 A. George Rousch, R-o-u-s-c-h.

1 Q. In St. Louis?

2 A. In St. Louis.

3 Q. How large a staff does he have?

4 A. I don't know the exact number, but --

5 Q. Two or three doctors or a hundred of them?

6 A. There are about a hundred, a little over a hundred
7 total people, and I would say three-fourths of them
8 are professionals; industrial hygienists, toxicologists,
9 epidemiologists, medical occupation doctors, nurses.

10 Q. How big was that department in 1963 when you started
11 working with PCB's?

12 A. It consisted of three professionals and two secretaries.

13 Q. When did you come with Monsanto?

14 A. In 1951.

15 Q. How many were in that department in '51?

16 A. Three people.

17 Q. Do you remember those three people?

18 A. Yes

19 Q. Who were they?

20 A. Dr. Emmet Kelly, the Director; Jack Garrett, at that
21 time, the Industrial Hygienist; and Elmer Wheeler, who
22 was the Manager of -- I'm not certain of this --
23 Environmental Health or some such title. He's the
24 one who concerned himself with toxicology studies and
25 placing of these studies.

1bBu

1 Q. What is his name?

2 A. Elmer Wheeler, W-h-e-e-l-e-r.

3 Q. Were those same three there in '51 also there in '63?

4 A. Yes.

5 Q. How long did they remain in that department? Are they
6 still there?

7 A. Mr. Garrett is still there. Dr. Kelly retired in 1974,
8 and Mr. Wheeler retired shortly thereafter.

9 Q. Do you know where Kelly and Wheeler are?

10 A. I don't know where Mr. Wheeler is. Dr. Kelly is in
11 the St. Louis area.

12 Q. Was one of those specifically assigned the PCB project
13 or did they all work on it?

14 A. They all worked on it in different ways.

15 Q. Depending on their expertise?

16 A. Correct.

17 Q. Are they the ones that conducted these animal studies
18 that we've talked about?

19 A. They didn't personally conduct the studies; they found
20 the appropriate laboratory that can do this kind of
21 work and placed the order, if you will, with the
22 laboratory and followed the studies.

23 Q. They were the liaison?

24 A. Yes.

25 Q. Is that department responsible for them disseminating

1 health-related issues among the Monsanto Company?

2 A. Yes.

3 Q. Does it also disseminate health-related issues to the
4 customers of Monsanto?

5 A. Yes.

6 Q. Does it also have any input into the labelling or
7 information being fed out to customers?

8 A. Yes.

9 Q. Did the PCB's being sold by Monsanto ever contain any
10 type of warning or caution label?

11 A. Yes.

12 Q. At what point in time do you first remember it having
13 a caution label?

14 A. There were precautionary statements on labels as far
15 back as I can remember.

16 Q. Even before 1963?

17 A. Oh, yes; yes.

18 Q. And, it changed throughout the years?

19 A. As new information was available, they would revise
20 the label to reflect that new information, yes.

21 Q. At some point in time, did Monsanto decide to go to
22 a closed system that you mentioned earlier of using
23 the PCB's or as a use for PCB's only in a closed system?

24 A. Yes.

25 Q. Was that a Monsanto decision?

1 A. Yes.

2 Q. What does a closed system mean?

3 A. Well, for that program, the closed systems were
4 defined as two types: one was the use in electrical
5 equipment, such as capacitors, transformers, motor
6 switches, electromagnet devices; and then the other
7 was the heat transfer application. Those two
8 applications were perceived to be the type that were
9 controllable, manageable, in terms of escape of PCB's.

10 Q. When did that take place, that company policy to go
11 to a closed system use only?

12 A. That was approved by our senior management in 1970.
13 It became effective immediately and was in terms of
14 evolving into a situation where those two were the
15 only uses by early 1971, as I remember.

16 Q. And, the reason for going to the closed system was
17 what?

18 A. The primary reason is to maintain the benefits, safety
19 benefits, of PCB's in high energy, arching electrical
20 systems and in high temperature heating systems. And,
21 in order to retain the benefit of PCB's and not impact
22 the environment, we decided we will terminate the sell
23 of PCB's for such things as varnishes and paints and
24 printing inks and carbonless copy paper and all those
25 miscellaneous uses that just easily get out into the

1 environment. And, by controlling the escape into the
2 environment, we thought -- we were hopeful that we
3 could impress really on society, which has the final
4 vote, that this is an appropriate use for PCB's and
5 we think that use should be continued. That was our
6 intent.

7 Q. Were there alternatives in the marketplace for these
8 capacitors and transformers back as early as 1970?

9 A. Not to my knowledge. In fact, our customers insisted
10 there weren't.

11 Q. Including Sangamo? Did you specifically talk to
12 Sangamo about that?

13 A. I don't remember any specific company that's in the
14 electro business making these statements. But, as a
15 group, and I met with them in groups, that was the
16 opinion of the industry.

17 Q. These groups you're talking about, they had some kind
18 of trade association?

19 A. Yes.

20 Q. What kind of groups are you talking about?

21 A. They do have trade associations. But, the group I had
22 in mind was the National Electrical Manufacturers
23 Association.

24 Q. You would go to their conference or annual convention
25 of some kind?

1 A. I have attended a few of those, yes.

2 Q. For the purpose of discussing PCB's?

3 A. Yes. I was asked on several occasions to be on their
4 program.

5 Q. What years, do you recall?

6 A. It went from 1970 through '75 off and on.

7 Q. And, you say that there was some question about the
8 alternative products to use to replace the PCB's?

9 A. Uh-huh.

10 Q. But, apparently at some point in time, either they were
11 developed or they just actually went on to other
12 alternative products, is that correct?

13 A. That's right.

14 Q. About when was that?

15 A. Nineteen seventy-seven, as I recall.

16 Q. Well, you said that that alternative wasn't as good
17 but was adequate?

18 A. That's my understanding, uh-huh.

19 Q. Why wasn't it as good?

20 A. Well, when they reverted to the mineral oils, that
21 created a unit that could no longer be installed in-
22 doors. If it were, it had to be put in a vault with
23 special fire walls, with special firefighting deluge
24 systems, alarm systems, under special insurance rates
25 and the like. These are all the trade-offs that had

1 to be made to go to, say, the mineral oil. When they
2 went to the silicone oils, the unit of a given size
3 could not perform the job that it could have with
4 PCB's in it. So, it was a lower rated unit. When
5 they went to the air-cooled or gas units, whereas they
6 could get by previously with a small unit to perform,
7 they had to end up with a monster unit, and that
8 required more space and the like. So, in every case,
9 there was a trade-off.

10 Q. And, the trade-off was, for those inconveniences, the
11 hopeful elimination of the dangers of the PCB's?

12 A. I find the use of the word dangers difficult because
13 they introduce additional dangers with these materials.
14 So, the real advantage in changing was to get away from
15 this situation of having to constantly monitor and
16 protect PCB's from escaping that unit.

17 Q. You use your own words; I'm not trying to put words
18 in your mouth. The reasons that you needed to
19 constantly protect the PCB's from escaping that unit
20 was what?

21 A. To keep it from getting down into the sewers, into
22 the rivers, into the lakes, into the land, picked up
23 by the growing vegetation, in the air. Wherever it
24 would eventually end up, we didn't want it there.
25 That was the intent.

1 Q. PCB's are only man-made; they don't appear in the
2 environment naturally without being man-made?

3 A. There is some speculation that some of the PCB's can
4 be produced naturally. But, the studies to confirm
5 all of that have never really been carried out.

6 Q. Do you believe that?

7 A. To a degree, yes. I don't think that man can make
8 things that nature can't really. As long as there's
9 chlorine out there and we know that it's there and the
10 salt water and the like and we know there's hydrogen
11 and carbon and there's energy, it's possible. I don't
12 know the probability, however.

13 Q. But, what you were seeing in 1970 at the Great Lakes
14 and in the Pacific, on the California Coast, and Sweden,
15 in your mind, that wasn't being created naturally
16 in the environment; that was being generated from a
17 man-made chemical and then put in the environment
18 through this environmental exposures that we've discussed

19 A. That's our conclusion.

20 Q. Did you receive any information from Sangamo in 1970
21 when you visited?

22 A. I certainly received information in terms of what their
23 plant looked like and what their operations were like.

24 Q. Did you receive information on their prior disposal
25 practices?

1 A. Yes; that would have been a normal topic for discussion.

2 Q. What was that, do you know?

3 A. I really don't remember, I really don't.

4 Q. Do you remember anything in their process of manufacturing
5 a disposal that was of concern to you with their handling
6 of PCB or did you evaluate that or were you just
7 there to talk to them?

8 A. Their plant was typical of the other capacitor plants
9 that I visited. So, nothing stands out as being
10 abnormal. The problems that, in general, all of the
11 capacitor manufacturers had were so similar that my
12 advice really boiled down to: Do all you can to keep
13 it away from water. And, at that time, we were planning
14 for the incinerators, so I suggested: If you can, store
15 your liquids and eventually we'll be able to take it
16 from you and destroy it and burn it; and if there were
17 any solid materials, like capacitors that had failed the
18 test or sawdust or gloves or what have you, rags, make
19 sure they're buried somewhere where they won't get near
20 water. That was my message as I visited all the
21 capacitor plants.

22 Q. And, you found the typical capacitor plants not doing
23 those things?

24 A. At that point in time, yes. This was the state of the
25 art. The material was not considered to be a problem;

1 what little bit would get on the floors, would be washed
2 down with a hose.

3 Q. And, out into the sewage system?

4 A. Whatever system each plant had. Some had sewage
5 systems; some had treating plants. It varied on the
6 locality and the company. And, then the burial would
7 be whatever the practice for the whole plant was in
8 terms of getting rid of its solid wastes. It was
9 not at that point in time considered by anyone as
10 requiring special attention. And, what I was doing was
11 saying: From now on, let's give it special attention.

12 Q. Why keep it away from water?

13 A. Well, --

14 Q. By it, I mean the PCB's.

15 A. -- that seemed to be the way that PCB's were spread
16 through the environment, either as part of the water
17 itself, but more likely as particles in water that
18 were carried along with the waterways. So, this is
19 how we thought we could explain PCB's used in one
20 spot being found in a remote area, conveyed by water
21 systems.

22 Q. Did you receive any information with regard to
23 Sangamo's reaction to what you were telling them?

24 A. I got encouragement that they understood the need for
25 this, they were very anxious to retain the use of this

1 material in their product, and I walked away with an
2 assurance that they were sensitive and would do the
3 right thing.

2aDic 4 Q. Did you generate reports as a result of your visit?

5 A. On occasion, I would write back to the representative
6 my impressions, second thoughts that I had.

7 Q. In this situation, it would be right back to Sangamo,
8 your customer?

9 A. Yes.

10 Q. Would you have internal documents reviewing your visit
11 and what was discussed and who you met with and --

12 A. Not normally, no. These would be discussed at a
13 group meeting, sort of a feedback to the rest of the
14 committee that I had as to our observations and findings.

15 Q. Who was your committee that was working on this project
16 in 1970?

17 A. It consisted of manufacturing representatives--these
18 are all Monsanto people --

19 Q. Yes, sir.

20 A. -- it consisted --

21 Q. Have you got any names as you go through?

22 A. I'll try to remember them all. Gee, it's been so long.

23 Q. Have you got a file on this that would show all these
24 people's names?

25 A. I used to have a file. I don't know if it still exists.

1 Q. That would be a personal file?

2 A. No, no, no; this is a --

3 Q. Monsanto?

4 A. -- Monsanto file that went with the function. When I
5 was removed from the function, the files were turned
6 over.

7 Q. What was the name of the particular file?

8 A. I don't know that I had any --

9 Q. PCB file or --

10 A. Yeah; that was a -- that was it. PCB Issue or some
11 such name.

12 Q. I'm sure we can get all those names. Did you have any
13 follow-up with Sangamo either in Pickens or any other
14 location?

15 A. My only personal follow-up was in a letter that I wrote
16 back following my visit. I remember that.

17 Q. To whom.

18 A. To Mr. Hydrick.

19 Q. When was that letter written approximately?

20 A. Well, as I remember, we visited the plant in June of
21 1970. And, I completed my tour of other plants and
22 came back and wrote it. So, it had to be early
23 July, 1970.

24 Q. What did you tell him?

25 A. I told him the thoughts that I just expressed about

1 keep it away from water; you might consider storing
2 your liquid waste and we don't be in a position to take
3 it from you and burn it; your solid materials, make
4 certain that wherever you put them that it's an approved
5 site away from water, because too many sites in that day,
6 at that point in time were located near river banks and
7 so on. And, I was telling them keep it away from
8 any body of water.

9 Q. Are you talking about the water solely for the movement
10 of the PCB's or was there any other reaction or the
11 way it settled into the bottom or anything else or
12 the fish eating the PCB's or --

13 A. That was part of the presence, yes. The fish were a
14 good indicator of the presence of PCB's in that system,
15 water system.

16 Q. How did you correlate finding PCB's in fish with the
17 potential contamination of the creek? Does it have to
18 be a certain level of parts per million or some unit
19 for you to say: Alright; we've got a problem in this
20 creek?

21 A. Well, for me personally, say, any validated analyses
22 of the presence of a PCB in fish, irrespective of its
23 level, would be an indicator that that fish was exposed
24 to PCB somewhere. Now, depending on the species of
25 fish, whether they are migratory in terms of where

1 do they spend their lifetime or whether they're
2 bottom feeders or surface feeders, each of these
3 will exhibit different amounts of PCB's and they will
4 also metabolize it differently so when analyzed, it
5 will show up differently to the analysts. But, just
6 the fact that it's in the fish means that it was exposed.
7 And, we didn't think that that was appropriate; it
8 shouldn't be.

9 Q. Why not? What effect would it have on the fish?

10 A. I don't know of any effect on the fish themselves.

11 Q. Have you ever noticed any fish kills as a result of
12 PCB's exposures?

13 A. No.

14 Q. Never heard of any?

15 A. That is correct.

16 Q. I presume the same is true with regard to humans. If
17 you find PCB levels in humans, you'd say the same
18 thing?

19 A. Yeah. I suspect I have PCB's in me; I suspect every
20 person in this room does. That doesn't make it right.
21 So, -- that was a big motivator to not lose control.

22 Q. Do you have an opinion as to what level of PCB's, for
23 example, in the bloodstream of a human being is reaching
24 the point where it is a danger or health hazard to that
25 individual?

1 A. No, I don't. I've never heard a number personally.

2 Q. If you wanted to find that out at Monsanto, you would
3 call this Medical Director that we talked about earlier --

4 A. Yes, sir.

5 Q. -- and they would have the expertise in that area?

6 A. They would have the expertise, yes. I don't know if
7 they would have a number though. I can't -- never
8 having asked, I don't know.

9 Q. Would there be any place else in the body that you
10 know of that you would look to other than the blood-
11 stream to determine whether somebody had had exposure
12 to PCB's?

13 A. PCB's are known to accumulate in the fatty tissue.
14 So, the body burden of PCB's in humans is, to my
15 knowledge, reported as the amount found in fatty
16 tissue, adipose tissue.

17 Q. When you say burden, what do you mean body burden?

18 A. It's the amount that the body is carrying or present in
19 the body. It is not just a matter of passing through
20 and disappearing; it's there constantly.

21 Q. Other than this one letter in July of 1970 you discussed
22 writing Sangamo after your visit, was there any other
23 correspondence or communication that you had with
24 Sangamo?

25 A. No.

1 Q. That was it?

2 A. Oh, communication. I had personal contact with
3 individuals from the company.

4 Q. Sangamo?

5 A. Yes.

6 Q. Tell me about that.

7 A. They were represented on a group effort that the
8 electrical industry put together for addressing PCB's.
9 They were represented, as I remember, in that group
10 effort.

11 Q. Approximately what point in time?

12 A. Seventy-one through seventy-four.

13 Q. Were you the Monsanto representative on that group
14 effort?

15 A. Yes.

16 Q. Who from Sangamo was the representative?

17 A. I don't remember the man's name.

18 Q. It wasn't the same one you knew here in Pickens?

19 A. I don't think so. The individual that was there, I
20 remember served for a short time and then retired, and
21 he was replaced by another individual.

22 Q. What was the name of this group?

23 A. This was a panel put together under the National
24 Electrical Manufacturers Association to come up with
25 guidelines for the industry to use to handle PCB's

1 properly.

2 Q. You don't remember a title or anything like that?

3 A. Well, later we transferred from the National Electrical
4 Manufacturers Association to the American National
5 Standards Institute. And, at that time, we called
6 ourselves the ANSI Committee C107, I think that's the
7 right terminology, Committee C107.

8 Q. And, it was basically the same committee under a
9 different heading?

10 A. Yes.

11 Q. When did that terminate?

12 A. I'm not certain. I had to resign from that committee in
13 1975, and it was still active.

14 Q. Why did you have to resign?

15 A. My assignment changed. I was no longer involved with
16 PCB's. I felt it appropriate to, after four years
17 of chairman of that committee, that someone else
18 assume that duty.

19 Q. Who took your place as the Monsanto representative?

20 A. On that committee? I believe David Wood. David Wood.

21 Q. Does Mr. Wood visit St. Louis on occasion and come
22 up here with his work? Isn't he still with the company?

23 A. Yes.

24 Q. Does he visit the United States on occasion with regard
25 to his responsibilities?

- 1 A. Yes.
- 2 Q. How often would he come to the States?
- 3 A. I don't know that I -- I see David maybe once a year.
- 4 I don't know how frequently he comes when I don't see
- 5 him.
- 6 Q. Do you know whether he's got trip planned anytime soon?
- 7 A. No, I don't.
- 8 Q. Do you talk to him with some frequency?
- 9 A. No; it's more a social contact than a business contact.
- 10 Q. So, you had been chairman of that C107 or its
- 11 predecessor from its inception until 1975?
- 12 A. Yes.
- 13 Q. And, then David Wood came on but not as chairman; some-
- 14 one else was chairman?
- 15 A. That is my understanding, yes.
- 16 Q. When was that committee disbanded, do you know?
- 17 A. I don't know.
- 18 Q. Did they keep minutes of those meetings and report to
- 19 the people who were absent by sending them copies of
- 20 the minutes or reports of some kind?
- 21 A. I never saw one.
- 22 Q. You never saw any minutes at all?
- 23 A. No. I just don't remember any minutes.
- 24 Q. Did you maintain a C107 Committee file of some kind?
- 25 A. Yes. At the time when it was active, uh-huh.

1 Q. And, passed it on to David Wood or someone else
2 at Monsanto that had that responsibility?

3 A. Yes.

4 Q. Can you tell me whether you ever discussed with
5 Sangamo its specific situation as opposed to the general
6 discussions in that committee at any of these meetings?
7 I presume you talked to the people socially or about
8 side issues?

9 A. Yes; but I never perceived myself as the individual
10 qualified to speak specifics, because I never really
11 knew the total situation at each of our customer's
12 sites, so I could not be specific.

13 Q. Did Monsanto have anybody else that attended or was
14 a member of the C107 committee?

15 A. You mean in addition to me or David Wood?

16 Q. Yes, yes.

17 A. I believe on occasion I took along Monsanto individuals
18 who would make presentations to the group, for example,
19 analytical methods or toxicology results, that kind
20 of -- so we would be part of the program, but they
21 would not be members of the committee.

22 Q. Who would you take along, if you recall, on analytical
23 methods?

24 A. It would be Dr. Robert Keller or Dr. Scott Tucker.

25 Q. Both in the Medical Department?

1 A. No; they were in the Analytical Chemistry Service
2 Group. That's not its formal title, but that's what
3 it did.

4 Q. In St. Louis?

5 A. In St. Louis.

6 Q. How about the toxicologist?

7 A. That would be Elmer Wheeler.

8 Q. Anyone else that you recall from Monsanto being on
9 the program or going with you for any reason?

10 A. I don't recall anyone else at the moment.

11 Q. Did you assist in drafting these caution labels that
12 accompanied the PCB to customers' locations?

13 A. Some of them, um-hum.

14 Q. From what point to what point?

15 A. From 1970 forward; 1970 to 1976.

16 Q. Do you know whether or not Monsanto has ever had any
17 workmen's compensation claims where the allegation
18 has been made that PCB exposure was a contributor
19 leading to that compensation claim?

20 A. I'm not aware of any.

21 Q. Would you know if there were any?

22 A. No.

23 Q. The Legal Department would be where you would call if
24 you needed to know that answer?

25 A. I would go any of three places: Personnel Department,

1 Medical Department or Legal. Being an outsider, I
2 could start with any of those three and work my way
3 to the source.

4 Q. How about claims by any individuals, personal injury,
5 that would relate to PCB's, are you aware of any such
6 claims made to Monsanto at any point in time by non-
7 Monsanto employees?

8 A. Claims of personal injury by workers or --

9 Q. Well, I'm going to ask you both. First, claims of
10 personal injury by workers who didn't file a comp
11 claim.

12 A. Whose workers?

13 Q. Monsanto.

14 A. Oh, okay.

15 Q. Let's limit it to that, so I don't get too complicated.

16 A. I know nothing about that.

17 Q. Then the same three departments you'd ask about?

18 A. Correct.

19 Q. Now, how about non-Monsanto personnel, either
20 environmentally exposed or people, say, that work for
21 a customer such as Sangamo? Do you know of anything
22 about any claims in that area?

23 A. The only claim I'm aware of is a claim of a dairy farmer
24 that his family's health was affected by PCB's.

25 Q. And, that's where you gave the deposition earlier?

- 1 A. Yes.
- 2 Q. Let me talk just a minute about some of these
- 3 uses of PCB's. Did Monsanto market PCB's to be used
- 4 in a dairy setting in some way?
- 5 A. No.
- 6 Q. How did the man say his family got exposed?
- 7 A. The claim was that a coating that was used in his
- 8 silo to protect it from the acids that are generated
- 9 was formulated with one of Monsanto's PCB's present.
- 10 And, as a result, that was the source of PCB's that
- 11 ended up in the milk and the meat that his family
- 12 consumed.
- 13 Q. Did his family show up PCB's -- a PCB burden in the
- 14 body, to your knowledge?
- 15 A. I don't know that.
- 16 Q. You in 1963 said you had your first dealings with PCB's.
- 17 Was I correct in that or did you deal with it earlier?
- 18 A. Oh, okay, yes; that was my first knowledge of and
- 19 working with.
- 20 Q. And, you worked in that production operation with
- 21 Monsanto for some period of time?
- 22 A. Yes.
- 23 Q. How long was that?
- 24 A. I guess it was -- I said '63, did I?
- 25 Q. (Nods head affirmatively.)

1 A. I thought it was earlier than that.

2 Q. Well, I'm not trying to put words in your mouth. I
3 thought you said '63. But, whatever you recall, that's
4 fine. What do you recall is your first involvement?

5 A. Well, there was a period there in the '60's, early '60's,
6 I was a supervisor of a group that used PCB's in
7 equipment, in compressors and transformers and electrical
8 equipment and so on. And, that lasted until 1965, I
9 guess, the end of '64.

10 Q. And, then what did you do?

11 A. Then I was assigned to a Monsanto plant at which PCB's
12 were manufactured.

13 Q. For sale to customers such as Sangamo?

14 A. Correct.

15 Q. Until when?

16 A. Until 1970 when I was assigned the PCB Issues job.

17 Q. Going back to the early '60's to the end of '64 or '65 era,
18 tell me what department that was with and what function
19 you were doing, first?

20 A. Well, it was two really functions. One was the
21 maintenance function, the electricians working on
22 transformers and electrical gear would be the people
23 that would be the closest to the material. Following
24 that, I had -- I was assigned the power generation
25 and distribution function, the power plant where

1 the electricity is made and distributed. There
2 again, I had the maintenance people as well as the
3 people who operated the equipment who close to the PCB's.

4 Q. Did you have what I refer to as standard operating
5 procedures or guidelines for those workers to perform
6 their jobs which in any way would have mentioned the
7 proper method of handling PCB's or how to work with the
8 PCB's?

9 A. Yes.

10 Q. What, generally, did those standard operating
11 procedures with regard to PCB's consist of?

12 A. Don't get it on your skin; if you get it on your work
13 clothes, launder them; don't wear them for a full week,
14 that kind of message; if you get it on your hands --
15 first of all, you should have been wearing gloves, the
16 right kinds of gloves; if you did get it on your hands,
17 wash them; keep clean is really the message that is
18 conveyed.

19 Q. And, that was basically the standard operating
20 procedures for the workers themselves?

21 A. Yeah; correct.

22 Q. Was there a standard operating procedure or any
23 bulletins or documents involving how to handle PCB
24 spillage or waste that might have occurred?

25 A. Not in the '60's.

1 Q. What did you do with PCB's if a transformer started
2 leaking?

3 A. We would treat it just like we did many chemicals in
4 the plant. It would go to a chemical landfill after
5 it was absorbed in sawdust or sand or some absorbing
6 material.

7 Q. So, you would throw sawdust or sand on it and shovel
8 it up and put it in a 55-gallon drum and haul it out?

9 A. Yes; to the chemical landfill, along with the other
10 chemicals generated at the site.

11 Q. Did you have a standard operating procedure on all
12 the chemicals in the facility with regard to seepage
13 and waste just like we discussed? Was that written
14 anywhere?

15 A. Yes. The same type of advice would appear on many,
16 many chemical procedures. Each process had its own
17 book.

18 Q. But, that section would be pretty standard among the
19 different chemicals?

20 A. Pretty much so except for the very, very unique kinds
21 of chemicals.

22 Q. Nothing at that time that you recall was unique about
23 PCB's with regard to disposition of them?

24 A. That is correct.

25 Q. Anything else in that standard operating procedure that

1 you recall dealing with PCB's?

2 A. I don't recall anything else.

3 Q. Were you getting the PCB's, to your knowledge, from
4 the manufacturing facility that you subsequently went
5 to work for?

6 A. I was getting it from either of the two Monsanto
7 plants, the one in Alabama or the one in Illinois.

8 Q. Do you recall at that time whether or not -- those
9 shipments would come in in what kind of containers?

10 A. Oh, it would range from tank rail cars or by truck,
11 tank truck.

12 Q. But, it was bulk shipment and it wasn't 55-gallon drums?

13 A. No. Sometimes they were in 55-gallon drums, sometimes
14 they were in five-gallon pails. It depended on how
15 much was required at the time.

2aBu 16 Q. Okay. And, do you recall whether or not there were
17 labels and cautions and so forth on the PCB's at that
18 time, from the early '60's up through '64 that you would
19 be receiving?

20 A. Yes. On the smaller containers there were labels, yes,
21 but not on the tank trucks or tank cars.

22 Q. How about the 55-gallon drum?

23 A. There would be a label affixed on the drum.

24 Q. Do you remember anything as to what it said with regard
25 to the cautions or hazards associated with PCB's?

1 A. Yes.

2 Q. What did it say?

3 A. Avoid prolonged breathing; do not get on skin; wash
4 contaminated area; launder clothing. These kinds of
5 statements were on the label.

6 Q. Did it say anything about disposition of the PCB's
7 after it had been used or was what I call waste
8 material?

9 A. At what point in time?

10 Q. The early '60's up through '64. Now, this is the
11 time you were in the actual manufacturing function.

12 A. No; it did not refer to disposal on the label at that
13 time.

14 Q. Do you know anything about what Monsanto was shipping
15 to its customers by way of the same caution or warning
16 label? Was the same label going out to the customers
17 as was coming to you in your particular facility?

18 A. Yes.

19 Q. And, there wasn't anything added with regard to disposal
20 or waste at that time, to your knowledge?

21 A. That is correct.

22 Q. Did you have disposal or waste or just containers that
23 were almost empty but not quite that you had to get
24 rid of?

25 A. At that time, no.

1 Q. You did not? I mean, would you expect there to be a
2 waste from the use of the PCB's during this early
3 '60's through '64 operation that you had?

4 A. Yes.

5 Q. How did you get rid of it? I don't mean spillage
6 now. We talked about spillage. But, if you have
7 waste or some excess PCB's, you'd go through this
8 landfill situation again?

9 A. Yes.

10 Q. And, you did that because of the standard operating
11 procedure of Monsanto that we discussed earlier?

12 A. Correct.

13 Q. How would the customer who received that same 55-
14 gallon drum know how to dispose of that waste?

15 A. I can't speak for the customer at that point in time.

16 Q. Monsanto gave no guidance with regard to that
17 disposition of waste at that point in time?

18 A. Not specific guidance. These were considered to be
19 industrial chemicals and should be handled like
20 industrial chemicals.

21 Q. Alright, sir. Now, in either late '64 or early '65,
22 what manufacturing facility of PCB's for Monsanto did
23 you go to work at?

24 A. In Anniston, Alabama.

25 Q. You moved from St. Louis?

1 A. Correct.

2 Q. And, you lived in Anniston for how long?

3 A. Five years.

4 Q. Tell me about that facility. Does it produce all
5 of these types of PCB's or all the different numbers
6 that you use?

7 A. It did, yes.

8 Q. From the time Monsanto purchased that plant in 1929 or
9 '30, whenever it was, did it continue to use the same
10 facility? I think -- didn't you say you bought it from
11 Swan Chemical or something like that?

12 A. Yes. When you talk about -- the facilities through
13 the years were modernized and expanded.

14 Q. The same physical location?

15 A. But, the site was the same, uh-huh.

16 Q. Do you know anything about the production levels
17 of that Anniston facility prior to your arriving there
18 in late '64 or early '65?

19 A. You mean how many pounds a year did it make?

20 Q. Yes.

21 A. As I remember, it was something like 30 million pounds
22 a year, 40 million pounds a year, something -- it's
23 been awhile.

24 Q. Was that a fairly constant volume or were there -- was
25 there some year when you had a big expansion and doubled

1 the capacity of the plant?

2 A. No. The increase was very gradual through the years,
3 shared by the two plants, so there was no need to
4 double it suddenly at any one site.

5 Q. Now, the other plant is in Illinois, I believe?

6 A. Correct.

7 Q. And, approximately in -- let's take as a benchmark,
8 this -- the first of 1965, approximately what would
9 the volume have been at that time?

10 A. About the same.

11 Q. Back in 1951 when you first went with them, do you
12 have any idea about what the levels were, 20 to 30
13 million, or do you have any idea at all?

14 A. I have no good idea; I'd have to look that up.

15 Q. When they stopped making it in 1977, approximately
16 what would the volumes have been in the two plants?

17 A. The Anniston plant was not operating at that time.
18 It was terminated in '72. So, the unit shut down
19 in '77 was in Illinois.

20 Q. In '71, what was the volume of the Anniston plant?
21 Same thing?

22 A. The two we talked about.

23 Q. Thirty to forty million?

24 A. Right. Then when it shut down, the total PCB produced
25 was at one plant at about half the original.

2bDic 1 Q. Likewise at about 30 to 40 million?

2 A. Something like that.

3 Q. What was your position when you went there in early

4 1965, late '64?

5 A. In Alabama?

6 Q. Uh-huh.

7 A. I was the Plant Manager.

8 Q. How many employees were at the plant?

9 A. About 300.

10 Q. Did you have any type of Medical Director or research

11 arm or toxicologist in Anniston or was all of that

12 done in St. Louis?

13 A. It was all done in St. Louis.

14 Q. Did you have a plant doctor?

15 A. We had a part-time plant doctor.

16 Q. He was an in-town doctor that just came out a couple of

17 days a week?

18 A. He came out every morning and spent about half a day

19 with us.

20 Q. Who was he?

21 A. Dr. Francis, James Francis, I believe was his first

22 name.

23 Q. Is he still down there, do you know?

24 A. To the best of my knowledge, yes.

25 Q. Did you ever have any discussion with Dr. Francis

1 regarding the potential or the need for precautions
2 with PCB's?

3 A. Not specifically, no.

4 Q. Generally, did you have any discussion?

5 A. General health matters, yes.

6 Q. But, not geared to PCB's in particular; is that the
7 distinction you are drawing?

8 A. That is correct.

9 Q. Do you recall anyone ever having this dried skin
10 problem that we discussed as one of the potential
11 dangers of PCB's when you were at that plant?

12 A. I recall an occasional situation, and it would be
13 traced back to carelessness, not following procedures.

14 Q. When you say carelessness, you mean the worker allowing
15 PCB's to get on his skin?

16 A. Well, not wearing gloves in the first place and then
17 allowing it to get on his skin and not washing it
18 promptly. So, it's a series of wrongdoings that led
19 to his problem.

20 Q. He didn't follow the standard operating procedure?

21 A. Yes.

22 Q. Did the standard operating procedure we discussed in
23 St. Louis also exist in Anniston?

24 A. Yes.

25 Q. Were there any changes -- we talked about the early

1 '60's to late '64 era; now we're talking late '64 up
2 to '70. Were there any changes in the standard
3 operating procedure with regard to those needed
4 precautions as to PCB's by Monsanto that you're aware
5 of?

6 A. No changes, no.

7 Q. Did you become aware of the second types of precautions
8 needed, i.e., breathing the fumes that resulted in any
9 workers having difficulties at the Anniston plant?

10 A. I'm aware of the need not to inhale those fumes. I
11 never ran across a situation where it happened.

12 Q. That was my question; alright, sir. Did you recall
13 any standard operating procedure at the Anniston plant
14 with regard to disposition of PCB's?

15 A. Yes.

16 Q. And, that's something that, except as to chemicals
17 in general, did not exist in the earlier period. I
18 believe this was a new standard operating procedure
19 that came into effect when you were at Anniston?

20 A. It was not new for the plant. The plant had a
21 procedure which said: You take these wastes to the land-
22 fill that's over in this part of the plant. That is
23 the procedure followed.

24 Q. Did that procedure specifically identify PCB's or was
25 it just general for any waste at the plant?

- 1 A. Well, each of the operating units had similar words.
2 So, the wording for PCB's would say: Take the tars
3 from this still or the rags from this drumming operation
4 or the gloves from this department to the landfill.
- 5 Q. Would you just put them in the landfill or would you
6 put them in 55-gallon drums and then put the drums
7 in the landfill --
- 8 A. Both.
- 9 Q. -- or either? In other words, you could do either?
- 10 A. Either, yes.
- 11 Q. Any other containers in which the PCB's were to have
12 been put before putting in the landfill other than
13 55-gallon drums or not using anything?
- 14 A. Well, there were -- instead of the steel drums, there
15 were the fiber paper type drums and there were paper-
16 bags and plastic bags, miscellaneous containers.
- 17 Q. Was there any disposal of waste from the Anniston
18 plant from late '64 forward into any water or stream
19 or creek?
- 20 A. The disposal of waste from the Anniston plant did go
21 into a creek and then eventually entered the city
22 municipal treatment system.
- 23 Q. Are you aware of whether or not that escape included
24 PCB's?
- 25 A. Yes.

1 Q. You are aware and, yes, it did?

2 A. Yes.

3 Q. Up until what point in time?

4 A. I was aware of it -- I don't understand your question.
5 My awareness exists today.

6 Q. Yeah. I mean when -- hopefully when the plant closed
7 in '72, they discontinued that, but did they ever
8 discontinue that up until the time they closed the
9 Anniston plant in 1972 or did it always have waste
10 going into the stream?

11 A. Well, let's limit the discussion to PCB wastes
12 because there are wastes from --

13 Q. I'm sorry; I meant to limit it to that.

14 A. PCB wastes were never intended to go directly to the
15 creeks or streams or this treatment system at the
16 city system. The PCB wastes entered a collection
17 pond, and it was also a neutralizing pit because the
18 wastes were acid in nature. And, the PCB's in that
19 system would collect at the bottom of this pond and
20 the neutralized waste would go on then to another part
21 of our plant treatment system and eventually would go
22 to the city treatment system.

23 Q. Did you test that waste as it entered the city treatment
24 system to determine whether or not there were any PCB's
25 that were entering the city treatment system?

- 1 A. At what point in time?
- 2 Q. Well, let's start in late '64.
- 3 A. In '64, the methodology for testing PCB's in waste
- 4 was non-existent, so we would not have tested for it,
- 5 no one would have tested.
- 6 Q. You're saying Monsanto wasn't capable of testing even
- 7 if it had wanted to?
- 8 A. Correct.
- 9 Q. Sixty-five?
- 10 A. Same situation.
- 11 Q. Sixty-six?
- 12 A. Same.
- 13 Q. Sixty-seven?
- 14 A. Same situation.
- 15 Q. Sixty-eight.
- 16 A. Same.
- 17 Q. Sixty-nine?
- 18 A. Same.
- 19 Q. Seventy?
- 20 A. Seventy, our laboratory had refined a procedure, but
- 21 that expertise had yet to be taught to the plants.
- 22 So, '70 was the year of transition, when the expertise
- 23 was being taught to the plant laboratories.
- 24 Q. To test?
- 25 A. To test water for the presence of PCB's, yes.

1 Q. Seventy-one?

2 A. Seventy-one, the plant started testing and analyzing.

3 Q. Did it then find that PCB's, in fact, were entering
4 the city water system from this holding pond complex
5 you discussed?

6 A. Yes; at very low levels, yes.

7 Q. Do you know what the levels were?

8 A. I don't remember the numbers, but they were parts per
9 billion levels.

10 Q. Where would we call in Monsanto to find out those
11 documents to see those numbers?

12 A. I would go to the Law Department.

13 Q. Was there any change in the process as a result of having
14 discovered those parts per billion entering the city
15 system?

16 A. No. As I recall, that was discussed with the State
17 Water authorities and it was deemed acceptable -- yes,
18 acceptable.

19 Q. So, no change was made in the process?

20 A. No.

21 Q. Was the same sequence also in the Illinois plant, to
22 your knowledge, or do you have any knowledge of that plant

23 A. The same sequence in terms of analytical capacities --
24 (WHEREUPON, a discussion was held off the
25 record.)

1 A. I forgot the question. I think you said: Was the
2 same procedure --

3 Q. Yeah, Do you know anything about the Illinois plant?
4 I'd think it would be the same, but I just want to know
5 whether you have any knowledge.

6 A. Well, the Illinois plant collected the waste from
7 their operation in a collection sump right below the
8 department, like a bathtub, and separated the PCB
9 layer from the water layer. That water layer then was
10 transferred to the municipal treating system. So, it
11 was the same, and yet not exactly the same. There was
12 no neutralizing and so on.

13 Q. In '71, when they got the capability to test, did they
14 test and find that there were levels of PCB in the water
15 going into the water system in Illinois?

16 A. Yes; yes.

17 Q. Was that still the system and the case up until 1977 when
18 they closed the Illinois plant or did they ever change
19 that?

20 A. That was the system; that was the permitted allowance
21 that the village treatment plant would accept from
22 Monsanto.

23 Q. That was the state agency in Illinois?

24 A. No; that was a municipal system. Now, the state agency
25 monitored the out-fall of the municipal system.

- 1 Q. Did you ever receive any data as to what they found?
- 2 A. I didn't personally receive that. I was led to believe
- 3 that it didn't show up in the effluent; it was in the
- 4 sludges that were buried.
- 5 Q. On the chemical landfill?
- 6 A. Yes.
- 7 Q. You remained in Anniston until 1970?
- 8 A. Yes.
- 9 Q. Plant Manager the entire time?
- 10 A. Yes.
- 11 Q. Then you returned to St. Louis at about what point in
- 12 time in 1970?
- 13 A. January.
- 14 Q. Title?
- 15 A. Manager, Environmental Control.
- 16 Q. Department?
- 17 A. It was in the -- I think it was called the Functional
- 18 Fluids Business Group.
- 19 Q. Any chemicals in there besides PCB's?
- 20 A. Yes; there were many others.
- 21 Q. You had responsibilities beyond PCB's from January --
- 22 A. Not at that time; just PCB's.
- 23 Q. For how long?
- 24 A. For how long for PCB's exclusively --
- 25 Q. Yes.

- 1 A. -- or PCB's and others?
- 2 Q. Well, exclusively first.
- 3 A. Exclusively until about 1972 or 3, then I started
- 4 picking up other chemicals.
- 5 Q. How long PCB's with other chemicals?
- 6 A. From '72, '73 until '76 when PCB's were taken from
- 7 me.
- 8 Q. And, given to whom?
- 9 A. A Mr. Cole Weber.
- 10 Q. Mr. Cole Weber?
- 11 A. C-o-l-e Weber.
- 12 Q. Did he then take over the title you had also?
- 13 A. He had the title, but he had a different set of
- 14 chemicals that he was monitoring.
- 15 Q. Where is he now?
- 16 A. In St. Louis.
- 17 Q. Still with the company?
- 18 A. Yes.
- 19 Q. Where did you go in 1976?
- 20 A. I kept the chemicals, other than PCB's, that were assigned
- 21 to me and picked up some additional chemicals.
- 22 Q. Did you ever have anymore dealings with PCB's after
- 23 1976 when that was given to Mr. Weber?
- 24 A. Only on a spot basis.
- 25 Q. What do you mean by a spot basis?

- 1 A. Like this instance, for example.
- 2 Q. All these depositions and testimony we discussed?
- 3 A. Special request. Not routinely, no.
- 4 Q. Anything beyond what the Legal Department might ask
- 5 you to do? Did you have any technical or customer
- 6 request to come in that you assisted with?
- 7 A. No.
- 8 Q. How much of your time now is spent working for or
- 9 in conjunction with the Legal Department?
- 10 A. I have never measured it. It's hard for me --
- 11 Q. Five percent, fifty percent?
- 12 A. Gosh! It's nearer five than fifty.
- 13 Q. Does this PCB group still exist at Monsanto?
- 14 A. I don't know that I would call it a group any longer.
- 15 There is an individual that follows the PCB issue.
- 16 Q. Who is that?
- 17 A. John Craddock, C-r-a-d-d-o-c-k.
- 18 Q. What department is he in?
- 19 A. He is a member of our Corporate Environmental Policy
- 20 staff.
- 21 Q. What does he do now with regard to that position?
- 22 A. Oh, he keeps tuned in to governmental activities
- 23 regarding PCB's; he responds to inquiries from old
- 24 customers, academic people who are wanting to study
- 25 the PCB issue.

1 Q. He keeps abreast of the literature, whatever is coming
2 out?

3 A. The current literature. He helps, I understand, our
4 Legal Department, keeping abreast of current legal
5 matters.

6 Q. Does he provide you with any quarterly summaries on
7 the literature or what's going on --

8 A. No.

9 Q. -- or send you articles on PCB's or anything like that?

10 A. No; huh-uh.

11 Q. Do you talk with him on some frequent or infrequent
12 or regular or irregular basis about PCB's?

13 A. I currently just talk to him infrequently, and it's --

14 MR. COCKRILL: Excuse me; off the record.

15 (WHEREUPON, the proceedings were adjourned

16 in order for Mr. Richardson to

17 accept a telephone call.)

18 (WHEREUPON, the Court Reporter read back

19 the last question and the beginning

20 of the answer, as requested.)

21 A. I intended to say it's an informal discussion, since
22 I am no longer assigned PCB's. It's just to satisfy
23 my curiosity rather than to fulfill a job need.

24 Q. You'd just run into him out at the plant basically?

25 A. Or in the corridors, lunch, somewhere.

1 Q. The processes that you mentioned both in Anniston and Illinois with
2 regard to the waste, you said you'd have it in a
3 settling pond and you'd take off the water and the
4 PCB's are heavier and would go to the bottom?

5 A. (Nods head affirmatively.)

6 Q. What do you do with the sludge in the bottom?

7 A. It goes to the landfill.

8 Q. Do you get in there and drain the pond and get in
9 bulldozers or --

10 A. Yes, or equipment.

11 Q. And, haul it to the landfill?

12 A. Yes.

13 Q. When you say equipment, describe --

14 A. A backhoe and you'd dump it into the drums and seal
15 the drums and then haul the drums over to the landfill
16 and deposit it in the landfill. Now, this amount is
17 small. It doesn't happen often. It's a once-a-year
18 type of clean-up of this sludge.

19 Q. What is your academic background?

20 A. I have a Master's degree in chemical engineering.

21 Q. From where?

22 A. Washington University in St. Louis.

23 Q. Undergraduate?

24 A. A Bachelor's degree in chemical engineering, same
25 institution.

- 1 Q. When did you receive your Bachelor's?
- 2 A. In 1943.
- 3 Q. And, your Master's?
- 4 A. Nineteen forty-seven.
- 5 Q. Prior to '47, had you done any work for chemical
- 6 companies or had it been academic? Had you been employed
- 7 by a company such as Monsanto?
- 8 A. No.
- 9 Q. From '47 to '51, what did you do?
- 10 A. I worked for Phillip's Petroleum Company.
- 11 Q. Doing what?
- 12 A. Oh, it was varied type of assignments. I was involved
- 13 with drilling fluids used in drilling oil wells and --
- 14 Q. That's alright; I don't want to go into all of that.
- 15 What did you do in '51? I presume you went with
- 16 Monsanto in '51?
- 17 A. Yes.
- 18 Q. What did you do with them as your first job?
- 19 A. I was in a design group designing chemical manufacturing
- 20 equipment.
- 21 Q. Had you heard of PCB's in your academic studies?
- 22 A. No.
- 23 Q. At Phillip's Petroleum?
- 24 A. No.
- 25 Q. This equipment that you were designing, did it have

1 anything to do with PCB's?

2 A. No.

3 Q. How long did you remain in that position?

4 A. Two or three years.

5 Q. Then after that, what did you do?

6 A. I was given assignments in production supervision,
7 making different chemicals at different times.

8 Q. Did any of them involve PCB's during that time?

9 A. No.

10 Q. How long did you continue in that capacity?

11 A. Let's see, about another three years in that.

12 Q. Then what did you do?

13 A. Then I was made a Maintenance Supervisor.

14 Q. At what facility?

15 A. Oh, the plant was divided into equal geographic areas, so
16 I had about a fifth of the plant to maintain, repair,
17 construct and craftsmen and handling equipment.

18 Q. What year did you start that job?

19 A. I believe it was 1955.

20 Q. Did you have any exposure or dealing with PCB's during
21 that time?

22 A. This is when I became involved with PCB's through the
23 electricians and the maintenance of electrical
24 equipment.

25 Q. And, that would be '55?

1 A. Fifty-five through '59, some period like that.

2 Q. But, it was primarily a plant maintenance function
3 that you were involved --

4 A. Yes; but, not -- yes; and very little of it at that
5 point.

6 Q. Involved with PCB's?

7 A. Correct.

8 Q. What standard operating procedures existed at Monsanto
9 at that point in time with regard to PCB's?

10 A. It's the ones we discussed earlier: Don't get it on
11 your skin, wear proper --

12 Q. I might be getting a little confused. I thought you
13 said this project was from the early '60's until '64,
14 but now we've moved it back to '55 to '59. Is that the
15 one we already discussed earlier in this deposition?

16 A. No; no. I'm confused, too, here.

17 Q. Alright.

18 A. As Maintenance Supervisor and eventually Maintenance
19 Superintendent, I supervised electricians who, in turn,
20 handled the material, and I was responsible to see
21 that they got the right instructions.

22 Q. That was '55 to '59?

23 A. That was '55 to '59 roughly.

24 Q. What did you do from '59 to '64?

25 A. Fifty-nine to '64 I was put back in the engineering

1 group, again designing equipment, although this time
2 I was supervisory level.

3 Q. But, no PCB equipment?

4 A. That is right.

5 Q. You remained in that capacity the entire time from
6 '59 to '64?

7 A. To '63 or so.

8 Q. Then what happened in '63?

9 A. Then I became a General Superintendent to which the
10 power generating equipment was assigned. That was one
11 of my big units. And, this is where I became more
12 closely involved with PCB's and big transformer and
13 power distribution systems and large air compressors
14 that had PCB's in them and the like.

15 Q. And, that's what we talked about earlier?

16 A. That's right. This was the big first exposure for
17 me to PCB's.

18 Q. Let's go back to the '55, '59 era.

19 A. Alright.

20 Q. I'm going to ask you about the standard operating
21 procedures that Monsanto had at that point in time
22 with regard to PCB's.

23 A. It was the same as it was in the '60's: Don't get it
24 on your skin, wash your clothes, don't breathe hot
25 vapors from PCB's.

- 1 Q. And, no comment with regard to waste at that time?
- 2 A. That is correct.
- 3 Q. With regard to the structure of Monsanto, what
- 4 department or division had PCB's under it?
- 5 A. In what way, in the selling?
- 6 Q. Let's talk about in the manufacturing and selling of
- 7 PCB's.
- 8 A. That was -- I don't know how small a group we -- that
- 9 has always been a part of the Functional Fluids Group.
- 10 Q. What percentage of the volume of that group is PCB's?
- 11 A. Today, zero.
- 12 Q. Nineteen sixty-five?
- 13 A. Sixty-five? It would be a pure guess on my part. I
- 14 don't have all the numbers to --
- 15 Q. I'm trying to found out whether you're talking about
- 16 99 percent of that Functional Fluid is PCB's or
- 17 whether it's a small player within that division.
- 18 A. It's more like 50 percent.
- 19 Q. Were the two plants, PCB plants, in Anniston and
- 20 Illinois under that Functional Fluids Group?
- 21 A. Not the plants. The group that is responsible for
- 22 the marketing of the product and its profitability and
- 23 its applications and all relies on a manufacturing
- 24 group to produce the material. It's a separate
- 25 function. It's a sort of a service that they buy from

1 a manufacturing group; give me so many pounds of a
2 product and put it in this package.

3 Q. So, the manufacturing group is within Monsanto but it's
4 separate?

5 A. That's right; it has its own management, its own
6 targets, its own objectives and it strives to build
7 up an inventory which another group will market.

8 Q. What did the Functional Fluids Group do? Did it market
9 the product?

10 A. It marketed the product, it made the business
11 decisions regarding products.

12 Q. Did it do the research with regard to PCB?

13 A. Yes; it had a research function assigned to it.

14 Q. So, it would develop another number, 1016, and then tell the
15 plant how to make 1016, for example?

16 A. That is correct.

17 Q. Who was in charge of that Functional Fluids Group in
18 the early '60's? Late '60's?

19 A. Late '60's it was -- middle to late '60's it was Dr.
20 Anagnostopolous.

21 Q. Is he still there?

22 A. He is still with Monsanto, yes.

23 Q. What department is he with, do you know?

24 A. He is in the Corporate Planning Department. He is the
25 Vice-President of Corporate Planning, I believe.

1 Q. In St. Louis?

2 A. In St. Louis, yes.

3 Q. How about the early '70's, the same man?

4 A. Early '70's was Howard Bergen, B-e-r-g-e-n.

5 Q. Those men are more managers as opposed to your knowing
6 more about the technical part of PCB's or --

7 A. That is right, they were general managers. They had
8 responsibilities over many disciplines.

3aDic 9 Q. Do you know whether Monsanto sold to another Sangamo
10 facility besides Pickens County, South Carolina?

11 A. No, I don't.

12 Q. You don't ever remember visiting another Sangamo
13 facility somewhere else?

14 A. I never visited one, to my knowledge.

15 Q. How many sites did you go out and visit in 1970
16 during this time period you had your dog and pony
17 show on the road?

18 MR. MARION: Object to the form.

19 MR. COCKRILL: To the characterization of
20 the form.

21 A. I never counted it but it must have been a dozen or so.

22 Q. Do you know whether other people from Monsanto ever
23 visited Sangamo in addition to that one time we've
24 talked about that you did?

25 A. Yes.

1 Q. Was it something that Monsanto did on a regular
2 basis, to go see its customers?

3 A. That is traditional -- normal.

4 Q. And, that would be done every several months or every six
5 months maybe?

6 A. Oh, I don't know that there's any time period. It's
7 at the discretion of the field salesman. And he may
8 on occasion invite people out of St. Louis to join
9 him or he may ask someone out of St. Louis to make
10 a call without his presence. The field salesman
11 doesn't have to be present.

12 Q. Do you know what field sales office serviced the
13 Sangamo account in Pickens?

14 A. At the time I was directly involved, it was handled
15 by one person who, I believe, worked out of the
16 New York office.

17 Q. Who is that?

18 A. Randy Graham.

19 Q. So, he was the man in 1970?

20 A. Yes.

21 Q. Those field salesmen, I guess you'd call them, were
22 they educated or knowledgable, excuse me, with regard
23 to the technical part of the company or the product?
24 And, I say that trying to draw the distinction. Some
25 companies have salesmen who are just gladhandlers and

1 they have then some salesmen who are -- industrial
2 salesmen who are knowledgable about the details of
3 the product, that have technical knowledge to assist
4 the clients or customers when they're making sales.
5 What concept did Monsanto use in that regard?

6 A. Our field representatives are trained to provide a good
7 bit of this technical information. This is not meant
8 that there aren't others he can call on for more in-depth
9 expertise in very specific areas. But, he has enough
10 technical knowledge of the product that he's able to
11 discern when he can handle it alone or needs further
12 help.

13 Q. Are most of them engineers?

14 A. I think its about equal. Some are chemists and some
15 are engineers.

16 Q. All of them are professionals, though?

17 A. Yes.

18 Q. Randal, is that what you said, Randal Graham?

19 A. I called him Randy, I don't know what his formal -- I think
20 his initials are W. R. Graham.

21 Q. You don't know what his background is?

22 A. I don't remember.

23 Q. Was he present in this 1970 meeting when you went in?

24 A. Yes; he was my escort. He drove the car and introduced
25 me --

1 Q. Knew the people and had been there?

2 A. Yes.

3 Q. Did you get the impression that he had gone in prior to
4 that time with some frequency?

5 A. Yes.

6 Q. Do you send those people to technical schools to
7 keep them abreast? Do they go back to St. Louis every six
8 months or a year for refreshers or to learn the new
9 products or new developments on products? Is it a
10 constant educational process that Monsanto has?

11 A. It is constant and it varies from product group to
12 product group and person to person. In the dielectric
13 area where there was only one individual covering
14 virtually three-fourths of the United States, it was
15 not a case of where you'd call a group in to meet.
16 We'd call Randy in and say: Hey, --

17 Q. He was the only salesman east of the Rockies?

18 A. Just about--yes, he was. So, there was one person,
19 so he would drop in St. Louis on occasion and he'd
20 be brought up the speed on what new developments were
21 taking place and the like.

22 Q. Would he have worked almost exclusively with PCB's?

23 A. Yes; that was it.

24 Q. Did you have another man out on the West Coast?

25 A. Out on the West Coast, we had a couple of individuals.

1 But, there was only a couple of customers, so it was
2 much --

3 Q. They weren't full-time PCB's?

4 A. That's correct.

5 Q. With regard to Mr. Graham, is he still with the company?

6 A. No.

7 Q. Where is he now?

8 A. I don't know.

9 Q. When did he leave, have you got any idea?

10 A. I'm going to say early '70's, '72 or thereabouts.

11 MR. COCKRILL: Off the record.

12 (WHEREUPON, a discussion was held off
13 the record.)

14 (WHEREUPON, the proceedings were recessed
15 in order for the witness to make a
16 telephone call.)

17 Q. Because of Mr. Graham's involvement with the PCB's,
18 would he have been on the distribution list for any
19 memos and literature and articles coming in on PCB's?

20 A. Yes.

21 Q. With regard to a salesman like that and his relationship
22 with a customer, I presume what you're saying is
23 he would have been also sort of a technical representative
24 if they had questions about the product, and if he
25 thought it was over his head, he would have had to call

1 somebody either at the PCB plant or in St. Louis
2 to fly out and assist him with that technical
3 question, but more times than not, he could handle
4 it himself or by telehpone?

5 A. That's a fair evaluation. Not only would his back-up
6 technical people fly to the plant, but they could
7 handle many of these inquiries by telephone or by
8 letters.

9 Q. In addition to the medical department we discussed
10 earlier, were there chemists or industrial hygienists
11 that worked for Monsanto outside of the Medical
12 Department or was all that -- I said chemists, I
13 didn't mean chemists; I meant the industrial hygienists -
14 from a health standpoint, would they have all been
15 in the Medical Department?

16 A. In St. Louis, it would have been in the Medical
17 Department. Those at some of the plants, would be
18 in the manufacturing function.

19 Q. Do you know which one of the PCB's was being sold to
20 Sangamo?

21 A. I'm aware of at least three types.

22 Q. Which were those?

23 A. Aroclor 1242, Aroclor 1254 and, finally, Aroclor 1016.

24 Q. Aroclor, is that just a marketing name?

25 A. Yes; it's a Monsanto trademark.

2bBu

1 Q. And, all of the Aroclor and then the numbers are
2 a type of PCB?

3 A. Not all of them.

4 Q. Aroclor was used on other chemicals in addition to
5 PCB?

6 A. Correct.

7 Q. Those three at least--there could have been others
8 sold to Sangamo that you don't know about or -- you
9 know at least those three?

10 A. That is right; there could be others.

11 Q. The 1016 is sort of an unusual number to me. It
12 doesn't fit the mold. Was that a later developed
13 product of some kind?

14 A. It was a late product, yes. When the product was
15 under development, it was assigned a number out of
16 a book, a log book, which numbers are assigned to
17 experimental chemicals. And, the next number when its
18 turn came up was 1016. And, originally that product
19 was referred to as MCS 1016, that's Monsanto Company
20 Sample 1016. When it was finally accepted by the
21 electrical industry, the capacitor manufacturers, we
22 were in the midst of referring to it now as an
23 Aroclor to be consistent with previous Aroclors. But,
24 to stay with the initial nomenclature would have been
25 confusing because this material also had close to

1 42 percent chlorine to maintain the same fire retardant
2 properties. Instead of having two 1242's and since the
3 correspondence and the language of the development of
4 this new product kept referring to 1016, we decided
5 to forget the past in terms of naming our PCB's and call
6 this one Aroclor 1016. It doesn't fit the previous
7 pattern.

8 Q. When did Monsanto start marketing that product?

9 A. It was either late '71 or early '72.

10 Q. When you find PCB's, say, out in the environment, could
11 you by your testing methods now differentiate between
12 1242, 1254 and 1016 if you found it in the environment,
13 say, in the sludge in the river up in Pickens County?

14 A. No. All that the analytical chemists can really tell
15 you is that the results of his analyses produce a
16 print, a chart, that most closely resembles the
17 standard. He can never really tell you it's 1242 or
18 1254. He can tell you that: What I see now most
19 closely resembles 1254 or 1242. Very seldom are the
20 prints exactly alike. There's always a slight change.

21 Q. But, when it gets out in the environment, it doesn't
22 break down into just a more basic chemical you generically
23 refer to as PCB; it remains in that pattern in which
24 it was originally sold?

25 A. No. That's why I meant that the -- this fingerprint,

1 let's call it, is not exactly the same as the material
2 that was back at the plant in the drum. Now, if you
3 catch it right at the out-fall, it's most likely to be
4 like that. But, further downstream and days, months
5 or years later, it will appear different. Some of
6 the peaks and valleys disappear.

7 Q. Unfortunately for you, I'm a liberal arts major, so I
8 don't know much of the technical part of it at all.
9 But, I would like, if you could, to try to explain
10 to me -- and if you've got to do it by referring to
11 a sheet of paper to sketch, that will be fine with
12 me -- but tell me what you chemists call PCB's and
13 then how you vary between 1254, 1242 and 1016. What's
14 different among those?

15 A. I'll try. PCB's are made by starting with a common
16 chemical, benzene. I think most of us have heard of
17 benzene. And, it's described graphically by the
18 chemists by a hexagon, as a diagram. Each of the corners
19 of this hexagon represents the position of a carbon.
20 And, attached to the carbon for benzene are hydrogens.
21 That is graphically how benzene is described on paper
22 for communications between the chemists. And, we take
23 two of those benzenes and connect them nose to nose, so
24 to speak. We form a chemical now called biphenyl.
25 Now, if we introduce this biphenyl to chlorine gas,

1 the chlorine will start displacing some of these
2 hydrogens that are at each of these points on the
3 benzene rings. The chlorines will attach randomly,
4 and you can have one chlorine per biphenyl to ten
5 chlorines per biphenyl. That's the maximum. So,
6 when the PCB's are produced commercially, we don't
7 end up with any one of these chloro, di-chloro, tri-
8 chloro biphenyl; we end up with a mixture. And,
9 through years of experience, we learn that after so
10 many minutes of exposure to chlorine we'll end up
11 with the product we were striving for. That product
12 would be designated as Aroclor 1242 or Aroclor 1254,
13 dependent on how much chlorine was present in the
14 final mixture.

15 Q. So, the last two digits, except for the 1016, represent
16 the percentage of chlorination?

17 A. It's the percent by weight of chlorine that's present
18 in the total mass.

19 Q. And, that is the cumulative effect of the one to ten
20 chlorine atoms?

21 A. That is correct. And, it's rather consistent in that
22 the randomness is still there but each time the
23 penta chloro and the four chloro and the three chloro
24 are fairly consistent.

25 Q. You mean the number of three chloro and four chloro are

1 fairly consistent on a mean curve?

2 A. From batch to batch, you can pretty well predict, assuming
3 you use the same method of production, same temperature,
4 some volumes, same amount of chlorine and same time.

5 Q. What's different about 1016? I know it's 42 percent,
6 but it was a new product, late '70's; that's unusual,
7 isn't it?

8 MR. MARION: Objection to form. I think
9 you misstated (sic) late '70's, I think.

10 Q. Early '70's I think you said, didn't you?

11 A. Introduced in the early '70's --

12 Q. Early '70's. Well, whatever I said, I'm sorry.

13 A. -- and it was terminated in '77. Our early information,
14 which kept repeating itself, is that the higher
15 chlorinated types of PCB's were the ones most apt to
16 be found in the environment. And, since it was our
17 desire to keep it out of the environment, we concluded
18 that the lower chlorinated were most apt to disappear
19 with time. Nature takes care of it, either through
20 bacteria or through other processes. So, we took a
21 material that was very similar to the old Aroclor
22 1242 and put it in a refining unit, a distillation
23 column like the petro chemical business, and removed
24 the higher chlorinated parts and we removed the very
25 low chloros, the one chloros, such that we ended up

1 with -- I'm going to use a term that may not be
2 technically right -- but the heart cut so that we main-
3 tained the same percentage of chlorine but this time it
4 was predominately the tri chloro rather than a
5 mixture of one chloro and five chloro.

6 Q. And, that's because you really wanted to eliminate
7 the five chloro which didn't break down?

8 A. Correct. I'd rather start with a three chloro because
9 I had a better probability that the three chloro will
10 eventually disappear from the environment, if it got away
11 from me in the first place. That was the intent of
12 introducing Aroclor 1016.

13 Q. In Anniston or up in Illinois, you'd have a production
14 line that would have, I guess, chambers where you'd
15 make the biphenyls and then put the chlorine gas to
16 it, --

17 A. Yes.

18 Q. -- and you'd run that system for awhile and get 1016
19 and you'd clean that out, and if you had an order for
20 1242, you'd come back and run it and change all the
21 knobs and whistles and run it through the same system
22 or have you got two different production lines --
23 or a production line for every particular type of
24 PCB?

25 A. No; the unit was flexible; it could make any of the

1 PCB's. And, the type, of course, varied with time. The
2 longer you introduced the chlorine, the higher
3 chlorination you'd get.

4 Q. How about the temperature? Would you vary the
5 temperature?

6 A. Yes.

7 Q. How high would the temperature go?

8 A. I don't recall the exact temperatures, but the higher
9 the chlorine contents, the higher temperature
10 required to make the final product.

11 Q. And, you don't remember the exact temperatures for
12 1254, for example?

13 A. No, I don't.

14 Q. A thousand or --

15 A. About 300 degrees Fahrenheit up to 500 or 600 degrees
16 Fahrenheit.

17 Q. Are the higher percentage of chlorinations more toxic
18 in your opinion?

19 A. It depends on the creature, the animal tested.

20 Q. What if you had both hands here and you've got one of
21 them exposed to 1254 and one of them to 1242, would you
22 expect the result to be more severe with the Aroclor
23 1254 than the Aroclor 1242?

24 A. Not for humans, no.

25 Q. What if you go down to, say, 16 percent chlorination

1 versus 54, you just don't have a differentiation on
2 effect there?

3 A. I'm not -- no; I don't have that distinction in my mind, no.

4 Q. So, the only distinction with the percentage of
5 chlorination is the fact that somehow it's a more
6 permanent, long-lasting chemical because of the
7 higher percentage of chlorination?

8 A. In the environment.

9 Q. In the environment?

10 A. In the environment; uh-huh.

11 Q. How about the function of it when you put it in a
12 capacitor? Why would you choose 1254 versus 1242?
13 Would it also be more heat resistant or have other
14 characteristics?

15 A. Well, the -- because of the higher chlorine content,
16 the 1254 would be more fire resistant; also because
17 of its higher chlorine content, it's much more viscous;
18 it's like molasses. I can perceive some applications
19 where this thicker fluid is desirable; on the other
20 hand, I also am aware of situations where it's desirable
21 to have a thinner fluid. It's easily pumped; it's
22 easily handled, and as long as it performs the
23 function well, many companies would prefer the thinner
24 fluid.

25 Q. Would somebody like Mr. Randal Graham come in and -- say

1 Sangamo says: Alright; this is the application I
2 want. Mr. Graham would say: Alright; you need 1242
3 or you need 1254. Would he give them the guidance on
4 the particular type of PCB they would need?

5 A. He would give them the initial guidance, yes. He
6 was capable of doing that.

7 Q. Do you know or did you see when you were at Sangamo
8 whether or not they had their own independent laboratory
9 that was evaluating or testing PCB's or determining
10 whether it was more optimum for them to use 1254
11 versus 1242?

12 A. I know they had a facility for testing their
13 products. I have no way of knowing whether they
14 were developing new products in that same facility.

15 Q. Do you know whether they were independently doing any
16 evaluation of the health hazard potential?

17 A. No; I don't know that. .

18 Q. There's a statement here that lawyers for Monsanto
19 have made. It says: Information about the reported
20 environmental presence of PCB's was provided to Sangamo
21 as it became available.

22 MR. WHITE: Can I ask you what document
23 you're reading from?

24 MR. RICHARDSON: Answers to Rule 16 (b)
25 Interrogatories.

1 Q. We've talked about your visit to the plant. Do you
2 know anything else that Monsanto provided to Sangamo
3 regarding the environmental presence of PCB's?

4 A. Yes.

5 Q. Tell me about that.

6 A. They received a letter that we had sent to users of
7 dielectrics earlier that year reporting our understanding
8 of presence in the environment and the type that was
9 being identified in informing them that you, as a user,
10 of Aroclors are, whether you know it or not -- of
11 course, these aren't the exact words -- are using PCB's;
12 we want you to be aware of that, and also some statement
13 about: Let's keep it out of the environment. So,
14 there was a mailing made to all customers on record
15 in early 1970.

16 MR. RICHARDSON: Frank, is that in this
17 box over here?

18 MR. MARION: To my knowledge, I think all
19 the correspondence we could locate
20 with a reasonable search is in there.

21 Q. Anything other than this one letter in early 1970?
22 I mean, I'm sure all the labels and all that -- we'll
23 get into all that later -- you provided when you shipped
24 something, but --

25 A. Uh-huh.

1 Q. -- independent of your visit, this letter and the
2 labels, do you know of anything else? And, it could
3 be every six months you sent in technical bulletins
4 on PCB's or something like that.

5 A. There was a continual dialogue. I know that there were
6 people in addition to Randy Graham who were talking
7 to Sangamo people. This was not unique to Sangamo.

8 Q. Talking to everybody?

9 A. Everybody was treated alike, as far as we could. I
10 just at the moment don't remember any other mailing
11 or document that comes to mind.

12 Q. Who were the other people that were talking to Sangamo?

13 A. Oh, --

14 Q. If you don't remember names, if you're talking about
15 the medical director or you're talking about a
16 hygienist or whatever.

17 A. No; I'm talking primarily about product related technical
18 people. Paul Benignus was the -- I think the title
19 at the time was Market Manager for Dielectrics; then
20 there was an individual reporting to Mr. Benignus,
21 James Bryant, B-r-y-a-n-t. That was part of his
22 assignment, communicating with the dielectric people
23 on developments in the PCB issue.

24 Q. Were these people all during this era, early '70's --
25 early '60's through 1977 or was it limited to some

1 point in time?

2 A. It's limited because they all left Monsanto eventually.

3 I forget the exact years, but Mr. Benignus retired.

4 Q. He's in the St. Louis area?

5 A. I believe he is.

6 Q. And, the other, Bryant --

7 A. Mr. Bryant joined some other company, and I don't know
8 where he is today.

9 Q. What company?

10 A. I don't know; I don't remember.

11 Q. They mentioned also, Monsanto lawyers, about a lawsuit
12 in 1976. Did you know anything about that back in
13 1976, brought here in South Carolina?

14 A. No. I heard about it in the corridors several years
15 later, but that's the extent of my knowledge.

16 Q. You mean you heard about it in the corridors sometime
17 after '76?

18 A. Yes; about 1978 or so; somehow I knew about it. That's
19 all I knew.

20 Q. Have you seen sales records from Monsanto to Sangamo
21 either in preparation for this deposition or not, for
22 any reason?

23 MR. MARION: Would you repeat the question? I'm sorry

24 Q. Have you seen any sales records from Monsanto to
25 Sangamo?

1 A. I had seen on occasion a listing of dielectric
2 customers, and on that list Sangamo was one of the
3 customers.

4 Q. But, more specifically, do you know anything about
5 the volumes?

6 A. No.

7 Q. You mentioned the three types that you know they were
8 using.

9 A. Right.

10 Q. Do you know what percentages of each by year or any-
11 thing like that?

12 A. No.

13 MR. RICHARDSON: Have you all got those
14 sales records?

15 MR. MARION: That one package in there is
16 invoices. That's all we could find
17 the ones in the folder. I think that's
18 primarily, if not all, the sales
19 invoices which would have the
20 quantities, I assume, on them.

21 Q. David Wood down in Brazil, he's with what group in
22 Monsanto in Brazil now?

23 A. In Monsanto we call that the International Division.

24 Q. Within that is he working on some particular types of
25 chemicals?

1 A. I don't know.

2 Q. They're not selling PCB's internationally?

3 A. No, no. No PCB's anywhere from Monsanto.

4 Q. What percentage of the American market does Monsanto
5 have of PCB's?

6 A. Over 90 percent.

7 Q. Did they have any American competition at all?

8 A. Not to our knowledge at that time.

9 Q. Did they have some importing with --

10 A. We can only speculate. There are no records kept
11 by any agency.

12 Q. I didn't ask with regard to the European trip. But, who
13 were your competitors internationally with PCB's?

14 A. Well, there's two French companies, a German company,
15 a Spanish company, Italian, and there are some on the
16 other side of the Iron Curtain: Czechoslovakia, Poland
17 and Russia.

18 Q. Not on the Iron Curtain side, but can you name the
19 others or do you know the names of the others?

20 A. I think I remember some of them. There's the Flick
21 Company in Spain; Caffaro, C-a-f-f-a-r-o, in Italy --
22 these may be shortened versions of complicated names --
23 the Bayer Company in Germany, B-a-y-e-r; Kuhlman,
24 K-u-h-l-m-a-n, in France; and Rhone-Poulhac, R-h-o-n-e-
25 Poulhac (sic). I don't know how to spell Poulhac (sic),

1 P-o-u-l-h-a-c (sic), something like that.

2 Q. Which ones of those did you visit?

3 A. The customer meeting was a meeting of representatives
4 of those companies held in Brussels. So, as I
5 remember, all of those names I mentioned, except the
6 Spanish, were represented in the room.

7 Q. Were there documents generated or hand-outs at that
8 meeting or --

9 A. I didn't get any. I don't what they did --

10 Q. -- reports that you made back to your Monsanto personnel
11 as a result of that meeting?

12 A. I don't recall ever writing it. I reported orally to
13 a group what we found in Europe.

14 Q. What were they doing with regard to PCB hazards?

15 A. Well, they accused Monsanto of overreacting, that PCB's
16 really weren't a problem, that we were creating the
17 problem. They were not going to follow our lead in
18 terminating markets --

19 Q. This was in 1970?

20 A. Yes; April, May, 1970. So, the receptivity was not
21 favorable to Monsanto's position at all.

22 Q. Are they still making PCB's?

23 A. I understand they are, yes.

24 Q. Do you know that, and where do you get this understanding

25 A. Well, I read on occasion that the common market and

1 the OECD are working with rules that would impact on
2 the member nations and the PCB's are being criticized
3 by some member companies. I've read enough in the
4 popular press and trade literature to indicate that
5 PCB's are still being sold, but the pressure is increasing
6 to terminate it in Europe as well, as we have in the U.S.

7 Q. Have you, yourself, seen anyone that had medical
8 effects from PCB exposures?

9 A. No.

10 Q. Do you have any knowledge with regard to the criteria
11 needed to diagnose someone with the effects of PCB
12 poisoning?

13 A. No.

14 Q. Who in Monsanto would have expertise in that area?

15 A. It would be the occupational medicine doctors.

16 Q. And, they're within the Medical Department?

17 A. Yes.

18 Q. It's a special subsection on occupational medicine?

19 A. Yes.

20 Q. Who heads that up now?

21 A. They report to Dr. Rousch. As I remember, there
22 are six medical doctors in that group.

23 Q. Dr. Rousch is not in that group, but --

24 A. No; but, the occupational medicine group reports to
25 him, and I believe three of the six report directly to

1 Dr. Rousch as senior medical doctors of occupational
2 medicine. Then there is the next level, junior level,
3 or some such. The terminology isn't exact, but that's
4 the intent.

5 Q. But, you don't know the names of those doctors under
6 Dr. Rousch?

7 A. Yes, I do.

8 Q. Who are they?

9 A. Alright; there's Dr. Tillman, T-i-l-l-m-a-n, Dr.
10 Spraul, S-p-r-a-u-l, Dr. Barnes, B-a-r-n-e-s, --

11 Q. Is that the senior level occupational disease --

12 A. No; this is a mixture. I'm not too sure which is
13 which. This is a recent change. That's why I'm not
14 sure of the exact titles. Then there's Dr. Bonifili,
15 B-o-n-i-f-i-l-i. I believe that covers -- that covers
16 the occupational medicine group.

17 Q. Have you seen any documents that reflect what
18 would be needed to make such a diagnosis?

19 A. No.

20 Q. Do you know whether Monsanto has a document either
21 in-house or medical literature to reflect that?

22 A. I'm not aware of any document that refers to health
23 effects and PCB's. Never been discussed in my presence,
24 huh-uh.

25 Q. Never been discussed, the health effects of PCB's on

1 humans?

2 A. I'm a little confused. If I understand your question,
3 you imply that there's a document that ticks off the
4 symptoms that would be present if an individual is
5 over-exposed to PCB's.

6 Q. I'm asking you whether you are aware of anything like
7 that that Monsanto has.

8 A. I'm not aware of any such thing, no.

9 Q. With regard to the manufacturing of PCB's, do you --
10 and let's start at the end, 1977, right before you quit
11 the production of PCB's, --

12 A. Uh-huh.

13 Q. -- would a chemical analysis or quality control analysis
14 have been done of the product at that point in time
15 or a sample taken and analyzed in detail before being
16 shipped to the customer?

17 A. Yes.

18 Q. Each shipment would be so analyzed?

19 A. Yes. Each -- I don't want to mislead you. A shipment
20 may consist of more than one lot, especially if the
21 material is in packages, drums, buckets, smaller
22 containers.

23 Q. Do you know what type units Sangamo ordered? Was it
24 in bulk sample or 55-gallon drums or --

25 A. I would only be speculating.

1 Q. You don't know that; the sales records will show that?

2 A. Uh-huh.

3 Q. But, in your analysis, did it show other chemicals
4 appearing in the liquid solution in addition to these
5 polychlorinated biphenyl molecules?

6 A. There was reference to other chemicals, other
7 undesirable materials being present. And, we'd look
8 for them and assure they're not there.

9 Q. Like what?

10 A. Moisture, water, chlorine, salt, sodium chloride.
11 It's been a long time since I've seen those, but there
12 is an attempt to --

13 Q. You mentioned a chemical earlier, fluchloros (sic) or --
14 I forgot what the term was that you said. It would
15 be polychlorinated, maybe dibro --

16 MS. HERDINA: Dibenzo furan.

17 A. Oh, with the Japanese incident; is that when I mentioned
18 it?

19 Q. You might have. I don't know when you mentioned it.
20 But, would that be something that you would check for
21 in those samples?

22 A. No.

23 Q. Would the equipment pick that up if it were there?

24 A. I don't know what equipment you have in mind.

25 Q. Whatever you used to check the batches.

1 A. Oh, it's many pieces of equipment, each one doing
2 its thing.

3 Q. Would it be possible that the PCB's would have some
4 of those chemicals in there?

5 A. Under certain conditions, those chemicals could be
6 produced. It's possible, yes.

7 Q. In the manufacturing process, that -- just like you
8 say, you get the different chlorine counts on the
9 molecules. Is that a slight variation from the
10 molecular system that you discussed earlier?

11 A. Yes. There is a chemical variation, yes.

12 Q. Can you describe to me what the chemical variation --
13 tell me that name again.

14 A. It's dibenzo, d-i-b-e-n-z-o, furan, f-u-r-a-n.

15 Q. What is the molecular structure of that?

16 A. If you remember, earlier I talked about the two
17 hexagon configurations graphically describing
18 biphenyl. If you can picture adjacent corners of
19 these hexagons now connected by oxygen, that
20 configuration is now the dibenzo. Di means two
21 benzene rings and the furan refers to the oxygen being
22 hooked on, now. That is a dibenzo furan. Now the
23 remaining corners can contain chlorines. Now, this
24 time instead of up to ten, it can only go up to eight
25 because two of them have been taken up by the oxygen.

1 Q. By the oxygen.

2 A. So, that's what happens chemically under certain
3 conditions. You have to have oxygen present and
4 temperatures have to be a certain kind.

5 Q. To your knowledge, has that ever been a substance
6 that has been created during the manufacturing process
7 of PCB's?

8 A. My knowledge regarding furans goes back to a study
9 made by the European laboratory that we visited in
10 which they found these kinds of chemicals, furans,
11 in European material and did not find it in the
12 Monsanto material, either the U.S. or the United
13 Kingdom Monsanto material.

14 Q. You've got a plant that makes PCB's or made PCB's over
15 there?

16 A. We had one, yes; same Monsanto process. And, they
17 were asking us why our material didn't have it in
18 it and they wanted to know what the difference was.
19 We could only speculate because we don't know what
20 the competitions' procedures are to account for the
21 difference.

22 Q. Have you ever seen PCB's break down when used in a
23 customer's facility or in the environment to create
24 the dibenzo furan?

25 A. No, I've never seen that.

1 Q. It's got to have high temperature and some other
2 factors?

3 A. My understanding is they have to have high temperatures,
4 it has to have a source of oxygen.

5 Q. But, the test that was run wouldn't show those up
6 because you weren't looking for them?

7 A. That's true, because it takes a different methodology.
8 You have to prepare the sample differently and run it
9 through special equipment to look for the furans.

10 Q. The manufacturing process that we discussed, were there
11 ever any major changes or modifications in it from
12 the time you got familiar with it, I guess, as Plant
13 Manager in '64?

14 A. The only major change I'm aware of is the change we
15 made when we produced Aroclor 1016. That's the only
16 major change in terms of the manufacturing process,
17 not in the waste control, water control additions
18 that we made. Those were different kinds of changes.

19 Q. Well, that's what my question was directed to. Other
20 than the United Kingdom, any other plants produce PCB's
21 internationally?

22 A. For Monsanto?

23 Q. Monsanto.

24 A. We had a Japanese Monsanto unit.

25 Q. When did those two stop producing PCB's?

1 A. I really don't remember. The program was identical
2 for Monsanto worldwide, but I believe the Japanese
3 finished -- terminated sooner than the United Kingdom --
4 well, I'm guessing; I don't remember. Pretty close.

5 Q. Did they ship any of those manufactured processes into
6 the United States from anywhere?

7 A. No; no.

8 Q. How was the PCB transported to Sangamo in South
9 Carolina?

10 A. As I said earlier, I don't know specifically. I can
11 guess that they use large volumes, therefore, it
12 would be tank cars, rail cars.

13 Q. Would those tank cars be owned by Monsanto?

14 A. Yes; owned or leased by us. They were under our control.

15 Q. I think at some point in time you had control of this
16 incineration process of disposing of waste?

17 A. Uh-huh.

18 Q. And, that was done in Anniston --

19 A. No.

20 Q. -- or in Illinois?

21 A. Illinois.

22 Q. That's the only place you had that incineration process?

23 A. Correct.

24 Q. Why does that break down the PCB's? I mean, what does it
25 do? Does it chemically change what had been

1 created by your manufacturing process?

2 A. Yes.

3 Q. Into what?

4 A. It forms carbon dioxide, that takes care of the carbon;
5 it forms hydrochloric gas, that takes care of the
6 hydrogen and the chlorine. So, that totally destroys
7 the PCB. It's one of those two gases.

8 Q. You don't end up with benzene as a by-product or an
9 end result from that incineration?

10 A. If you do improper incineration, you could end up with
11 all kinds of things.

12 Q. But, the incineration turns everything into a gas?

13 A. Two gases: carbon dioxide and hydrochloric gas.

14 Q. Is that possible or was it used on the customer's
15 facility by them having their own incineration processes
16 at any time, to your knowledge?

17 A. I believe one of our customers purchased their own
18 incinerator. But, in general, unless you have high
19 volumes of materials, it's better to use a common unit
20 somewhere.

21 Q. Who purchased it themselves?

22 A. General Electric.

23 Q. At what facility?

24 A. I --

25 Q. Don't know?

3aBu

1 A. I'm not certain.

2 Q. The incineration you had, that started in '71 in
3 Illinois?

4 A. Yes.

5 Q. You got shipments in back from all of your customers
6 to incinerate?

7 A. Yes.

8 Q. Do you know what kind of volume you got back from
9 Sangamo in Pickens?

10 A. I don't remember anymore. I used to get the records
11 each month as to how much was received at the Illinois
12 site from where.

13 Q. Were you dealing in pounds, tons, 55-gallon drums, --

14 A. They were reported in thousands of pounds.

15 Q. How often would a shipment come in from a customer
16 such as Sangamo? Is it a once-a-month shipment coming
17 in or --

18 A. It was sporadic.

19 Q. Did you use the Sangamo trucks to haul it back in?

20 A. I don't know what trucks they used.

21 Q. You shipped out the PCB's in Monsanto trucks?

22 A. Uh-huh, yes; tank cars.

23 Q. Tank cars?

24 A. Uh-huh.

25 Q. Would it have come back with the same type transportation

1 or would it come back generally in 55-gallon drums;
2 do you know?

3 A. I don't know in what form it returned from Sangamo.

4 Q. You don't know, okay. With regard to this environmental
5 contamination we have talked about, what if you have a
6 stream or a river that is showing PCB levels; is there
7 a method by which it can be now cleaned up, are the PCB's
8 broken down chemically in some way without putting it
9 in an incinerator?

10 A. I am aware of many claims that processes are available
11 and capable of doing this. I'm not aware of any of
12 them being demonstrated successfully. And, I'm talking
13 now about water with very low levels, in the part
14 per billion range, which is the range that's possible
15 to be in. Anything over a part per billion range,
16 there is something wrong with the analysis or else
17 the water is cloudy, murky, it has a lot of mud and
18 sediment in it. So, clear water that is found to
19 have PCB's in it would analyze at the part per billion
20 level. And, I'm not aware at the moment of any process
21 that would effectively remove that low of level. The
22 government doesn't know how to do it, the EPA.

23 Q. Has Monsanto got a group that's monitoring that
24 or doing independent research on that?

25 A. I'm not aware of what programs are in place currently.

1 I don't know.

2 Q. If you wanted to find out what Monsanto was doing
3 in that area, who would you call?

4 A. I'd go to John Craddock.

5 Q. You say you deal with parts per billion in clear
6 water. If it's parts per million, you would be able
7 to see a cloudiness in the water, then the cloudiness
8 would be caused by the PCB's?

9 A. No.

10 Q. Tell me that again. I just wasn't following your
11 thought on that.

12 A. Water is not capable in and of itself to contain
13 parts per million levels of PCB's. It just can't pick
14 up that kind of -- they're not compatible. However,
15 water that has particulate matter in it, soil particles,
16 sediment, if the PCB's are attached to those particles --

17 Q. Attached to the sand?

18 A. -- so when the analysis is made on the unfiltered water
19 sample, you will get an erroneous reading or a good
20 laboratory will filter the water and say: There's
21 so much I found in the water and so much in the

22 Q. Silt.

23 A. -- in the silts that I collected from my sample. The
24 numbers are different, much different.

25 Q. Would there be anybody outside of Monsanto that if you

1 wanted to know whether the stream or river could be
2 cleaned up that you would go to to rule that out as
3 a viable alternative besides Mr. Craddock? You said
4 you'd heard of all these claims?

5 A. Yes; I keep reading newspaper clippings. I would go
6 to the EPA and see what they had in the way of new
7 technology.

8 Q. Do you know anything or have your lawyers given you
9 anything with regard to the Sangamo situation
10 specifically in preparation for this deposition?

11 MR. MARION: I'm going to object. If
12 you'll ask him if he has reviewed
13 any documents, that might --

14 Q. I'm not talking about mental impressions your lawyers
15 have given you. I'm talking about facts or documents
16 that you have seen on Sangamo with regard to PCB
17 counts downstream or those types of things. Have you
18 seen any of that data?

19 A. I saw a document in which there were some numbers
20 referring to concentrations of PCB's in I believe
21 it was this Twelve Mile Creek. And, the reason I remember
22 that, the number was in the high level that we just
23 finished talking about.

24 Q. Parts per million?

25 MR. MARION: What did you say, parts per

1 what?

2 MR. RICHARDSON: Parts per million is what
3 I said.

4 A. I believe that was the magnitude, yes. Okay; I did
5 see that document -- a document.

6 MR. RICHARDSON: Frank, if you could tell
7 him -- I'm not trying to trick any-
8 body -- could you identify which
9 document you're talking about or let
10 us see it? I mean, there's hundreds
11 of them; I just don't know which one
12 you're talking about.

13 MR. MARION: I don't know either. It's
14 documents we got through public
15 sources just like you have. As a
16 matter of fact, some of them are
17 referred to in the Complaint. That's
18 the only documents I'm aware of that
19 he would have seen.

20 Q. Was it an EPA or a Department of Health, Environmental
21 Control for the State of South Carolina?

22 A. No; it was one of these legal documents referring to
23 this case.

24 Q. It wasn't our Complaint?

25 A. It might be. I just don't remember.

1 MR. BISTLINE: Yes.

2 MR. RICHARDSON: Is that right?

3 Q. Those counts that you saw, if I'm reading you correctly,
4 I get the impression that you're saying that whoever
5 was reading them should have done a little more
6 sophisticated analysis in separating the pure water
7 from the silt and given two different reasons, is
8 that what you're --

9 A. I can't say that. All I can say is that in reading
10 that information, I got the impression it was
11 referring to water samples. And, when I saw the
12 numbers, I reached a skepticism regarding water and
13 those numbers. And, not knowing any more than that,
14 I can't jump into a conclusion: They should have
15 filtered or they should have done this or that. I
16 don't know. All I know is I remained skeptical. This
17 is typical of clear water with PCB's in it.

18 Q. Would the PCB's tend to settle to the bottom because
19 of being heavier than water?

20 A. That is the normal condition.

21 Q. If you made an attempt to mix PCB's with water, would
22 you be able to mix it so that the PCB concentration
23 would exceed parts per billion, in other words, get
24 down to at least one part per million?

25 A. I suppose if you tried hard enough and used high energy

1 like an osterizer or something.

2 Q. I don't mean high energy; I mean in an environmental
3 setting, you wouldn't expect it, in other words?

4 A. No; no.

5 Q. When did Monsanto stop incinerating Sangamo PCB's?

6 A. I don't know that.

7 Q. Because you got out of it in '77?

8 A. Yes; but I don't know when Sangamo sent the material
9 or how much Sangamo material was on site and when it
10 was destroyed. I can't answer that.

11 Q. Do you know whether they continued to do it after
12 '77?

13 A. Continued to do what?

14 Q. Send you, Monsanto -- not you personally -- send you,
15 Monsanto, PCB waste products to be incinerated?

16 A. I don't know.

17 Q. Can you inventory these PCB's? Did they have a big
18 storage facility, like you inventory lumber as a raw
19 material to go into a manufacturing process? Do you
20 inventory PCB's or does it come into Sangamo and
21 they've got to use it within 30 days or --

22 A. It varies from customer to customer.

23 Q. Do you know what type inventory capability Sangamo
24 had at all?

25 A. No.

1 Q. I asked you about depositions and trial testimony and
2 then I asked you about the lawsuit here in South
3 Carolina back in 1976?

4 A. Uh-huh.

5 Q. Do you know of any other lawsuits involving PCB's
6 that Monsanto has been or is involved in?

7 A. Yes.

8 Q. Could you identify those for me?

9 A. I'm certain I can't remember all of them.

10 Q. How many are you talking about?

11 A. Gosh! I remember some dairy cases in Ohio. What
12 else? I understand there's some dairy cases in
13 Michigan pending; I'm also aware of some -- I'm not
14 real clear on this -- there's some cases involving
15 capacitors with a utility on the West Coast. I don't
16 have any details.

17 Q. California?

18 A. Yeah. That's all I can remember.

19 Q. With regard to PCB's, and because of all of this litigation
20 that's going on in this area, do you know whether or not
21 Monsanto has retained all records that it's ever had with
22 regard to the PCB issue?

23 A. No, I don't.

24 Q. Do you know of your own knowledge whether it's ever
25 destroyed any documents that it has ever in the past

1 had on PCB?

2 A. No, I don't know.

3 Q. Do you know what the record retention policy is of
4 the company?

5 A. I believe I do, yes.

6 Q. What is that?

7 A. You're asking me to describe a multi-page book.

8 Q. Okay; that's what I wanted to know. So, they've got
9 an extensive record retention plan --

10 A. Yes.

11 Q. -- and they save the payroll records X years and the
12 sales records Y years and on down the list?

13 A. That kind of thing, yeah, research records and
14 personnel records and on and on. It covers all of
15 these things.

16 Q. Do you know whether or not Monsanto keeps any kind of
17 notation of what has, in fact, been destroyed under
18 the retention program, in other words, like these animal
19 studies that were done apparently in the '50's or
20 before? If those had been destroyed, would there
21 be some notation at least that they had been
22 destroyed?

23 A. I'm not aware of any notes of that kind being kept,
24 what was destroyed; I'm not aware of any.

25 Q. Who was in charge of the record retention plan for

1 the company, do you know?

2 A. I don't know that there was any specific person in
3 charge. Each manager is responsible for complying and
4 is to report annually. He certifies that he is in
5 compliance. I suppose if anybody is in charge, it's
6 the top executive of the corporation.

7 Q. When that manager reports or certifies he's done it,
8 he didn't give a list: Yes; I've done it and these are
9 the things I destroyed?

10 A. I've never seen anything like that.

11 Q. Are you aware of whether or not in this environmental
12 contamination area -- if PCB's are showing up, say,
13 in drinking water, have you ever known of a situation
14 where there have been filters put on that drinking
15 water to try to filter out the PCB's, are you familiar
16 with that at all?

17 A. I've never heard or involved in any drinking water
18 PCB situation. I've never heard of any.

19 Q. You've never even heard of those types filters being
20 in existence?

21 A. That is true.

22 Q. From what you know about PCB's, would it be possible
23 to filter out the PCB's from water? I mean, is that
24 a technology that exists that you could do that? If
25 you had, say, parts per billion in water and wanted to

1 filter it out, can you do that?

2 A. Knowing what I know about the tenacity with which PCB's
3 will cling to particulate matter, I can see where it's --
4 yes, it's possible to find a filter media that will
5 work.

6 Q. Monsanto has never been involved in trying to filter
7 water to expunge PCB's from it, to your knowledge?

8 A. No.

9 Q. So, when you had these holding ponds where the waste
10 goes and then you take off the water and put it into
11 the city system and then you drudge out the sludge, --

12 A. Uh-huh.

13 Q. -- they never have a filter anywhere in that system;
14 it's just a normal settling process that they rely
15 upon?

16 A. That is correct, yes.

17 Q. Are you familiar with the effort Monsanto made to have
18 PCB's incorporated into insecticides?

19 A. There was no such effort.

20 Q. In other words, you're knowledgeable about their effort
21 with regard to insecticides and you know for sure that
22 they never discussed PCB's with regard to the
23 insecticides at all?

24 A. I'm aware of the discussion of insecticides in PCB's,
25 but this was a discussion in which we found out that

1 the U.S. Department of Agriculture had conducted
2 studies in which they used PCB's to extend the effective
3 life of the active ingredients, had published technical
4 articles and promoted, encouraged, the formulation of
5 such products. When we found out about it, our
6 Medical Director, Dr. Kelly, wrote to the Department
7 of Agriculture suggesting that they not approve such
8 formulations using PCB's to extend the active life
9 of the ingredient.

10 Q. And, the reason it extended the active life is because
11 it adhered to the leaves or some such --

12 A. No; that's a misunderstanding. We too thought that
13 the presence of PCB's so widely could have come from
14 aircraft spraying of pesticides. That was our first
15 thought. It turns out that's not true. This use
16 as an extender in pesticides was primarily limited
17 to internal use to control house pests, roaches and
18 the like. And, the idea was that when you spray
19 it on the pantry shelf, the active ingredient would
20 not volatilize and disappear. The PCB's, because of
21 their sticky nature, would keep it there and then the
22 insect would be more apt to be exposed for a longer
23 period of time. That was the pesticide PCB connection.
24 We were told by the Department of Agriculture, which
25 at that time was in charge of registration of pesticide

1 before EPA, that the number of formulations permitted
2 under that old system were minuscule and apparently
3 the market was never too big, but it was there.

4 Q. So, that's something that Monsanto never researched,
5 considered or promulgated?

6 A. That is correct.

7 Q. About what point in time did Monsanto find out
8 the Department of Agriculture was doing that
9 research?

10 A. This was in early 1970 -- no; I'm sorry -- yes; early
11 1970 is when we first became aware of this.

12 Q. Have you ever seen in the literature whether or not
13 it's been published that PCB's have an affect on unborn
14 fetuses?

15 MR. COCKRILL: Human fetuses?

16 MR. RICHARDSON: Yes.

17 A. Let me think a bit. There's so many allegations and
18 all in the popular press, I don't recall seeing
19 such an allegation in a technical article, but I do
20 remember do seeing that statement in some printed
21 matter.

22 Q. Do you know whether Monsanto has done research into
23 that specific point, animal studies or evaluations
24 of any kind?

25 A. Yes; I'm aware of reproduction studies with rats.

1 Q. When were those studies done?

2 A. They were started in '69 and completed about 1971 or
3 thereabouts.

4 Q. What were the results?

5 A. It was a three-generation reproduction study. As I
6 remember, at the high levels -- and this is 100 parts
7 per million in the daily diet of the test animal --
8 of the 1260, the higher chlorinated, the fetuses
9 weren't deformed; it just never produced. So, the
10 number of live births reduced at the high levels.
11 But, there was no indication of deformed fetuses or
12 teratogenicity as it's called.

13 Q. Monsanto has got all of those reports and data?

14 A. Yes, they do.

15 Q. During the time you were the PCB man for Monsanto,
16 '70 to '75 or 6, did you approve any public statements
17 of Monsanto with regard to PCB health issues or did
18 you have input or draft them, or what was your role
19 with regard to the public relations issue?

20 A. Oh, I had, I guess, all of those roles at one point or
21 another. There were times I would prepare drafts of
22 these statements; there were others when I was asked
23 to review a draft prepared by others. I was part of
24 a group that would approve -- there was no single
25 person approving.

1 Q. I understand, Mr. Papageorge, that Monsanto made
2 some statements, public statements, took a public
3 position, with regard to these Japanese studies.

4 A. Uh-huh.

5 Q. Did they do that, to your knowledge?

6 A. I'm trying to think of a specific statement relating
7 to -- I don't remember it at the moment.

8 Q. How about any other published articles in the
9 literature, any public statements or comments or
10 opinions that Monsanto would have expressed?

11 MR. MARION: On the Japanese incident?

12 MR. RICHARDSON: I'm not limiting it to
13 that.

14 Q. Maybe the Swedish incident that came up or --

15 A. We responded to the fact that we were aware of
16 the Swiss original work and that we were hard at
17 work trying to understand it. We responded to, as
18 I remember, a report that came out of the Mobile
19 Chemical Company. It was a study in which there was
20 a reference to some Mobile employees exhibiting a
21 cancer known as melanoma. And, as I remember, our
22 medical doctor responded that: That sure was a
23 strange finding; we hadn't observed it, comments of
24 that type. I don't remember any other specifics.
25 Q. Where would we find those? Have you got a PR Department

1 that saves all those kinds of --

2 A. I don't know what they save. Again, I would go to our
3 attorneys. For a product like PCB's, which we no longer
4 manufacture, there is no active custodian, to my
5 knowledge, of the records or the papers.

6 Q. The Anniston plant, did it ship directly to Sangamo?

7 A. Yes.

8 Q. Did it have any direct shipments from Illinios also
9 or did everything come out of Anniston just because
10 it was closer?

11 A. I think the supply of the material was from both
12 plants.

13 Q. There wasn't any reason to do part of the process in
14 Alabama and ship it to Illinois for further processing,
15 was there?

16 A. No.

17 Q. It was a complete operation --

18 A. (Nods head affirmatively.)

19 Q. Was there any other product sold to Sangamo besides
20 what we've been referring to as PCB's, to your knowledge,
21 other chemicals?

22 A. I do not know.

23 Q. Other than the incineration of waste that we've talked
24 about, was there ever any storage by Monsanto of waste
25 of PCB's of any of its customers?

1 A. There was a storage of the liquid waste intended for
2 the incinerator.

3 Q. What, a year before the incinerator went on line?

4 A. Roughly a year, yes. We told our customers that: We're
5 planning on this unit; you may want to send it to us
6 and we'll store it, and when the unit is on stream,
7 we will destroy the material. So, there was that
8 initial storage. And, later it became a matter of
9 just someplace to put the material before we could
10 run it through the incinerator, a smaller
11 volume, in other words.

12 Q. But, other than that, did you or Monsanto ever do any
13 storage or even burial of the PCB's for the customers?

14 A. No; no burial.

15 Q. Did the Monsanto sales representatives ever get
16 involved with obtaining sites, chemical burial sites,
17 for customers?

18 A. Not to my knowledge. (Shakes head negatively.)

19 Q. Did Monsanto do any studies of the stream running away
20 from the Anniston, Alabama plant to see the environmental
21 effects on the silt or the water or the PCB levels
22 in that stream at any point in time?

23 A. Yes; there were some studies, fish studies, made.

24 Q. Did Monsanto conduct those?

25 A. No; Monsanto had others do the work. I'm trying to

1 remember who they were. Some university group did the
2 work.

3 Q. What were the results of those studies?

4 A. I don't recall anything dramatic.. They were present --
5 the PCB's were present, but I don't remember any
6 conclusion that tried to described unwanted effects.
7 It wasn't dramatic enough for me to remember, but --

8 Q. Again, you would call the Legal Department if you wanted
9 to see those documents?

10 A. Yes.

11 Q. Would they also be maintained at the Anniston plant or
12 do you know?

13 A. I would be very surprised if it's at the Anniston plant.

14 Q. Do you have a group called the Specialty Chemicals
15 Division?

16 A. That was the -- one of the -- at a point in time, the
17 functional fluids products were assigned to the
18 Specialty Chemicals Division, yes.

19 Q. And, under that division, the Specialty Chemicals
20 Division?

21 A. The fluids were under the Specialty Chemicals, yes.

22 Q. When was that, do you remember?

23 A. About 1973, somewhere in there.

24 Q. Until --

25 A. Well, that terminology exists today. We still have

1 a Specialty Chemicals Division.

2 Q. Are these functional products under that?

3 A. Still under that, yes,

4 Q. Who is Earl Harbason?

5 A. He is an Executive Vice-President of Monsanto.

6 Q. What is his present position?

7 A. That is his present, Executive Vice-President.

8 Q. Of what, some division, department or just Executive
9 Vice-President of the company?

10 A. He has the International Division assigned to him;
11 he has --

12 Q. In the past --

13 A. Excuse me.

14 Q. Go ahead.

15 A. He has assignments within Monsanto to watch over.

16 Q. In the past, has he ever had any involvement with
17 PCB products, to your knowledge?

18 A. Yes; he was the -- I believe, if my memory serves me
19 right, there was a point in time when Mr. Harbason
20 was a Vice-President and Managing Director of the
21 operating unit in Monsanto to which the Specialty
22 Chemicals group reported.

23 Q. So, in that way, he would have had some supervisory
24 responsibility over the PCB's?

25 A. Yes.

1 Q. How about Dan Bishop?

2 A. What about him?

3 Q. Do you know him?

4 A. Yes,

5 Q. What involvement has he had in the past with PCB's?

6 A. He is a public relations professional.

7 Q. Is he still in that department within Monsanto?

8 A. He is still in that department, yes.

9 Q. Would he have assisted in drafting any public state-
10 ments that Monsanto would have made?

11 A. Yes.

12 Q. He's in St. Louis?

13 A. Yes.

14 Q. Did Monsanto ever hire any consultants or outside
15 personnel with regard to the PCB issues other than,
16 I guess, this creek that runs away from the Anniston,
17 Alabama plant? you told me about that.

18 A. Uh-huh. Well, the animal tests that were conducted,
19 I would call them consulting laboratories.

20 Q. They were not in-house?

21 A. That is correct. All the animal studies were done --

22 Q. Who did they use?

23 A. Industrial Bio-Test laboratories was one of the laboratorie

24 Q. Industrial Bio-Test Laboratories?

25 A. Yes. Chicago, Illinois area; Northbrook, I believe.

1 Q. Northbrook, Illinois?

2 A. I think that's the area.

3 Q. Do you know the man's name that was the liaison to
4 Monsanto with that group?

5 A. There was no single person. We dealt with many in
6 the laboratory. But, Dr. Callandra was the spokesman
7 when we needed his contribution at symposiums or
8 discussions with the Federal agencies. Dr. Callandra
9 would be the person to join Monsanto people and
10 participate.

11 Q. He was the spokesman with regard to most of the animal
12 studies or were there other labs that did some of the
13 animal studies?

14 A. I don't recall any other laboratories that were involved.
15 So, it had to be just the one.

16 Q. When you visited Sangamo, did you notice any waste
17 water facilities that they were using or did you
18 evaluate them?

19 A. I have forgotten frankly. Nothing is vivid anymore.

20 Q. The comment has been used in some of this literature:
21 Non-detectable levels of PCB. What is a non-detectable
22 level?

23 MR. MARION: To what literature are you
24 referring?

25 MR. RICHARDSON: Newspaper articles. No

1 scientific literature. I don't
2 believe it's a scientific term, but
3 it might be.

4 A. Oh, yes; it's a very valid term.

5 Q. Oh, it is?

6 A. Yes. And, no matter how sophisticated the analytical
7 methods are, all of them have a lower limit in which
8 the chemist has confidence. Any number below that,
9 he feels uneasy because he knows the limitation of
10 the whole process, from taking the sample to reading
11 the answer out of the instrument. So, they established,
12 after a time validating their methods and all, some
13 number below which they are -- they have no confidence.
14 And, that's referred to as the detectable level for
15 this material, using this method, using this kind of
16 instrument. And, then when they report the results,
17 they say non-detectable. And, that in itself isn't
18 enough; you have to know more about what method was
19 used, what instrument was used to give you -- now,
20 many will now say non-detectable, then they'll go on
21 to say detectable limit is so-and-so. So, it is becoming
22 more and more common these days.

23 Q. Alright; I see what you're saying. In your opinion,
24 is it detrimental for someone who is a landowner along
25 a stream to have PCB counts that are detectable similar

1 to what you saw in our Complaint or that report, those
2 types of levels on the property?

3 MR. COCKRILL: I just want to make a
4 comment here. I know that under the
5 rules all objections are reserved,
6 save those going to the form of the
7 question, but I just want to point
8 out that I haven't heard anything that
9 would show Mr. Papageorge to be
10 competent in this area. But, with
11 that --

12 A. That was going to be my answer.

13 Q. I give you more credit than he does, Mr. Papageorge.

14 A. Well, I was going to answer: I don't know that I
15 have the qualifications for responding to your
16 question.

17 Q. But, you're very knowledgeable on behalf of Monsanto.
18 Would you, if you had your druthers, rather have the
19 PCB's in the land and your home or not?

20 MR. MARION: Just note an objection to the
21 form. Go ahead.

22 A. My personal opinion. I am so familiar with PCB's
23 personally that I just don't find them an issue at
24 all. It wouldn't bother me at all because I know
25 that my land has other things that I can get excited

1 about, like arsenic and selenium and all kinds of
2 goodies if you really looked. So, in my opinion, it
3 wouldn't bother me at all if it were on my land.

4 Q. Would it make a difference to you with your children --
5 have you got children --

6 A. Uh-huh.

7 Q. -- if they had PCB levels in their blood counts?

8 A. I suspect they do. I suspect we all do, as I said
9 earlier. It's unfortunate, but it's there. But, I
10 don't equate presence with problem necessarily.

11 Q. Well, then why, as one of the decision-makers with
12 Monsanto, did you bother to discontinue the use of
13 PCB's?

14 A. It's more of a philosophical kind of thought that
15 occurs: Should it be there; what right have we to
16 make a material that ends up in the human body. Even
17 though we don't see any harm, it just doesn't seem
18 right. And, we -- we don't want to be associated with
19 that question mark. So, let's stop making it until we
20 learn more.

21 MR. RICHARDSON: Let me speak to Susan
22 just a minute.

23 (WHEREUPON, Mr. Richardson and Ms. Herdina
24 adjourn from the proceedings and return

25 MR. RICHARDSON: I don't have anymore

1 questions. Thank you, Mr. Papageorge.

2 MR. GEDDIE: I have a few.

3
4 E X A M I N A T I O N (By Mr. Geddie):

5 Q. Mr. Papageorge, I represent Sangamo, and I just have
6 a few questions for you. Is the Anniston plant still
7 in operation?

8 A. Yes.

9 Q. It obviously no longer manufactures PCB's?

10 A. Yes.

11 Q. The treatment process that you described when you
12 were Plant Manager there in the late '60's up to
13 1970 -- and just to summarize, you described it
14 as basically a settling pond with neutralization and
15 then release -- was that the state of the art, as
16 far as you were concerned at that time?

17 A. Yes.

18 Q. Up until when, or is it still?

19 A. I would suggest that it's still the state of the art.

20 Q. I believe you testified that you had no recollection of
21 Sangamo's treatment facilities from your 1970 visit?

22 A. That is correct.

23 Q. What other locations or companies did you visit during
24
25

1 that 1970 tour?

2 MR. MARION: Say that again.

3 MR. GETTIE: What other companies did he
4 visit with the dog and pony show?

5 MR. MARION: I'm going to object. We're not
6 going to get into our customer list.
7 I instruct him not to answer.

8 MR. GETTIE: You're going to instruct him
9 not to answer?

10 MR. MARION: If you don't want specific
11 companies -- I'm not going to get
12 into that.

13 MR. GETTIE: I believe we have a right to
14 know that.

15 MR. MARION: You can take it up. We're not
16 going to get into the other companies.

17 Q. Mr. Papageorge, did these other companies have similar
18 treatment facilities to Monsanto in Anniston?

19 A. No.

20 Q. Do you understand my question?

21 A. I understand the question. But, our customers are
22 different from Monsanto. When you make the material,
23 you end up with water streams; when you use the material,
24 you don't necessarily end up -- you shouldn't end up
25 with any water streams.

1 Q. Did you visit the General Electric plant Hudson Falls,
2 New York?

3 A. Yes.

4 Q. How would you describe the treatment at that plant?

5 A. I'm not aware of any treatment. I don't remember any
6 treatment.

7 Q. Was it a capacitor manufacturing plant?

8 A. Yes.

9 Q. Was G.E. at that location, in fact, your largest
10 customer?

11 A. Yes.

12 Q. Did you visit a plant by the name of Aerovox in
13 Massachussetts?

14 A. Yes,

15 Q. Was the treatment at that plnat the same roughly as
16 the Anniston plant?

17 A. No,

18 Q. How did it differ?

19 A. I don't recall seeing any facilities specifically
20 designed to treat their waste waters.

21 Q. What was the system, if you recall it, at Aerovox?

22 A. I don't recall.

23 Q. Did you visit the Sprague Electric Company also in
24 Massachussetts, I believe?

25 A. Yes.

1 Q. Do you recall anything of their treatment facilities?

2 A. I don't recall seeing any treatment facilities.

3 Q. Did you visit Electromotive in Florence, South
4 Carolina?

5 A. Yes.

6 Q. Do you recall anything of their treatment facilities?

7 A. No.

8 Q. Were they a capacitor manufacturer?

9 A. Yes.

10 Q. Did they use PCB's?

11 A. Yes.

12 MR. GEDDIE: That's all the questions I
13 have.

14 MR. WHITE: My name is Dan White; I
15 represent Schlumberger, Limited.
16 I would like to read two things into
17 the record. This first point might
18 go at the beginning of the deposition.
19 Schlumberger has filed a motion to
20 dismiss and a motion for Protective
21 Order. And, by appearing at this
22 deposition noticed by the plaintiff,
23 we are not waiving any positions
24 asserted in these motions, but
25 rather, we are expressly reserving

1 our rights thereunder.

2 MR. RICHARDSON: You're a little late on
3 that, aren't you, Mr. White?

4 MR. WHITE: Better late than never. And,
5 in fact, the motion for Protective
6 Order is scheduled for a hearing on
7 Monday morning at 9:30 here in
8 Greenville on March 18th.
9 Additionally, during this deposition,
10 the deponent has been questioned
11 about matters not covered by
12 Schedule A attached to the Deposition
13 Notice regarding the scope of the
14 deposition. Schedule A indicates
15 that Monsanto's official would be
16 questioned regarding number 1: The
17 business history between Sangamo
18 Weston and Monsanto; number 2: The
19 business history between Schlumberger,
20 Limited and Monsanto; number 3:
21 Current activities or business
22 engaged in within the State of
23 South Carolina. Schlumberger reserves
24 the right to redepose this witness at a
25 later date regarding the matters

3bBu

1 inquired into today but not covered
2 by the Deposition Notice.
3 MR. GEDDIE: I might add as to that last
4 part, Sangamo Weston reserves that
5 same right.
6 MR. RICHARDSON: Based on jurisdiction?
7 MR. GEDDIE: No, no; based on the scope
8 of the deposition.
9 MR. WHITE: Scope of the Deposition Notice.
10 MR. GEDDIE: The Deposition Notice was
11 very specific and very narrow, and
12 the deposition itself was very
13 nonspecific and very broad.
14 MR. MARION: I'll just put on the record
15 too that we're here, and if you've
16 got questions, you can ask him.
17 The objections weren't made when
18 the questions were asked by any of
19 you. If you wanted to reserve it, I
20 suggest you should have reserved
21 it at the time the questions were
22 asked. He is here today; if you
23 have questions, ask them. Otherwise,
24 you can petition the Court.
25 MR. GEDDIE: Fine.

1 MR. WHITE: All objections, except as to
2 the form, were reserved, and we
3 don't think that sort of objection
4 I just read into the record needed
5 to be made at the time the questions
6 were asked.

7 MR. MARION: Take it up with the Court.

8 MR. RICHARDSON: I've got another question.

9
10 F U R T H E R E X A M I N A T I O N (By Mr. Richardson):

11 Q. You said something about they shouldn't have water
12 streams? Did I misunderstand something? Explain that
13 term to me.

14 A. This is based on my understanding of what it takes
15 to introduce PCB's into capacitors, and I know that
16 I understand how PCB's are made. When PCB's are made,
17 water is a product of that process, and that water
18 contains hydrochloric acid, which is also generated as
19 we make the PCB's. Those undesirable components
20 must be removed from the PCB's. This is why the
21 manufacturer ends up with a water stream that contains
22 PCB's. They must be very careful not to freely dump
23 that into the city sewer system but to hold it up
24 a bit and let the PCB's settle out and let what little
25 remains in the water go forward. It's my understanding

1 that in the manufacture -- and what I observed in the
2 manufacture -- of capacitors, it would be ideal to just
3 keep water out of that building, whatever. You don't
4 need water. So, the PCB's and the water never need to
5 get together; therefore, I can see where a treatment
6 system that the manufacturer has would not be at all
7 appropriate for a treatment system of a similar nature
8 at the capacitor manufacturing plant. I don't know if
9 that helped you any.

10 Q. Did you tell Sangamo that in 1970?

11 A. The thoughts were there; I don't know if I used those
12 exact words.

13 Q. Did that appear in any of the other, say, the January,
14 1970 letter you talked about or any of that, not mixing
15 the water at all with PCB?

16 A. No; the theme we kept harping on was just keep PCB's
17 away from water and you won't have all these complex
18 problems of getting it out of the water. That's the
19 theme. We recognize in the real world that's darn
20 difficult to do. But, that was a target we all shot
21 for. I don't know if we all met it successfully, but
22 we -- that's what we strove for.

23 Q. You said it took the PCB's a bit to settle out. How
24 long did it take the PCB's to settle out of the water
25 in the holding pond?

1 A. I don't have any numbers. This varies on the water
2 flow; it varies on the -- in our ponds, we had --
3 they're not just lagoons, they were pits full of
4 gravel -- not gravel -- limestone, crushed limestone.
5 So, this neutralized the acid; and as it was
6 neutralizing, it would create particles, and the
7 particles would help trap the PCB's and they, in turn,
8 would settle. I don't have any numbers. As I said
9 earlier, --

10 Q. Are you talking about a week or six months or --

11 A. I would guess it's more near a week or two than the
12 six months.

13 MR. RICHARDSON: That's all I've got.

14 Thank you, sir.

15 (WHEREUPON, the deposition was concluded
16 at 5:07. P.M.)

17
18 (Signature Waived)

19 WILLIAM B. PAPAGEORGE
20
21
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23
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1 STATE OF NORTH CAROLINA)

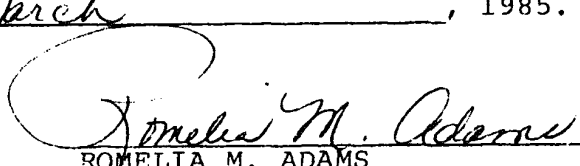
2 COUNTY OF MECKLENBURG)

C E R T I F I C A T E

3
4 I, Romelia M. Adams, Notary Public, do hereby certify
5 that WILLIAM B. PAPAGEORGE was duly sworn by me prior to
6 the taking of his deposition; that said deposition was taken
7 by me and transcribed under my supervision; and that the
8 foregoing one hundred forty (140) pages are a true and
9 accurate transcript of the testimony of the said WILLIAM
10 B. PAPAGEORGE. I further certify that the persons were
11 present as stated.

12 I further certify that I am not of counsel for or in
13 the employment of any of the parties to this action, nor
14 am I interested in the result of said action.

15 IN WITNESS WHEREOF, I have hereunto subscribed my name,
16 this 27th day of March, 1985.

17
18 
19 ROMELIA M. ADAMS
Notary Public

20 My Commission Expires:

21 November 14, 1986

22
23 NOTE: Unless otherwise requested in writing, the tapes
24 for this deposition will be retained for 30 days
25 from the date of this Certificate.