

ORIGINAL

**In the Court of Common Pleas
Philadelphia County**

In Re:	)	
Paoli Railroad Yard	)	Master File Number
PCB Litigation	)	90-0609-C-6

**In the United States District Court
For the Eastern District of Pennsylvania**

In Re:	)	Master File Number
Paoli Railroad Yard	)	86-2229
PCB Litigation	)	Relates to all Actions

July 17, 1991

**Deposition of WILLIAM B. PAPAGEORGE, taken on behalf of
Plaintiffs.**

GORE REPORTING COMPANY

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1 In the Court of Common Pleas

2 Philadelphia County

3
4 In Re:)
5 Paoli Railroad Yard) Master File Number
6 PCB Litigation) 90-0609-C-6
7)

8
9 In the United States District Court
10 For the Eastern District of Pennsylvania

11
12 In Re:) Master File Number
13 Paoli Railroad Yard) 86-2229
14 PCB Litigation) Relates to All Actions
15

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17
18 Deposition of WILLIAM
19 B. PAPAGEORGE, taken on behalf of Plaintiffs,
20 at the offices of Brown & James, 705 Olive
21 Street, in the City of St. Louis, State of
22 Missouri, on the 17th day of July, 1991,
23 before J. Bryan Jordan, certified shorthand
24 reporter and notary public.
25

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1 Whereupon. . . .

2 WILLIAM B. PAPAGEORGE,
3 of sound mind, having been first duly sworn
4 to tell the truth, the whole truth, and
5 nothing but the truth in the case aforesaid,
6 testified upon his oath as follows, to-wit:

7 EXAMINATION

8 BY MR. INNELLI:

9 Q. Good morning, Mr. Papageorge.

10 A. Good morning.

11 Q. My name is John Innelli. I'm one
12 of the counsel representing Plaintiffs in an
13 action involving the Paoli rail yard. I will
14 have a series of questions for you today. If
15 at any point in time you don't hear a
16 question that I've asked, I'll be happy to
17 repeat it for you. If at any point in time
18 you don't understand a question that I've
19 asked, please let me know and we will attempt
20 to clarify it.

21 Would you, for the record, please
22 state your name and current home address.

23 A. William B. Papageorge, 321 Pebble
24 Valley Drive, St. Louis, Missouri, 63141.

25 Q. Would you also state for the

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1 record your educational background, starting
2 with the high school you attended?

3 A. I attended McKinley High School in
4 St. Louis; graduated there in 1938. I
5 attended Washington University in St. Louis,
6 received a Bachelor of Science in Chemical
7 Engineering degree in 1943, and again
8 attended Washington University and received a
9 Master of Science Degree in Chemical
10 Engineering In 1947, and subsequent to that,
11 I attended -- or, accumulated credits at
12 Oklahoma State University toward a doctorate
13 degree. As I recall, I have about twelve
14 units credited toward that.

15 Q. When you graduated from Washington
16 University in 1943, did you go directly from
17 the undergraduate program to the Master's
18 program at Washington University?

19 A. No.

20 Q. When did you enter Washington
21 University in pursuit of your Master of
22 Science degree?

23 A. In August of 1946.

24 Q. Can you describe for the record
25 what you did between 1943 and 1946 in the way

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1 of employment?

2 A. Does military service count as

3 employment?

4 MR. COHEN: It sure does.

5 BY MR. INNELLI:

6 Q. It sure does.

7 A. That's where I spent that period

8 of time.

9 Q. Okay, which branch of the armed

10 services were you in?

11 A. The Army.

12 Q. And when were you discharged from

13 the Army?

14 A. It was in August of 1946. I don't

15 remember the exact date.

16 Q. Okay, and was it an honorable

17 discharge?

18 A. Yes.

19 Q. Did you become employed in 1947

20 after the completion of the Master's program

21 in science at Washington University?

22 A. Yes.

23 Q. And with whom did you become

24 employed?

25 A. Phillips Petroleum Company in

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1 Bartlesville, Oklahoma.

2 Q. And in what capacity did you
3 become employed by Phillips Petroleum?

4 A. As a research engineer.

5 Q. Could you describe for me what
6 your responsibilities were as a research
7 engineer for Phillips Petroleum when you
8 first became employed by Phillips Petroleum
9 in 1947?

10 A. I was involved with research
11 studies that related to drilling mud and its
12 properties, attempting to find improved types
13 of mixtures. I was also involved with
14 secondary recovery procedures. This is a
15 method where oil wells that are not producing
16 as much as they used to are reenergized by
17 various techniques, and I was involved in
18 studies relating to that.

19 Q. And for how long a period of time
20 did you have these duties?

21 A. About two years.

22 Q. So approximately sometime in 1949,
23 your responsibilities changed?

24 A. Yes.

25 Q. Were you still with Phillips

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1 Petroleum in 1949?

2 A. Yes.

3 Q. What new responsibilities did you

4 assume in 1949?

5 A. I was a design engineer in the

6 Refinery Department of Phillips Petroleum

7 Company.

8 Q. And what did those

9 responsibilities entail?

10 A. It involved the engineering

11 calculations that led to the proposed design

12 of equipment for refining petroleum products.

13 Q. How long did you -- were you

14 involved in the engineering calculations for

15 the design of equipment?

16 A. About two years.

17 Q. What was your next job or

18 responsibility?

19 A. I then joined the Monsanto

20 Company.

21 Q. Okay, you joined Monsanto in 1951?

22 A. Correct.

23 Q. In what capacity?

24 A. Design engineer.

25 Q. Was there a particular reason for

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1 your leaving Phillips Petroleum and going to
2 Monsanto?

3 A. Oh, I guess I would describe it as
4 looking for greener pastures.

5 Q. And where were you employed with
6 Monsanto?

7 A. At the John F. Queeny plant
8 located in St. Louis, Missouri.

9 Q. Now, what did your
10 responsibilities as a design engineer for
11 Monsanto entail when you first joined them in
12 1951?

13 A. I performed the necessary
14 engineering calculations that led to the
15 proposed design of equipment used in the
16 manufacture of a chemical.

17 Q. And what chemical was that?

18 A. Pthalic anhydride.

19 Q. Could you spell that, please?

20 A. P-h-t-h-a-l-i-c anhydride,
21 a-n-h-y-d-r-i-d-e.

22 Q. And what was that chemical used
23 for?

24 A. It's a starting material used in
25 the manufacture of plastics and paints.

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1 Q. Which department were you in
2 during this time period?

3 A. At the plant, the department was
4 called the plant -- I'm sorry, it was called
5 the Process Investigation Group.

6 Q. What were the functions of the
7 Process Investigation Group?

8 A. They were a group of technical
9 people assigned the task of reviewing the
10 processes at the plant, in an attempt to make
11 them more efficient or to expand them,
12 enlarge them, to make more material than they
13 were producing at the time, or to introduce
14 new processes for the manufacture of new and
15 different products.

16 Q. When you say that the Process
17 Investigation Group would evaluate the
18 processes used in the manufacture of
19 products, would that involve evaluation of
20 the process used in the manufacture of PCB's?

21 A. Not at this plant, no.

22 Q. Okay. You say "not at this
23 plant," meaning the John F. Queeny plant?

24 A. Correct.

25 Q. Was there another plant where

1 there was such production going on?

2 A. Yes.

3 Q. And which plant was that?

4 A. There are two of them; one in
5 Anniston, Alabama -- let me correct myself.
6 Two in the United States: One in Anniston,
7 Alabama, and one at Sauget, Illinois.

8 Q. Now, at each of those plants, the
9 Anniston and the Sauget plant, would there be
10 a Process Investigation Group?

11 A. There would be a similar group,
12 yes. I don't know if they used the same
13 designation, same title.

14 Q. How long were you a member of the
15 Process Investigation Group at the John
16 F. Queeny plant?

17 A. About a couple of years.

18 Q. So that would take us to
19 approximately 1953?

20 A. Yes.

21 Q. At that point in time, what became
22 your responsibilities?

23 A. I became a supervisor in a
24 production unit at that plant.

25 Q. What do you mean by production

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1 unit?

2 A. This consists of a facility with
3 the necessary equipment which is designated
4 to produce a given product, a given chemical
5 from raw material to the finished product.

6 Q. And which product was that?

7 A. This was a unit that made
8 chemicals, a family of chemicals called
9 plasticizers.

10 Q. And what are plasticizers?

11 A. They are materials that can best
12 be described as the type that are introduced
13 into plastics to give plastics flexibility so
14 they don't crack or break, that they are not
15 brittle any longer.

16 Q. Were plasticizers -- excuse me.
17 Were PCB's used in the manufacture of
18 plasticizers?

19 A. No.

20 Q. Were they a component part of
21 plasticizers?

22 A. No.

23 Q. What type of recordkeeping process
24 or procedure did you have as the supervisor
25 for the production unit?

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1 A. Would you help me with the
2 recordkeeping process? Is that the mechanics
3 of taking notes, or --

4 Q. What type of records would you
5 keep as the production unit supervisor?

6 A. I personally did not keep records.
7 I had a clerk who assisted me in keeping the
8 appropriate records.

9 Q. Was there a Monsanto corporate
10 policy regarding what type of records should
11 be kept by a product unit or production unit
12 supervisor?

13 MR. MALIN: Could we define the
14 period of time.

15 MR. INNELLI: We're talking about
16 the 1953 period of time while Mr. Papageorge
17 was the supervisor for the production unit
18 that manufactured the plasticizers.

19 A. Well, I understood there certainly
20 was a policy that related to activity
21 associated with that unit, yes. Or all
22 units, really. The policy extended through
23 all, throughout the plant.

24 BY MR. INNELLI:

25 Q. And there was a uniform policy for

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1 the entire John F. Queeny plant?

2 A. There was a uniform basic policy.
3 This does not mean that the individual
4 supervisor cannot institute additional
5 records for his particular purpose.

6 Q. Was that policy the same for other
7 plants, as well as the John F. Queeny plant?

8 A. The basic parts are the same, and
9 as an example, for example, the overtime
10 worked by the employees, that policy is
11 universal, so that kind of record would be
12 the same throughout Monsanto.

13 Q. Let's talk about production
14 records, records dealing with the process of
15 producing an end product. Was there a policy
16 regarding the types of records that would be
17 maintained covering the production process?

18 A. I don't recall any statement that
19 I would characterize as a policy. I just
20 don't know of any policy. The process,
21 itself, by its nature, almost dictates that
22 certain records be kept, such as the weight
23 of the batch, the quality of the material
24 produced, when it was produced, who the
25 operators were that were involved in its

1 production, what tank was it sent to. I
2 don't know that that policy was ever put
3 together to cover all those kinds of
4 activities.

5 Q. I take it you had a predecessor as
6 a supervisor in the production unit that
7 produced the chemical -- family of chemicals
8 known as the plasticizer?

9 A. Yes.

10 Q. Did you learn from your
11 predecessor what type of records should be
12 kept regarding the production process?

13 A. Oh, yes, that's part of my
14 training period, yes.

15 Q. Okay. How long were you the
16 supervisor for the production unit that
17 produced the plasticizers?

18 A. A year or two.

19 Q. Okay, so we're talking about in
20 the 1954-1955 time period?

21 A. That's roughly so, yes.

22 Q. What became your next title and
23 area of responsibility?

24 A. I was appointed supervisor of
25 another production unit at that plant.

1 Q. And which production unit was
2 that?

3 A. This was the unit that produced
4 the chemical, or a family of chemicals that
5 were starting materials for rubber chemicals.

6 Q. And what is the family of those
7 chemicals known as?

8 A. They were nitrochlorobenzenes.

9 Q. And what were your
10 responsibilities as the supervisor for the
11 production unit for nitrochlorobenzenes?

12 A. I was responsible for the
13 production of a scheduled amount of material
14 of a given type, by a given date, and I was
15 responsible for meeting the quality standards
16 that were established for those -- for that
17 product. I was responsible for the costs
18 associated with making that chemical. I had
19 to keep within guidelines that were given to
20 me. I was responsible for the safety of the
21 employees and the preservation of the
22 facilities. I could not abuse the equipment,
23 could not allow it to catch on fire or to
24 corrode or erode unnecessarily, I had to make
25 certain that I got the proper maintenance

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1 attention, to keep it functioning properly.
2 I think that covers most of them, if not all
3 of them.

4 Q. Let's talk a little bit about
5 quality standards, and again, we're talking
6 about the time period that you were the
7 supervisor for the production unit for
8 nitrochlorobenzenes. And we've established
9 roughly that that began in 1954-1955.

10 A. Yes.

11 Q. When did that time period end?

12 A. About 1956 or so.

13 Q. Okay. During that '55, '55 to '56
14 time period, would you explain for me how
15 quality standards were established for the
16 nitrochlorobenzene production unit?

17 A. I can't claim that I know all the
18 steps in establishing those standards but
19 they originate in Monsanto's research
20 department, based on the research chemist a
21 study of the process and its capabilities,
22 and of course, it's influenced a lot by what
23 quality chemical is required for the next
24 step. In other words, in its use. Using
25 that information, the research chemist then

1 puts together a list of criteria, and the
2 indices that must be looked at to meet those
3 criteria, and also either develop or find in
4 the literature the appropriate test procedure
5 that is used by a laboratory to establish the
6 indice that was called for was, indeed, met
7 by that particular batch of material.

8 Q. Would you interact with the
9 research chemist as -- would you, as the
10 supervisor of the production unit, interact
11 with the research chemist in establishing the
12 quality standards?

13 A. I would interact only if there was
14 a change being considered. If this is a
15 well-established product that had been made
16 for decades and no reason existed for
17 changing anything, the occasion for
18 interacting would not have happened.

19 Q. Did you come in contact or use as
20 component part PCB's while head of the
21 production unit for nitrochlorobenzenes?

22 A. Would you repeat the first part of
23 your question?

24 MR. INNELLI: Sure. Why don't
25 you --

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(The requested portion of the
record read by the reporter)

A. No.

BY MR. INNELLI:

Q. In 1956, what became your next
title and area of responsibility?

A. I was appointed as a maintenance
supervisor at the same plant.

Q. And this is still the John
F. Queeny plant?

A. Yes.

Q. Would you describe for me your
responsibilities as maintenance supervisor
for the John F. Queeny plant?

A. I was assigned the task of
supervising the activities of a small
construction group that worked throughout the
plant to install equipment on a small scale;
not major construction project, but such
things as replacing a pump with a bigger
pump, or a steel tank with a stainless steel
tank, a pipeline of a small size with a
bigger-size pipeline; that type of activity.

Q. Was a chemical engineering degree
a prerequisite for holding the maintenance

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1 supervisor position?

2 A. Only in that an engineering degree
3 was required. It could have been mechanical,
4 electrical, civil, or chemical. It didn't
5 have to be a chemical engineering degree.

6 Q. And how long did you hold the
7 position of maintenance supervisor?

8 A. About a couple of years.

9 Q. During the 1956 to roughly 1957
10 time period, did you come in contact with
11 PCB's?

12 A. No.

13 Q. Did any of the individuals who
14 were under your supervision, any of the
15 members of the construction group, come in
16 contact with PCB's?

17 A. Some of the electricians assigned
18 to me on a need basis, they would not be
19 permanently assigned to help me, they, in
20 performing their duties throughout the plant,
21 would on occasion be exposed to PCB's, yes.

22 Q. Now, when you say in performing
23 their duties at the plant, would on occasion
24 come in contact with PCB's, would they come
25 in contact with PCB's while under your

1 supervision, or during the course of duties
2 they might be performing for other units at
3 the plant?

4 A. In that period that we're talking
5 about, it would be under other supervision,
6 not mine.

7 Q. How were PCB's used at the John
8 F. Queeny plant?

9 A. There were three different uses
10 that I recall. The obvious one was in the
11 electrical equipment, as a fluid in
12 transformers, and it was present in
13 capacitors, electrical capacitors. The other
14 use was as a, a fluid in compressors, and the
15 third use was as a fluid in heat transfer
16 systems.

17 Q. Now, as the maintenance
18 supervisor, did you have oversight
19 supervision for the transformers, and
20 compressors, and heat transfer systems at the
21 John F. Queeny plant?

22 A. As the maintenance supervisor in
23 the period we're talking about?

24 Q. Yes.

25 A. No.

1 Q. At any other point in time, did
2 you?

3 A. Later.

4 Q. Let's continue to focus on the
5 1956 to '58 time period. Did you have any
6 discussions with the Medical Department at
7 Monsanto about the effects of exposure to
8 PCB's by the electricians at the John
9 F. Queeny plant?

10 A. Not at the period, during the
11 period we're talking about, no.

12 Q. Prior to 1956, had you had any
13 such conversations?

14 A. No.

15 Q. After you were maintenance
16 supervisor at the John F. Queeny facility,
17 what became your next job title and area of
18 responsibility?

19 A. I became the maintenance
20 superintendent at the same plant.

21 Q. And when was that?

22 A. As best as I can recall, it was
23 the period '57, '58, something like that.

24 Q. And for how long did you hold that
25 position?

1 A. Again, a couple, three years.

2 Q. How did your responsibilities as
3 superintendent, maintenance superintendent,
4 differ from your responsibilities as
5 maintenance supervisor?

6 A. Well, as maintenance supervisor, I
7 had that limited activity that I described,
8 in terms of minor new construction. As
9 maintenance superintendent, I was responsible
10 for the activities relating to maintenance
11 and construction for the entire plant, which
12 involved 400 mechanics, and I use that number
13 to describe the magnitude of the assignment.

14 Q. During your tenure as maintenance
15 superintendent for the John F. Queeny plant,
16 did you have under your jurisdiction
17 employees who came in contact with PCB's?

18 A. Oh, yes.

19 Q. You identified electricians
20 earlier as individuals who would come in
21 contact with PCB's. Were there any other job
22 classifications that would come in contact
23 with PCB's?

24 A. There were at least two others
25 that I recall. One group was referred to as

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1 the machinists. They, that was the group
2 that worked on compressors, and the other
3 group were the pipe fitters, who were more
4 likely to work with the heat transfer
5 systems.

6 Q. During the time that you were
7 maintenance superintendent, did you discuss
8 with anyone in the Medical Department the
9 effects of exposure to PCB's upon human
10 beings?

11 A. Yes.

12 Q. What do you recall about those
13 conversations?

14 A. I was informed that the materials
15 should be respected like all industrial
16 chemicals, that the employee should not get
17 it on his skin. If so, he should wash it
18 off. If it got on his clothing, he should,
19 within a reasonable period of time, change
20 his clothing, to avoid skin contact, and the
21 employee should also avoid breathing fumes
22 from these materials.

23 I was also told that there were
24 symptoms that would serve as guidelines
25 regarding the amount of exposure that an

1 employee might have had. For example, a
2 reddened skin would indicate too much skin
3 contact. That would be what I would call an
4 early warning symptom. A coughing and chest
5 pain like a severe chest cold would be a
6 symptom of too much exposure to the vapor.
7 Those are very key early warning signals.
8 Further exposure, assuming you pay no
9 attention to those early warning signals,
10 would be a skin breakout, referred to as
11 chloracne, which resembles teenage acne in
12 some respects.

13 I was also told that if you
14 continue to ignore these early warning
15 symptoms, it could lead to liver damage.
16 That was the information that I gathered
17 talking to the plant medical doctor, as well
18 as the plant industrial hygienist, and
19 reading the Monsanto documents that covered
20 this.

21 Q. Okay. Who was the plant medical
22 doctor at that point in time?

23 A. Dr. Bershe.

24 Q. Could you spell the last name,
25 please?

1 A. I believe it's B-e-r-s-h-e. I
2 have forgotten his first name.

3 Q. And who was the plant industrial
4 hygienist?

5 A. Sam Urban, U-r-b-a-n. I believe
6 he was the one who had that title at that
7 time.

8 Q. You made reference to Monsanto
9 documents. Is there a particular document
10 you have in mind?

11 A. There's, of course, the trade
12 literature that was published in pamphlet
13 form. I recall reading some of those, and
14 there were some portions of the, of the, what
15 Monsanto calls the standard manufacturing
16 process, and the other document, the standard
17 operating procedure.

18 Q. Can you describe for me what the
19 standard manufacturing process document
20 covered, what topics?

21 A. This is the technically oriented
22 document prepared by the research chemist and
23 the engineers, describing the technical
24 features of a chemical process, what kind of
25 equipment is used, what temperatures are

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1 achieved, how much agitation is involved,
2 what the raw materials are, and how long must
3 it be under the temperature that is
4 specified, how samples are taken, what to
5 look for in the process. It is designed to
6 be read by a technically trained person,
7 primarily the supervisor of the operation and
8 his superintendent, his boss, and so on.

9 Q. And this is a document that was
10 prepared by the Monsanto corporation, itself?

11 A. Yes.

12 Q. And it would set out warning signs
13 for different types of elements that may
14 arise from exposure to different types of
15 chemicals in the workplace?

16 A. You say was it designed for the
17 different exposures?

18 MR. INNELLI: Why don't you read
19 back the question.

20 (The requested portion of the
21 record read by the reporter)

22 A. As part of this document --

23 BY MR. INNELLI:

24 Q. Right, that's my question.

25 A. -- there is a section that relates

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1 to the proper handling of the chemicals
2 associated with that process.

3 Q. Okay.

4 A. Starting material, intermediate,
5 and the final product, and the waste
6 material, so there are, depending on how many
7 chemicals are involved, the size of that
8 section would vary, and there would be
9 comments in there regarding the, the safe
10 handling of the material.

11 Q. You also identified a document as
12 the standard operating procedure. Could you
13 give us an explanation of what that document
14 entailed?

15 A. That document is designed to be
16 used by the operator in his initial training,
17 and later on for his own perusal regarding
18 refreshing his memory regarding what valve to
19 turn and what tank to use, and so on, and it
20 describes to the operator the procedure he
21 must follow as he works his shift to perform
22 the given task, and there are sections in the
23 book that apply to the, the process as each
24 operator gets involved.

25 I didn't make myself clear on

1 that.

2 Q. No.

3 A. There's a beginning process with
4 one operator, an intermediate maybe with
5 another operator, and finally, the finishing
6 of the product and the packaging may involve
7 a third person. Each one can refer to his
8 section to refresh his memory should he want
9 to.

10 Q. Now, what was your understanding
11 of why the employees under your jurisdiction
12 when you were maintenance superintendent
13 should avoid breathing PCB fumes?

14 A. Well, my understanding was you
15 should avoid the continual, prolonged
16 breathing of fumes. If the situation called
17 for a need for them to be exposed for a
18 period beyond something that they could
19 tolerate, really it's a matter of irritation
20 and all, they were expected and trained to
21 put on a respirator, to go back into that
22 area to complete their duties.

23 Q. What was your understanding as to
24 why they were to avoid prolonged exposure to
25 the fumes?

1 A. Oh, breathing the fumes would, of
2 course, introduce it into their bodies
3 through their lungs, and that was a method of
4 entry and would create the, the skin
5 condition I mentioned earlier, that chloracne
6 symptom, and it would also create,--if it
7 continued, would create the liver damage I
8 mentioned earlier.

9 Q. So back in 1956 and 1957, you
10 understood that prolonged exposure to PCB
11 fumes, if continued, could result in liver
12 conditions?

13 A. Yes.

14 Q. What was your next position after
15 maintenance superintendent at the John
16 F. Queeny production facility?

17 A. I was assigned as a superintendent
18 in the plant Technical Services Department.

19 Q. Okay. Still at the John Queeny
20 plant?

21 A. Yes.

22 Q. And what responsibilities did you
23 have as superintendent in the Technical
24 Services Department?

25 MR. McLAUGHLIN: I'm sorry, for

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1 clarification, what time are we, now? What
2 year?

3 MR. INNELLI: Starting roughly
4 1958.

5 THE WITNESS: '58, '59, '60,
6 somewhere in there.

7 A. My responsibilities involved the
8 supervision of a team of engineers and
9 technicians who were assigned the duties of
10 investigating chemical processes at the
11 plant.

12 BY MR. INNELLI:

13 Q. What do you mean by investigating
14 chemical processes at the plant?

15 A. Reviewing the processes to
16 determine whether there are better ways to
17 make the same product or ways to make a
18 better product, or ways to make more of that
19 product, or look into procedures and
20 equipment required to consider the
21 manufacture of new products.

22 Q. How many products were made at the
23 John F. Queeny plant?

24 A. Yes, I don't know that I ever
25 heard a count. It was over a hundred.

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1 Q. Did any of them use a chlorination
2 process?

3 MR. MALIN: Well, I'll object to
4 the form of the question unless you define
5 chlorination process. I guess there are a
6 lot of chlorination processes. There are a
7 lot of chlorination processes. Do you mean a
8 process other than using nascent chlorine or
9 using nascent chlorine only?

10 MR. INNELLI: Well, let's get an
11 answer to the question as to whether they
12 used a chlorinated -- chlorination process
13 first.

14 A. Not at the Queeny plant.

15 BY MR. INNELLI:

16 Q. At what plants were a chlorination
17 process used?

18 A. Certainly, the Anniston, Alabama,
19 plant, and the Sauget, Illinois, plant.
20 Chlorination also occurred at Luling,
21 Louisiana, plant, and as I recall, they
22 eventually started chlorination at the
23 Muscatine, Iowa, plant.

24 Q. How long did you hold the position
25 of superintendent of the Technical Services

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1 Department?

2 A. Three years or so.

3 Q. And what was your next job title
4 and area of responsibility?

5 A. Next job title, still, again, at
6 the same plant, was general superintendent of
7 shipping, warehousing and utilities. I
8 believe that's the correct name.

9 Q. And what did that entail?

10 A. That group provided services to
11 the manufacturing function other than the
12 maintenance service. We, of course, received
13 the raw materials, distributed to the using
14 locations at the plant, we received the
15 various packaging materials for packaging the
16 final product, we provided for the delivery
17 of all kinds of raw materials, some of it
18 liquid, some of it solid, in various kinds of
19 containers. We picked up the finished
20 product from the packaging line and took it
21 to the warehouse; we picked up waste, trash
22 hauling function, and we provided the
23 utilities, which included electricity, water,
24 ammonia, air, used by the different
25 departments.

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1 Q. And how long did you hold that
2 position?

3 A. Till 1964.

4 Q. Okay, 1964, what job title and
5 responsibilities did you assume?

6 A. I was appointed a general
7 superintendent of manufacturing at the
8 Sauget, Illinois, plant.

9 Q. And what responsibilities did that
10 entail?

11 A. I was responsible for the
12 operation of a group of production units in
13 that plant.

14 Q. What did supervision of a group of
15 production units entail?

16 A. I think I can best describe it as
17 saying that this, the kinds of
18 responsibilities I described earlier for the
19 supervisor are picked up by his
20 superintendent and in turn, by the general
21 superintendent, the title of it I had at that
22 time, so this meant that I had the composite,
23 not of just one producing unit, but, as I
24 remember, six or eight of them. In that --
25 at that location.

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1 Q. Earlier, in discussing the
2 responsibilities of the supervisor of the
3 production unit, you identified certain
4 responsibilities, such as quality
5 standards --

6 A. Yes.

7 Q. So would that be one of the
8 responsibilities you would have as the
9 superintendent -- excuse me, as the general
10 superintendent of manufacturing?

11 A. Yes.

12 Q. Cost assessment associate,
13 handling of associated budgets?

14 A. Yes.

15 Q. Safety of employees?

16 A. Yes.

17 Q. Preservation of the facilities?

18 A. Yes.

19 Q. Were PCB's one of the products
20 that were manufactured at the Sauget
21 facility?

22 A. PCB's were manufactured there but
23 they were not my responsibility.

24 Q. Okay. Whose responsibility were
25 they?

1 A. One of the other general
2 superintendents. There were six general
3 superintendents.

4 Q. Okay. How long were you a general
5 superintendent of manufacturing in Sauget?

6 A. About a year and a half, as I
7 remember.

8 Q. So in approximately 1966, you
9 assumed a new title with new
10 responsibilities?

11 A. About '65.

12 Q. About '65? And what was that new
13 title and area of responsibility?

14 A. I was assigned to plant manager at
15 Anniston, Alabama.

16 Q. Okay, and what responsibilities
17 did you have as plant manager?

18 A. I think I can best describe by
19 saying I was responsible for everything that
20 took place at that plant, and not only within
21 the plant fence, but its impact on the
22 community, as well.

23 (Discussion off the record.)

24 (Recess)

25 (The previous question and

1 answer were read by the
2 reporter)

3 BY MR. COHEN:

4 Q. Mr. Papageorge, what do you mean
5 by the phrase "and its impact on the
6 community, as well"?

7 A. It covers a full gamut of actions
8 and reactions. The way that I or my staff
9 would hire people, the salaries, and wages
10 and benefits that were offered to the workers
11 who, in turn, were part of the community, and
12 it impacted the community indirectly, of
13 course. The disposal of wastes had to meet
14 the local ordinances, as specified; the
15 behavior of my truck drivers in maneuvering
16 the local roads and highways, that was
17 important. They represented the company, and
18 the need to participate in local activities
19 such as United Fund charitable contributions,
20 and not only contributing money to these
21 funds, but also contributing help in terms of
22 Monsanto personnel being involved. The
23 cooperation with the, the leaders of the
24 community in terms of governmental affairs,
25 as well as the cultures, the music program

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1 that they wanted to sponsor, and Monsanto
2 would be asked to participate, either by
3 funding or by any other means. I'm sure I
4 didn't cover the whole bit. We had to keep a
5 clean plant.

6 In other words, to summarize it
7 all, we tried to be a respected, good
8 neighbor.

9 Q. As plant manager, to whom did you
10 report?

11 A. I reported to the Director of
12 Manufacturing, located in St. Louis.

13 Q. And who was the Director of
14 Manufacturing?

15 Well, let me ask this first. For
16 what time period were you the plant manager
17 of the Anniston plant?

18 A. 1965 through 1969.

19 Q. During the 1965 to 1969 time
20 period, who was it that you reported to?

21 A. Initially, it was Robert Soden,
22 S-o-d-e-n, and I think after, as I recall, a
23 couple of years later, he was replaced by
24 Raymond Stratmeyer, S-t-r-a-t-m-e-y-e-r.

25 Q. What were the products that were

1 manufactured at the Anniston plant?

2 A. I'll try to remember them all.

3 Q. Well, let me ask this first, then.
4 How many were there, roughly?

5 A. Hmm. A couple of dozen.

6 Q. Okay. Was, were PCB's one of the
7 products manufactured there?

8 A. Yes.

9 Q. What percentage of total product
10 manufactured at the Anniston plant was the
11 PCB production?

12 A. I've never calculated that
13 percentage. The best I can do for you is to
14 estimate. It's roughly a third of the
15 plant's output was represented by the PCB
16 product line.

17 MR. MALIN: Is that in terms of
18 pounds, or volume?

19 THE WITNESS: I'm talking pounds,
20 now, which is the normal way to express
21 chemical production.

22 BY MR. INNELLI:

23 Q. And what was the production
24 capacity of the Anniston plant in terms of
25 total amount of pounds or tons of product

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1 produced?

2 A. I just, I never had that number.
3 I never added up the individual units.

4 Q. For whom was the PCB's
5 manufactured at the Anniston plant?

6 MR. MALIN: I'll object to the
7 form of the question. I don't really
8 understand what you mean.

9 MR. INNELLI: Okay.

10 MR. MALIN: Are you talking about
11 what customers, if he knows?

12 BY MR. INNELLI:

13 Q. Was there a particular customer
14 for whom the Anniston plant produced the
15 PCB's?

16 A. About a thousand of them.

17 Q. Okay, was there a dominant
18 customer, a customer for whom a significant
19 percentage of the total production went to?

20 A. Yes, there was a dominant one,
21 yes.

22 Q. And which customer was that?

23 A. General Electric.

24 Q. Okay. Let's focus in on the
25 production for General Electric. Were the

1 PCB's manufactured for General Electric
2 manufactured pursuant to specifications that
3 were different than the PCB's manufactured
4 for other customers of PCB's produced at the
5 Anniston plant?

6 A. I hesitate because other customers
7 included all types of applications with a
8 different need than the GE people's need so
9 my answer would be yes, they were different.

10 Q. Would the specifications for the
11 production of PCB's for General Electric be
12 provided by General Electric?

13 A. Not for PCB's.

14 Q. Okay. What would be -- were
15 specifications provided by General Electric
16 to Monsanto for the production of a product
17 which utilizes PCB's?

18 A. Yes, but let me correct my
19 previous answer.

20 Q. Okay.

21 A. General Electric, when ordering
22 straight PCB mixtures, expected Monsanto to
23 meet their specifications.

24 Q. Okay. When you used the phrase
25 "straight PCB mixtures," what do you mean?

1 A. These are mixtures in which only
2 those chemicals that can be classified as
3 chlorinated biphenyls are present.

4 MR. INNELLI: Let me hear the
5 answer read back.

6 (The requested portion of the
7 record read by the reporter)

8 BY MR. INNELLI:

9 Q. What do you mean by "those
10 chemicals classified as chlorinated
11 biphenyls?

12 A. It's the material which results --

13 MR. MALIN: If you want, I'll try
14 to describe it.

15 BY MR. INNELLI:

16 Q. Please give me a verbal --

17 A. -- that results when biphenyl,
18 which is a chemical unto itself, is exposed
19 to gaseous chlorine, the chlorine combines
20 with the biphenyl to various degrees in terms
21 of amount of chlorine. That mixture that
22 results from this combination of chlorine and
23 biphenyl, once it's been purified and
24 distilled, is the material I had in mind when
25 I described that mixture classified as

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1 chlorinated biphenyls.

2 MR. INNELLI: Would you read back
3 the preceding answer?

4 (The requested portion of the
5 record read by the reporter)

6 MR. INNELLI: Read back the
7 question and answer three back, four and
8 three back.

9 (The requested portion of the
10 record read by the reporter)

11 BY MR. INNELLI:

12 Q. Mr. Papageorge, what else would
13 straight mixtures of PCB's be mixed with?

14 A. It depends on the final mixture
15 being called for. They could be mixed with
16 mineral oil, phosphate esters, all kinds of
17 liquid chemicals.

18 Q. What GE products are you talking
19 about?

20 A. Oh, you are talking GE products.

21 Q. Yes.

22 A. Oh. GE products that I have in
23 mind are products that are used in electrical
24 equipment.

25 Q. Such as?

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1 A. That contain PCB's and had the
2 trademark, the General Electric trademark of
3 Pyranol.

4 Q. So you would receive from General
5 Electric its specifications for the
6 manufacture of Pyranol?

7 MR. McMANUS: Objection to the
8 form of the question.

9 MR. COHEN: What's the objection?
10 What part are you objecting to?

11 MR. McMANUS: Leading.

12 MR. MALIN: You can answer the
13 question.

14 MR. COHEN: Answer the questions.

15 THE WITNESS: I forgot the
16 question.

17 MR. COHEN: Read the question
18 back.

19 (The requested portion of the
20 record read by the reporter)

21 A. We did receive from General
22 Electric the characteristics, properties that
23 they expected the Pyranol mixture that they
24 were ordering would meet.

25 BY MR. INNELLI:

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1 Q. What was the procedure followed
2 between General Electric and Monsanto for the
3 conveyance of what characteristics you
4 expect -- they expected, GE expected Pyranol
5 to meet?

6 MR. MALIN: I'll object--on the
7 grounds that it's vague to me, but if you
8 think you understand it, go ahead and answer
9 it.

10 A. I think I understand the question.
11 The procedure could vary from time to time,
12 from person to person involved, GE person,
13 Monsanto person. It could be, for example, a
14 case of where the field representative of
15 Monsanto calling the right office at General
16 Electric would talk to the right person and
17 they would discuss the properties required
18 and the recipe for making the mixture, and
19 that person would convey it back to St. Louis
20 and the mixture would be prepared, or it
21 could be a case of a research person at
22 General Electric talking to a research person
23 in Monsanto, and the same kind of dialogue
24 taking place. The net result, however, is
25 that when a given mixture was acceptable to

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1 General Electric, they would be designated by
2 their trademark, Pyranol with a given letter
3 and number designation, and they would
4 forward to Monsanto, eventually the plant
5 would receive the, I'm going to call it the
6 recipe for making it and the conditions which
7 that mixture must meet before it's shipped.

8 EXAMINATION

9 BY MR. COHEN:

10 Q. They start off by giving you a
11 performance specification?

12 A. I would not call it a performance
13 specification.

14 Q. What did they tell you? Did they
15 tell you what they wanted the fluid to do?

16 A. I have a little difficulty with
17 what they wanted it to do, in this
18 application. Are you saying, "We need this
19 fluid to serve as a transformer fluid"?
20 That's one definition.

21 Q. That's a term they may give you
22 that information. The question I'm asking
23 you is, what information did they give you:
24 Physical characteristics, flash point,
25 viscosity?

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1 A. Viscosity, specific gravity,
2 dielectric constant, I've forgotten them all.
3 It's a full page.

4 Q. But they were basically
5 performance requirements that the fluid had
6 to meet?

7 A. I would not call them all
8 performance requirements.

9 Q. Some of them you would call
10 physical characteristics?

11 A. Physical characteristics, yes.

12 Q. Such as flash point?

13 A. And its color, for example, is not
14 a performance so much as it is a physical
15 characteristic.

16 Q. Who determined the combination of
17 chemicals that would constitute the product?

18 A. General Electric.

19 Q. So when you said they gave you a
20 recipe for the product, is that what you are
21 telling us, that they gave you a description
22 of the chemicals that they felt would achieve
23 these performance and physical
24 characteristics?

25 A. That is correct.

1 Q. And then you formulated the
2 compound for them and sent it back to them
3 for tests?

4 A. Yes.

5 Q. Did you test it?

6 A. Yes.

7 Q. What type of testing did you do?

8 A. If the material was intended for
9 use in a capacitor, in some instances the
10 proposed mixture would actually be put in
11 capacitors by Monsanto technical people and
12 tested in Monsanto's lab.

13 Q. So you put it in the capacitor,
14 you'd energize the capacitor, you'd run the
15 capacitor through various cyclings to see if
16 the dielectric fluid reached the performance
17 requirements?

18 A. That is right. Now, this was not
19 done in every case, but enough so that the
20 Monsanto technical group kept up-to-date in
21 this technology. That was the primary
22 purpose for doing it.

23 Q. Monsanto was doing it to find out
24 if the product that they were manufacturing
25 for General Electric, a customer of theirs,

1 was capable of performance different from
2 their own product?

3 A. I don't know what you have with
4 reference with their own product.

5 Q. Well, they sold Aroclors and
6 dielectric fluid.

7 A. Well, yes, to answer to that is
8 yes. The Aroclor product line was different
9 from the Pyranol product line.

10 Q. One was your product, one was GE's
11 product.

12 A. That is true, yes, but one was a
13 mixture of different kinds of chemicals,
14 whereas the Monsanto line was a mixture of
15 the same family of chemicals.

16 Q. Well, when you say a mixture of
17 the same family of chemicals, it was all
18 PCB's that were supposed to be distilled to a
19 point that it reached a certain degree of
20 chlorination. At least you intended it to be
21 all PCB's, didn't you?

22 A. Yes. Yes.

23 Q. You didn't intend it to be
24 anything else?

25 A. That is true.

1 Q. You didn't intend it to contain
2 water?

3 A. True.

4 Q. You didn't intend it to contain
5 any other chemical other than polychlorinated
6 biphenyls?

7 A. Correct.

8 Q. It did contain other chemicals?

9 A. Sure.

10 Q. Sure. It contained dibenzofurans,
11 for example?

12 A. Yes.

13 Q. Chlorinated naphthalenes?

14 A. Yes, plus others we never found.

15 Q. Terphenyls?

16 A. Yes, but these are trace
17 quantities, now. They're not --

18 Q. I understand.

19 A. They're not dominant at all.

20 Q. But you intended it to be, you
21 intended Aroclors to be PCB's.

22 A. Yes.

23 Q. You intended Pyranols to be PCB's
24 and something else.

25 A. Yes.

1 Q. And you are telling me that your
2 research department would then check the
3 performance of Pyranols to stay up-to-date.

4 A. Yes.

5 Q. To what? Find out if Pyranol
6 performed better than Aroclor?

7 A. That's one of their objectives.

8 Q. What were the others?

9 A. The others, to stay abreast of the
10 capacitor manufacturing technologies, because
11 there were changes in the, the craft paper
12 used in the windings, there were new plastic
13 films being evaluated, and I'm not a
14 capacitor designer, but I'm aware that there
15 are changes through time that do take place,
16 and for Monsanto to be a supplier of an
17 ingredient that goes into this product, its
18 technical people were expected to stay tuned
19 in to the evolving technology. How is this
20 new craft paper behaving in the presence of
21 our old product or should we change our
22 product to make the combination better, and
23 so on.

24 Q. So when you told me you were
25 testing the Pyranol, you were testing the

1 Pyranol to see how it performed with changing
2 components of the capacitor or the other
3 device in which the dielectric fluid was
4 ultimately to be used.

5 A. That was, that was one of the
6 programs, yes.

7 Q. And did the same thing with
8 Aroclors, I assume.

9 A. Yes.

10 Q. What were you doing to assure that
11 the Pyranol product you were preparing for GE
12 was the product that GE ordered?

13 A. It met the quality control tests
14 that were run.

15 Q. How do you know that?

16 A. How do I know that?

17 Q. Yes.

18 A. I have -- there were copies of the
19 quality control laboratory results that are
20 certified by the chemist of that laboratory.

21 Q. Starting when?

22 A. Shoot, from the beginning.

23 Q. So as long as you were associated
24 with Monsanto Chemical Company, you ran a QC
25 lab in every production facility in which you

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1 were associated which had certified results?

2 A. Yes.

3 Q. Were they just performance specs,
4 were they meeting performance specs?

5 A. Some I would classify as
6 performance specs, others were physical
7 properties. It depends on the chemical being
8 looked at.

9 Q. Did you do qualitative analysis?

10 A. Well, that is part of the, the
11 quality control --

12 Q. So the answer is yes.

13 A. Yes.

14 Q. Did you do quantitative analysis?

15 A. Yes.

16 Q. Did you keep records of them?

17 A. Yes.

18 Q. Records were kept of the analysis
19 of samples of production product at all the
20 plants with which you were associated since
21 you started in Monsanto?

22 A. Yes.

23 Q. Where are those records?

24 A. I don't know.

25 Q. Did you see them at the time you

1 worked there?

2 A. Certainly.

3 Q. Did they print out what they found
4 in the substance they were testing? Did they
5 keep a record of what they found,
6 qualitatively and quantitatively?

7 A. Yes.

8 Q. So if they sampled a production
9 batch of 1242, they analyzed that it had an
10 overall assay of 42 percent chlorinated
11 polychlorinated biphenyls?

12 A. Well, the evaluation, the
13 information would lead to that conclusion,
14 but the item across the page would not be
15 worded just that way. It would say "Chlorine
16 contents, 42.3 percent," and the standard is
17 minimum 42. There's a double column that
18 it's compared --

19 Q. What's the maximum?

20 A. I've forgotten.

21 Q. All right.

22 A. And when I picked 42, it was --

23 Q. All right, so you had a range?

24 A. Yes.

25 Q. You had an acceptable production

1 range.

2 A. Yes.

3 Q. You would call something Aroclor
4 1242 if it had a degree of chlorination
5 between X and Y?

6 A. Correct.

7 Q. Whatever they were.

8 A. Correct.

9 Q. Maybe 40 to 43 percent or
10 something like that.

11 A. (Nods head in affirmative manner).

12 Q. And what you did is, you sampled
13 the material and you tested it.

14 A. Yes.

15 Q. How often did you sample it?

16 A. Each batch of material that was
17 manufactured was sampled.

18 Q. Each production line run?

19 A. Each production tankful. The tank
20 was held intact until the sample went to the
21 laboratory, the analytical chemist looked at
22 it, and found that it was acceptable, and
23 then that tankful would be transferred to a
24 bigger storage tank and blended with the rest
25 of the production.

1 Q. Tell me about the production
2 process.

3 A. I'm sorry?

4 Q. You were going to say something,
5 sir. Tell me what you were going to say
6 first. Have you finished your answer?

7 A. No, I was going to say that in
8 addition to that quality control check, there
9 is another one taken when the package is
10 filled, whether it be a steel drum of a
11 material, or a tank car or tank truckful.

12 Q. Tank wagon; right. So you would
13 sample the material on its way to the tank
14 wagon the rail car or the barrel?

15 A. Before it leaves the plant, it
16 gets another look.

17 Q. For what?

18 A. For the same properties.

19 Q. So you had a second QC check, same
20 characteristics?

21 A. Correct.

22 Q. So you are looking at physical
23 characteristics and performance specs again.

24 A. Right.

25 Q. Do you keep a record of that?

1 A. Yes.

2 Q. Where?

3 A. I don't know.

4 Q. But as long as you were associated
5 with Monsanto, those records were kept?

6 A. Yes.

7 Q. Tell me about the production
8 process. Did you do this in lots?

9 A. Lots?

10 Q. Lots; some sort of lot of a
11 quantity. Did you, for example, did you --

12 A. Yes.

13 Q. -- induce into the, into the
14 crucible or whatever it was in which you
15 create -- what do you do? You create a
16 vacuum in a chamber and you introduce into
17 that chamber liquid biphenyl and gaseous
18 chlorine?

19 A. Well, I don't know you start off
20 by creating a vacuum. We didn't create a
21 vacuum.

22 Q. You do it in the absence of
23 oxygen, don't you?

24 A. Yes.

25 Q. So you exhaust somehow or another

1 the air that would be in the chamber.

2 A. Right. You bubble some chlorine
3 through it.

4 Q. And that takes the air out.

5 A. And then you pump in the biphenyl
6 right after that.

7 Q. Do you do it in measured lots? In
8 other words, do you introduce a hundred
9 gallons, a thousand gallons, or whatever --

10 A. Yes.

11 Q. -- of biphenyl?

12 A. Each batch, is the expression
13 commonly used, consists of a given amount of
14 material. It's a fixed amount, and that is
15 really selected based on the equipment size,
16 how big a pot are you going to make it in.

17 Q. Okay.

18 A. So there are batches that are
19 designated by number, and you used the word
20 "lot." The "lot" designation was reserved
21 for shipments, packaging the material, so
22 many drums -- it came out of a tank, it was
23 called a lot -- and given a number so you
24 could trace the records back on what day was
25 it packaged, and who packaged it, and what

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1 sample was taken, and who analyzed it, and so
2 on.

3 Q. But those lots already came out of
4 the finished product storage facility?

5 A. Yes.

6 Q. So it's no longer a batch in there
7 anymore?

8 A. Correct.

9 Q. It's now just a storage, a
10 finished product.

11 A. Correct.

12 Q. You dealt with batches, as you
13 called it, by number, in the production
14 process.

15 A. Correct.

16 Q. The production process was not a
17 continuous process then?

18 A. No, I would not call it a
19 continuous process.

20 Q. I mean, it's not like Hershey bars
21 where they just keep injecting chocolate into
22 the mold and they keep dropping on to a tray
23 and keep on going. You had to stop the
24 process when it was finished, take the
25 finished product out, or send it to the next

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1 step, distillation or whatever, and then you
2 could start again by bubbling your chlorine
3 gas into the pot, and then introducing your
4 batch of biphenyl.

5 A. Yes.

6 Q. And that was the process.

7 A. Yes.

8 Q. So you sampled each batch --

9 A. Yes.

10 Q. -- and you kept QC records --

11 A. Yes.

12 Q. And those records exist.

13 A. Existed.

14 Q. Existed.

15 A. I cannot speak for today.

16 Q. When was the first time your QC
17 laboratory tested for impurities or
18 contaminants in the product?

19 A. As best I recall, we started
20 looking for specific contaminants in 1970.
21 Following a report we got from Europe.
22 That's the earliest date that I'm aware of
23 where contaminants were considered, the
24 possibility for the presence of contaminants
25 was considered.

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1 Q. Well, prior to that time, you
2 didn't look for any contaminants or
3 appearance?

4 A. Not as a routine. If the material
5 did not meet the specifications called for,
6 we would suspect that it was contaminated,
7 and in order to purify that bad batch, we
8 would take the necessary steps to identify
9 the contaminant, whether it be water, or
10 metal, iron, or whatever affected it.

11 Q. Something got into it in the
12 process?

13 A. But something got into it. But
14 there were no routine analytical steps taken
15 to look for contaminants, as such.

16 Q. Prior to 1970.

17 A. Well, the research program started
18 in 1970, and I don't know that routine
19 contaminant analyses were ever placed in
20 practice as long as PCB's were manufactured.

21 Q. How did you know what was in the
22 PCB's?

23 A. I'm sorry?

24 Q. How did you know what was in the
25 PCB's prior to 1970?

1 A. Of course, starting in 1968, '69,
2 somewhere in there, when the methodology was
3 available, the analytical chemist was able to
4 identify the different kinds of PCB's by
5 chlorine number, the 1 chlorine, the 2
6 chlorine, and so on. Prior to that, I
7 personally don't know how the chemist could
8 distinguish between the different PCB's in
9 the mixture. They would report the total
10 chlorine in the composite by percent by
11 weight.

12 Q. It was by weight?

13 A. By weight.

14 Q. So if they had 42 percent by
15 weight, that was 1242?

16 A. That's what Monsanto called it,
17 yes.

18 Q. And if they got more chlorine into
19 it, which I gather they were able to control
20 in the production process to some degree, it
21 would be 54, or 60, or 68, or whatever?

22 A. That's correct.

23 Q. You said they did a purification
24 process. After it came out of the pot, it
25 went into a distilling process for

1 purification. What were you distilling off?

2 A. The good material that we wanted.

3 Q. You were taking off the good
4 material, and I guess on the way through the
5 distilling process, you were fractionalizing
6 off and discarding other materials?

7 A. It's the other way around. What's
8 left in the pot after you distill off the
9 vapors and condense them and collect the
10 material you are looking for -- back in the
11 pot, you have what are called still bottoms
12 and they look like road tar. Black, mixtures
13 of many, many chemicals. We haven't analyzed
14 all of them.

15 Q. Never even found out what it was?

16 A. No.

17 Q. So the still bottoms, there's
18 where we're going to find lots of
19 naphthalenes and quarter phenyls, and things
20 like that?

21 A. Your guess is as good as mine.
22 It's a real mixture.

23 Q. What do they do with that?

24 A. That was put in, for some of them,
25 there was a market for it. It was sold as

1 Montar, M-o-n-t-a-r.

2 Q. I remember that name.

3 A. Whereas others were put in

4 Monsanto's landfill; disposed of.

5 Q. Where is that?

6 A. Well, there's at least two of

7 them. One is at the Anniston plant has one,

8 and at the Sauget plant has one.

9 Q. Who determined the process of

10 distillation to yield the purified product?

11 A. The research chemist would

12 establish the conditions under which the

13 distillation should take place.

14 Q. That preceded you?

15 A. Oh, yes, that goes back to 1929 or

16 so.

17 Q. What else were you looking for

18 when you were doing quality control

19 collection on the Pyranol product?

20 A. What else in addition to what?

21 Q. Well, you told me that you were,

22 you were testing the product so that you

23 could stay up-to-date. Why else were you

24 testing it?

25 A. I'm --

1 Q. Have I confused you?

2 A. A little bit.

3 Q. I don't want to confuse you. I'll
4 ask a different question. Let's see if we
5 can get to this one. Were you doing quality
6 control checks on the Pyranol?

7 A. Yes.

8 Q. Were you doing the same sort of
9 analysis on the Pyranol that you were doing
10 on the Aroclor, which is, quantitative and
11 qualitative analysis looking for performance
12 characteristics and physical characteristics?

13 A. Yes.

14 Q. And you did that on a regular
15 quality control basis before the product got
16 shipped to GE.

17 A. Correct.

18 Q. Who put the labels on that said
19 GE?

20 A. The operator assigned the tank car
21 filling function or the drumming function.

22 Q. Somebody in Monsanto?

23 A. Yes.

24 Q. So Monsanto put the GE labels on?

25 A. I don't want any misunderstanding.

1 This is a label that exhibited the GE
2 trademark, with reference to the fact that
3 that trademark is a GE-registered trademark,
4 but it also had on it the Monsanto logo,
5 identifying it, Monsanto, as the source of
6 the material.

7 Q. Who supplied those labels? Do you
8 know? Did GE supply them or Monsanto?

9 A. Monsanto designed the label, got
10 GE's approval, if you will, or concurrence
11 that it was proposed, and then Monsanto would
12 place orders with the, either the in-house
13 printing department or outside shops, to have
14 them printed and then sent to the two plants
15 for use.

16 Q. So when the quantity, a lot,
17 whatever it was, of drums, 55 gallons each,
18 or whatever came down to the property person
19 in the department, if labels got applied?

20 A. Yes.

21 Q. And they went out the door as GE
22 products?

23 A. I have some trouble with the
24 expression, "GE product." It's a product
25 manufactured to GE specifications for use as

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1 GE determined.

2 Q. And sale by GE as they determined.

3 A. Yeah.

4 Q. You didn't control it after that
5 point.

6 A. Once it left the plant gate, we
7 had no control.

8 Q. Was this GE's?

9 A. Unless it was going to a customer
10 of GE's.

11 Q. If they had paid for it,
12 obviously, they owned it, not GE?

13 A. Depending on who ordered it and
14 who paid for it.

15 Q. Okay, fine. Now, let's get back
16 to the recipe issue. What do those recipes
17 look like that GE gave you?

18 A. I don't remember that they took
19 any specific form. It was just a, a listing
20 of the ingredients and the amounts, the
21 ratios of one ingredient to the other to be
22 put together, to form the composite, the
23 desired end product.

24 Q. They didn't tell you how to make
25 it?

1 A. No, they did use a word like
2 "blend in tank" for so many hours.

3 Q. Oh, did they?

4 A. Based on their experience back in
5 their labs. I say hours; minutes, maybe,
6 time period.

7 Q. Well, the question I'm trying to
8 get at is, did they give you the
9 manufacturing process?

10 A. They gave us the blending process.

11 Q. All right, so you call it
12 blending.

13 A. Yeah.

14 Q. That is, you took chemicals, one
15 of which you manufactured called PCB's --

16 A. Correct.

17 Q. -- and one of which you bought
18 from someone else, whatever it was called.

19 A. Yes.

20 Q. And you blended them?

21 A. Yes.

22 Q. And out came Pyranol, or maybe
23 there were two products that you mixed
24 together and got, or three, or four,
25 whatever.

1 A. Yeah. Yeah.

2 Q. But the process of blending, they
3 told you how to do it?

4 A. They told us, they gave us an idea
5 of what they determined in their laboratory
6 was appropriate to reach that end product.

7 Q. Well, did you test that to see if
8 there were better ways to do it?

9 A. Oh, yes. Yes, but the process is
10 so simple and straightforward that there
11 isn't too much that you can introduce in the
12 way of new technology.

13 Q. This is a low-tech job here, this
14 blend?

15 A. It certainly is.

16 Q. Pour 55 gallons of this and 40
17 gallons of that, mix it together, and you
18 come up with "X" percentage of the mixture,
19 or a mixture with "X" percentage of each
20 component.

21 A. That's, that's basically it, yes.

22 Q. But they told you to blend, not
23 how to blend it? They told you how to blend
24 it, GE told you how to blend it? Monsanto
25 didn't decide how to blend it?

1 A. They did, when they conveyed their
2 specifications to us, will describe the
3 simple technology involved. I don't know how
4 else to put it. Yes, they did say blend it,
5 mix it, and take samples, and have it run in
6 the laboratory, and it must meet these specs.
7 If not, you add a little bit more of this or
8 a little bit more of that until it meets it.

9 Q. Do you know if GE ever
10 manufactured Pyranol themselves?

11 A. I understand they did, and they,
12 even when they brought the, bought the
13 finished product, they had the potential, but
14 I have no way of knowing whether they
15 exercised that, of still blending their own.

16 Q. After they bought Pyranol, they
17 could blend it again with something else?

18 A. They could, they had the
19 capability of buying the PCB mixture from
20 Monsanto, and the other ingredients from
21 other companies, in their own facilities and
22 blend their own Pyranol.

23 Q. Got you. They could have bought
24 Aroclor from you?

25 A. Yes.

1 Q. And whatever else they were
2 putting in their mix, hexachlorobenzene or
3 whatever the heck it was, and they could mix
4 it together themselves?

5 A. Correct.

6 Q. Did they do that? Do you know?

7 A. I am under an impression, an
8 understanding that at one time, that's the
9 only way it was done. Then Monsanto picked
10 up some of it and both were doing it. I have
11 no way of knowing when, if ever, GE phased
12 out of the blending altogether.

13 Q. But you, Monsanto, most certainly
14 blended this product for GE for a period of
15 time.

16 A. Yes.

17 Q. They never gave you a, what I
18 would consider a standard manual that
19 contained manufacturing processes for the
20 creation of Pyranol?

21 A. I have not seen anything like
22 that.

23 Q. You did, however, have your own
24 standard process manual for the manufacture
25 of the Aroclors?

1 A. And the Pyranols.

2 Q. Was that like the manual that was
3 prepared for the Aroclors, or was it as you
4 described, a low-tech operation that -- sort
5 just of a little pamphlet?

6 A. Well, the intent is identical; the
7 degree of complexity is different. One is
8 the size of a big telephone book and the
9 other is a thin pamphlet, because of the
10 difference in what's required.

11 Q. So the GE manual doesn't, as the
12 Aroclor manual would be, start off with
13 chlorine gas and a large pot, and introduce
14 biphenyl, but rather it starts off with,
15 start off with Aroclor 1242 and add the
16 following, or something to that effect?

17 MR. McMANUS: I object to the term
18 "GE manual."

19 BY MR. COHEN:

20 Q. You know what I meant; the manual
21 for the GE product.

22 A. This is the Monsanto manual to
23 guide the operators on how to produce a
24 product specified by General Electric.

25 Q. Right. But in that manual, you

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1 don't start off with how you make Aroclor.

2 A. No.

3 Q. You start off with Aroclor.

4 A. Of a given quality. And
5 chlorobenzene of a given quality, and so on,
6 and you'd blend them in given amounts.
7 That's all.

8 Q. What I'm trying to understand is,
9 that GE never gave you instructions in the
10 detail for the blending of their product that
11 was like the manual you had yourselves for
12 the manufacture of Aroclor.

13 MR. MALIN: Object to the form of
14 the question because I don't understand it.

15 MR. COHEN: I'm sorry you don't
16 understand it.

17 MR. MALIN: He's testified the
18 manufacture of Aroclor involves a chemical
19 process where you actually combine atoms, and
20 the GE manual was merely taking
21 already-combined chemicals and mixing them
22 together, forming nothing more than a blend.

23 MR. COHEN: So what's your
24 objection? Are you saying they couldn't give
25 them a book that said start at the beginning,

1 start with chlorine gas?

2 MR. MALIN: No, the two are not
3 equatable as manuals, so I don't understand
4 the question.

5 MR. COHEN: Well, I'm trying to
6 find out whether they ever gave them
7 instructions that would have essentially
8 taken them back to step 1.

9 MR. MALIN: On how to make
10 Aroclors.

11 MR. COHEN: Right.

12 A. No.

13 MR. MALIN: Okay.

14 BY MR. COHEN:

15 Q. Let me show you a document, sir,
16 that has been marked on more than one
17 occasion. We'll make a copy that we can mark
18 here today. Have we marked anything yet with
19 you?

20 This is Papageorge 1. Papageorge
21 1 also known as a/k/a, Kelly 3, a/k/a Kaley
22 something or another. We'll mark it.

23 (Papageorge Deposition
24 Exhibit 1 marked for
25 identification.)

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(Witness peruses said
document.)

BY MR. COHEN:

Q. Did you ever see anything like
that before?

A. This is the first time I've seen
this document.

Q. That particular document?

A. Yes.

Q. Okay, have you ever seen anything
like that before where they gave you
information that they wanted this material
blended like that?

A. I have seen information that gave
me the essence of their needs, whereas this
document seems to show the changes in
mixtures through a period from 1932 to '76.

Q. And that refers, apparently, to a
number of General Electric plants. Those are
not Monsanto plants identified there, are
they?

A. There are four plants listed here
that are, I have to assume they are General
Electric. They are not Monsanto.

Q. That's my question. But what I'm

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1 asking you, sir, is whether they gave you
2 information in the form of a request for a
3 blend that looked like this, such as, "Make
4 us a product that we're going to call Pyranol
5 1488 that's 60 percent Aroclor 1260 and 40
6 percent tetrachlorobenzene"?

7 A. Yes.

8 Q. And/or make us a product that
9 we're going to call 1467 which is 60 percent
10 Aroclor 1260, 40 percent tetrachlorobenzene,
11 and let's see, what is that, "point"
12 one-eighth of one percent, I guess that is,
13 tin tetraphenyl.

14 A. (Nods head in affirmative manner).

15 Q. They gave you specs like that?

16 A. Yes.

17 Q. You know that adds up to over a
18 hundred percent?

19 A. It's supposed to add up to a
20 hundred.

21 Q. Well, it adds up to a hundred and
22 an eighth.

23 A. Well, okay.

24 Q. Just push the barrel, the bungs
25 down on the barrel, I guess.

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1 Well, let's show you this document
2 which we'll mark as Papageorge --

3 MR. COX: Just a moment. Before
4 you pass Papageorge 1, did that document have
5 a title on it?

6 MR. COHEN: "Pyranol Compositions,
7 General Electric Company, 1932 to 1976."
8 This will have a label on it that will say
9 Papageorge 1 and be attached to the
10 deposition transcript.

11 There'll be no question that this
12 was Papageorge 1; is that right, Mr. Jordan?

13 BY MR. COHEN:

14 Q. Now let's look another at document
15 which we're going to mark as Papageorge 2.

16 (Papageorge Deposition
17 Exhibit 2 marked for
18 identification.)

19 (Witness peruses said
20 document.)

21 THE WITNESS: I've reviewed.

22 BY MR. COHEN:

23 Q. Have you ever seen anything like
24 Papageorge 2 before?

25 A. Yeah, I recall seeing a similar

1 type of document, yes.

2 Q. What you are saying is you are not
3 sure you saw this one but you saw something
4 like it.

5 A. Correct.

6 Q. What is it? How would you
7 describe it for us?

8 A. I would describe this as a copy of
9 a Westinghouse Electric Corporation
10 specification for one of the, of their
11 products which they call Inerteen, which they
12 expect to meet the listed properties to be
13 conducted under a specified procedure, ASTM
14 D-901.

15 Q. The testing is to be conducted
16 under ASTM 901.

17 A. Correct.

18 Q. To make sure that in accordance
19 with that test protocol, these properties,
20 physical and chemical, and electrical, are
21 met.

22 A. Correct.

23 Q. Did GE give you a document like
24 that for Aronols, too?

25 A. Yes.

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1 Q. So in addition to seeing a
2 document that contained information like the
3 information contained on Papageorge 1, GE
4 also gave you a document that contained
5 information like the information contained on
6 Papageorge 2?

7 A. Yes.

8 Q. And then you went about blending
9 the product and testing it to make sure that
10 in accordance with their request, it met
11 these qualifications? Or that it had these
12 properties, if you will?

13 A. Yes.

14 MR. COX: I would like the record
15 to reflect something. You identified
16 Papageorge 1 as Kaley Exhibit 3. Kaley
17 Exhibit 3 was a multipage document.
18 Papageorge 1 is a one-page document.

19 MR. MALIN: Well, he wasn't sure
20 if he said Kaley 3 or Kaley 4. I don't think
21 Mr. --

22 MR. COX: It's a piece of Kaley 3.
23 BY MR. COHEN:

24 Q. How often did you test the
25 production of the Pyranol or the Inerteen to

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1 assure yourselves and your customers,
2 Westinghouse and GE, that the product met the
3 properties specified?

4 A. As I indicated earlier, they were
5 tested when the particular batch of material
6 was prepared, and they were tested again
7 before the material was shipped.

8 Q. Same process as Aroclor, then?

9 A. Yes.

10 Q. Every batch got tested by that QC
11 lab?

12 A. Yes.

13 Q. And if I understand your testimony
14 correctly, no one ever tested still bottoms?

15 A. I don't know that I said that.

16 Q. Well, don't let me put words in
17 your mouth. Please tell me, did you the test
18 still bottoms?

19 A. No one tested still bottoms to
20 determine its exact composition. They were
21 tested to meet some very basic properties,
22 and I don't claim to remember them all but I
23 do know that they did test for such things as
24 its viscosity and its -- I forget the
25 expression now, the point at which it

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1 hardens, the temperature at which it softens,
2 the softening point, I think that's the right
3 expression, and its gravity, how heavy is it.

4 Q. Specific gravity?

5 A. Specific gravity. I believe those
6 were the three basic characteristics that
7 were tested for that Montar that was sold.

8 Q. What was Montar used for to your
9 understanding?

10 A. I understand it was used in some
11 roofing tar compounds, it was used to some
12 degree in some road as fault blends, some of
13 it ended up in some of the old asphaltic
14 tiles used on floors, asphalt-based tiles. I
15 don't propose to know all the uses but those
16 are examples of those that I recall.

17 Q. After the mid to late Sixties when
18 you developed the analytical ability, did
19 anybody test Montars to see what was in it?

20 A. No, because those analytical
21 abilities were specific to PCB's, not to this
22 unknown mixture of the Montars.

23 Q. What was it about the analytical
24 ability that restricted them to PCB's?

25 A. Oh, it's, has many facets to it.

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1 One is how the sample is prepared, what is
2 used in the gas chromatograph to absorb the
3 material -- I'm not an analytical chemist but
4 I'm sharing with you my understanding --

5 Q. I'm not an analytical chemist,
6 either, so I'll take it for what it's worth.

7 A. How it responds as this material
8 flows through it and graphs the peaks and
9 valleys on a chart, those were all a result
10 of a very complicated and
11 specifically-designed procedure, tested over
12 and over again to determine its specificity
13 to PCB's, and it would not apply to an
14 unknown chemical "X" that might exist in the
15 Montars. The graph that would come out would
16 be just meaningless.

17 Q. So in other words, in the mid to
18 late Sixties, the gas chromatograph was being
19 used to now analyze or a procedure had been
20 developed using gas chromatography to analyze
21 a compound for PCB's, for PCB content?

22 A. Gas chromatography was used for
23 other chemicals, not just PCB's. An example
24 is DDT.

25 Q. And it predated the late Sixties.

1 A. Oh, yes, but the technology
2 continues to this day to be improved, so more
3 and more chemicals are being studied that
4 way.

5 Q. And to greater and greater degrees
6 of sensitivity or detection limits.

7 A. Correct.

8 Q. But by the Sixties, sometime in
9 the Sixties, late Sixties, the procedure as
10 you described it for detecting and
11 quantifying PCB's had emerged?

12 A. That is correct.

13 Q. Has anyone ever attempted to
14 analyze the Montars to find out what's in
15 them?

16 A. Not to my knowledge.

17 Q. Let's go further. I said Montars.
18 The still bottoms.

19 A. Not to my knowledge.

20 Q. And that's true to this date?

21 A. As far as I know.

22 Q. But Montar was sold as a product?

23 A. Yes.

24 Q. And other than the characteristics
25 that you described earlier, its content was

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1 unknown?

2 A. Basically so, yes.

3 Q. As a chemist, sir, prior to 1970,
4 could you have determined, knowing the
5 ingredients that make up polychlorinated
6 biphenyls, and knowing the process of
7 manufacturing polychlorinated biphenyls, that
8 polychlorinated dibenzofurans could be formed
9 in the manufacturing process?

10 MR. COHEN: Hold that thought.

11 (Pause for telephone call.)

12 MR. MALIN: I'm going to object to
13 the question as speculative, but I'm going to
14 permit the witness to answer it.

15 MR. COHEN: Thank you.

16 MR. MALIN: And the witness has
17 not testified that he is a chemist. He's a
18 chemical engineer.

19 (Pause)

20 (Recess)

21 A. I'm not a pure chemist. I do have
22 basic chemical knowledge. You are asking me
23 to speculate, frankly. I know the process,
24 having lived with it, in a sense. I just
25 cannot, in an intellectual fashion, believe

1 that the presence of oxygen is of such an
2 order of magnitude, and that the conditions
3 are such that the furans you mentioned or
4 other oxygen-containing compounds --

5 BY MR. COHEN:

6 Q. Such as dioxins?

7 A. Well, no, there's phosgene. You
8 could go in, you could fill an
9 encyclopedia --

10 Q. There's quite a number?

11 A. -- with all kinds of combinations
12 of carbon, hydrogen and oxygen. It just
13 would have been difficult to intellectually
14 accept the concept that yes, you are forming
15 some oxygen compounds in this particular tank
16 under these conditions. No, I would not have
17 arrived at that speculative point.

18 Q. So from your understanding of
19 chemistry, the chemical you were
20 manufacturing and the process involved prior
21 to 1970, you would not have suspected that
22 you would be forming oxygen-containing
23 compounds such as furans?

24 A. That is true.

25 Q. There was, however, from time to

1 time, testing done for water in the -- as a
2 contaminant of the PCB's?

3 A. Yes, but this is in a cold batch
4 in a tank with water condensation coming,
5 falling off the side of the tank into the
6 material, not in the process.

7 Q. Not in the process batch?

8 A. No.

9 Q. You aren't looking for water in
10 the process batch?

11 A. No, at 400 degrees Fahrenheit you
12 wouldn't expect water to survive.

13 Q. I see.

14 What steps did you make or add to
15 your quality control procedures subsequent to
16 the ability to analyze with the gas
17 chromatograph, the product?

18 MR. MALIN: Object to that
19 question on the grounds I really don't
20 understand it.

21 MR. COHEN: Well, let's ask it
22 this way.

23 BY MR. COHEN:

24 Q. Did you make any changes to your
25 QC procedures?

1 A. At the time this material was
2 detected in Monsanto's product, I was no
3 longer involved with the PCB issue. I do not
4 know what took place in the operation since
5 then.

6 Q. You are talking about when the
7 furans were discovered.

8 A. Yes.

9 Q. I'm speaking of the time when the
10 process or procedure was developed for using
11 gas chromatographs to analyze PCB's were
12 developed in the late Sixties, what changes
13 did you make in your QC procedures, if any?

14 A. None.

15 MR. MALIN: I'll object -- all,
16 right, never mind. My objection is that you
17 are saying using the gas chromatograph to
18 analyze PCB's. It was to analyze for PCB's,
19 is my understanding, unless that's incorrect.

20 BY MR. COHEN:

21 Q. To determine the presence of the
22 PCB's and the particular, I guess the
23 particular PCB compound that you were
24 detecting; is that correct? Is that a
25 correct way of saying it?

1 A. I understand it, yes.

2 Q. You understand it, I understand

3 it.

4 A. Yeah.

5 Q. I think we're talking about the

6 same basic terms. And to your knowledge no

7 changes were made in the QC procedures?

8 A. No.

9 Q. Either on the Aroclor product or

10 the Pyranol product or the Inerteen product?

11 A. That is correct.

12 Q. Subsequent to the time when the

13 gas chromatograph was further developed to

14 detect the presence of the furans, what, if

15 any, changes were made in your QC procedures?

16 A. I don't know of any personally,

17 but as I indicated earlier, I was not

18 directly involved any longer.

19 Q. Do you know whether furans were

20 found in the Aroclor product?

21 A. Yes, I do.

22 Q. Were they?

23 A. Yes.

24 Q. And in what quantities? Do you

25 know?

1 A. As I remember, it was the low,
2 very small quantities. I don't remember the
3 numbers.

4 Q. Do you remember when they first
5 detected furans in the PCB's, Aroclors: Not
6 just any PCB's, your PCB's, Aroclors?

7 A. Yes, it was, it was detected by an
8 outside laboratory in late 1975 and found and
9 detected by Monsanto's analytical experts in
10 about March or so. At least, it was reported
11 March or so of 1976.

12 Q. Who was the expert in Monsanto who
13 found it? Do you know?

14 A. It was either Dr. Kaley or his
15 predecessor. There was a change taking place
16 in personnel at about that time.

17 Q. What did Monsanto Chemical Company
18 know about the toxicity of the tri- and
19 tetrachloro benzenes that they were blending
20 with Aroclors to produce Pyranol?

21 A. I cannot speak for Monsanto's
22 Medical Department and their total knowledge
23 of these materials. I can only speak from
24 the plant standpoint, where we handled the
25 material and we were informed to respect it

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1 in exactly the same way we respected the
2 PCB's and the benzene, and other materials of
3 that type.

4 Q. How about the tin tetraphenyl?

5 A. I know nothing about it.

6 Q. What were the other ingredients in
7 Inerteen other than PCB's? Do you know?

8 A. They also contained chlorinated
9 benzenes and they also contained an
10 ingredient that acted as a chlorine
11 scavenger, referred to by the acronym "PPO."

12 Q. PPO?

13 A. Yes. I've forgotten, it's -- I
14 forgot, some kind of oxide, propylene, phenyl
15 oxide, or -- I'm guessing, so --

16 Q. What were the chlorobenzenes that
17 were used in the Inerteen? Do you know?

18 A. Tri- and tetrachlorobenzene.

19 Q. Were they in the same or similar
20 quantities in the mix as in the Pyranol
21 product?

22 A. There were some similarities, but
23 I don't know if they were exactly the same
24 ratios.

25 Q. You have no recollection of what

1 the ratios were in the mix?

2 A. No, I don't recall. In my mind, I
3 can't distinguish between the Pyranol and the
4 Inerteen ratios.

5 Q. Now, about the time that this
6 analytical process developed in the late
7 Sixties for detecting PCB's, apparently PCB's
8 were found to have gotten in, somehow or
9 another gotten into the environment. Is that
10 correct?

11 A. Yes.

12 Q. Are you aware of any information
13 that Monsanto had that would have indicated
14 that the substance was or could have been
15 getting into the environment prior to that
16 time?

17 A. Yes, we were aware that there were
18 occasional spills that would find their way
19 into the environment, yes, just like many
20 other industrial chemicals. It was not a
21 case of every molecule was accounted for, no.

22 Q. Well, you were selling the
23 Aroclors in barrels that were going out the
24 door, and in fact, in tank cars and tank
25 wagons.

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1 A. Yes.

2 Q. Where was it going? Do you know?

3 A. You mean geographically, or use

4 applications, or --

5 Q. Yes, use applications.

6 A. Whew, hundreds of uses. All

7 kinds. About half of it was in what we

8 perceived to be closed systems.

9 Q. Transformers, capacitors and the

10 like?

11 A. And the like. The other half were

12 later described as open systems. The use in

13 caulking around skyscraper windows, the use

14 in adhesives, the use in paints, use in the

15 carbonless copy paper.

16 Q. Plastics?

17 A. I'm sorry.

18 Q. And in plastics?

19 A. And plastics, to soften, make them

20 pliable, yes.

21 Q. Also used in hydraulic oils?

22 A. Industrial hydraulic fluid, yes.

23 Q. Did you consider that open or

24 closed?

25 A. Well, we considered those closed

1 systems at the time.

2 Q. Although they tended to lose quite
3 a bit of fluid, I gather.

4 A. Well, it depended on the attention
5 given to the systems, the amount of
6 maintenance.

7 Q. Were you aware of its use in
8 transformers on rail cars?

9 A. Yes.

10 Q. Did you have any knowledge about
11 the particular vulnerability of transformers
12 mounted on rail cars?

13 A. No.

14 Q. Were you aware that those
15 transformers were frequently damaged by
16 accident, by objects striking them otherwise?

17 MR. MALIN: Object to the form of
18 that question.

19 A. No.

20 BY MR. COHEN:

21 Q. Were you aware that the product
22 was being sold as replacement fluid to fill
23 up transformers in rail cars?

24 A. Yes.

25 Q. GE was a customer for that use,

1 also?

2 A. Yes.

3 Q. Other manufacturers of rail cars

4 were customers, also?

5 A. Manufacturers of rail cars?

6 Q. Yes.

7 A. Customers? I don't recall seeing

8 their names on a customer list.

9 Q. GE made rail cars; did you know

10 that?

11 A. No, I didn't.

12 Q. How about the Budd Company?

13 A. I don't recall seeing the Budd

14 Company listed.

15 Q. How about railroads, themselves:

16 Were you aware that they were buying the

17 product?

18 A. I was aware of shipments made to

19 addresses referring to railroads.

20 Q. Such as Penn Central?

21 A. I don't recall it specifically. I

22 remember railroads being mentioned as a ship

23 to, as distinguished from bill to, to the

24 order that would be placed by, say, GE, to be

25 shipped to a site where it would be used.

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1 Q. Do you know what the use was at
2 that site, that remote location?

3 A. It was a transformer fluid.

4 Q. Did it occur to anyone at the time
5 that that transformer should have had fluid
6 in it already?

7 MR. MALIN: I'll object to the
8 form of that question. I don't understand
9 it.

10 BY MR. COHEN:

11 Q. You understand it?

12 A. That's almost a given. A
13 transformer that's in service --

14 Q. Has fluid in it.

15 A. -- has fluid in it. The fact that
16 more fluid is ordered could indicate many
17 conditions for its need. It does not clearly
18 define what happened to the old fluid.

19 Q. To your knowledge, did anyone in
20 Monsanto prior to 1970 question what was
21 happening to the fluid?

22 MR. MALIN: Object to the form of
23 that question because I don't know what you
24 mean by what was happening to the fluid, or
25 what fluid you are talking about.

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1 BY MR. COHEN:

2 Q. Do you understand what I am

3 speaking of, sir?

4 A. I think I do. I'm assuming you

5 are referring to the, the original fluid.

6 Q. Right, the transformer was sold

7 with fluid.

8 A. This is no different than any

9 other transformer application. I cannot

10 speak for others in Monsanto as to whether

11 the question rose in their minds as to what's

12 happening. I don't know that.

13 Q. Tell me what you knew about, prior

14 to 1970, with respect to any concern within

15 the Monsanto Chemical Company as to the

16 ultimate disposition of the PCB's that were

17 being sold as dielectric fluids.

18 A. What did I know prior to 1970?

19 Nothing.

20 Q. Did you ever hear the subject

21 discussed?

22 A. Not in my presence, no.

23 Q. What information did you have

24 regarding the toxicity of the substance prior

25 to 1970?

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1 A. Of which substance?

2 Q. PCB's, the dielectric fluids.

3 A. PCB's, themselves.

4 Q. The fluids, yes, right. Aroclors.

5 A. I described it earlier, the effect

6 on human beings and the prolonged, high-level

7 exposure and the eventual damage to the

8 liver. That's what I knew about the effects

9 on humans.

10 Q. Did you know of any potential

11 effects on the environment?

12 A. Not prior to '69.

13 Q. That was when the Jensen and

14 Widmark material became well-known?

15 A. That's when I first heard about

16 it. The Jensen report was issued in December

17 1966, as I recall, under some doubts

18 regarding the findings and the conclusions,

19 but that's the first report.

20 Q. So would it be fair to say that

21 prior to that time, you personally had no

22 knowledge that this material was out there

23 and affecting the environment in any way

24 whatsoever?

25 A. That is correct.

1 Q. Did you ever hear it discussed
2 within Monsanto that the material was out
3 there and could be affecting the environment?

4 A. No such discussion was held to my
5 knowledge.

6 Q. Prior to the mid Sixties, were the
7 still bottoms being buried in a landfill?

8 A. Yes.

9 Q. Do you know how they were packaged
10 for burial?

11 A. Yes.

12 Q. How?

13 A. Steel drums, and then they were
14 placed in a hole dug in the landfill, stacked
15 and buried.

16 Q. Right against the earth or was it
17 in some sort of vault?

18 A. Against the earth.

19 Q. Did you ever hear any concern
20 expressed regarding any effect on the
21 environment as a result of those still
22 bottoms being stored in that way?

23 A. No, they were just like the
24 blacktop roadway, hardened inside these steel
25 containers, and the site was perceived to be

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1 appropriate in that there was no water
2 flowing through it, no ground water,
3 underground water, so we believed that that
4 was a responsible way to dispose of it.

5 Q. Let me show you a document that we
6 marked yesterday as Kelly 25. It consists of
7 six pages, although I believe that it's
8 actually two sets of the same three pages.

9 MR. COHEN: If you could mark this
10 as Papageorge 3.

11 (Papageorge Deposition
12 Exhibit 3 marked for
13 identification.)
14 (Witness peruses said
15 document.)

16 BY MR. COHEN:

17 Q. Do you recognize those documents
18 that have now been marked as Papageorge 3.

19 A. This is the first time I've seen
20 these documents.

21 Q. Do you know what they are?

22 A. Well, I don't know where they came
23 from or who put them together, but they
24 describe some analytical results.

25 Q. But it's not a form of a document

1 that you recognize?

2 A. That is correct.

3 Q. Did you, during the time period
4 that's reflected on these documents, which
5 would be in 1973, have occasion to see any of
6 the quality control documents that resulted
7 from the sampling of production material of
8 Aroclors?

9 MR. MALIN: Objection to the form
10 of the question; the time period does not
11 necessarily mean these documents are 1973
12 documents. It only says production date of
13 an Aroclor in '73, it doesn't say anything
14 about when they were analyzed.

15 Answer the question if you think
16 you understand it, though.

17 THE WITNESS: I've forgotten the
18 question.

19 MR. COHEN: Mr. Reporter.

20 (The requested portion of the
21 record read by the reporter)

22 A. During 1973, on occasion, I would
23 get to see documents that reflected the
24 quality control activities at the two plants.

25 BY MR. COHEN:

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1 Q. Did they look like these?

2 A. No.

3 Q. Now, Mr. Malin has suggested the
4 possibility that the samples were produced in
5 October of '83 but analyzed at some later
6 date. Were samples of production material
7 saved in some way to identify them to a
8 particular production date beyond the
9 immediate post production period?

10 A. Yes.

11 Q. How long were they saved?

12 A. Whew. It varied from chemical to
13 chemical. I've forgotten -- for PCB's, I
14 think they were kept for about ten years or
15 so. There is a sample storage room.

16 Q. And how were they kept?

17 A. In the glass bottle.

18 Q. So it would be glass bottles lined
19 up on shelves, indicating production dates,
20 and --

21 A. Well, it would be by lot number
22 and the lot number, then, is listed on
23 another document that ties it into a date, a
24 plant, and the operator that took the sample.

25 MR. COHEN: Bear with me one

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1 second.

2 (Pause)

3 BY MR. COHEN:

4 Q. Subsequent to the various events
5 that occurred in the mid to late Sixties
6 regarding, first, the ability to detect the
7 presence of PCB's using gas chromatography
8 and then later, the ability to detect it in
9 the environment, were you involved in any way
10 with Monsanto in dealing with the problem of
11 the presence of PCB's in the environment?

12 A. No.

13 Q. Did you ever get involved in
14 something -- there apparently was a monthly
15 report published called the "PCB
16 Environmental Problem Status Report"? Do you
17 recall that?

18 A. I recall similar reports. I don't
19 know which one you have in your hand, there.
20 If I could see it, I could identify it.

21 Q. Do you recall seeing such reports?

22 A. May I see it so I can --

23 Q. Well, I guess what I'm trying to
24 determine is, were you involved in any
25 organized activity within the company in

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1 trying to deal with the problem of
2 environmental contamination of PCB's -- by
3 PCB's?

4 A. But you had prefaced your previous
5 question with prior to the late Sixties and
6 the development of the methodology.

7 Q. I'm sorry. Did I say prior?

8 A. That's what I thought.

9 Q. I meant subsequent.

10 A. I heard "prior" but maybe.

11 Q. My apologies, sir.

12 A. All right; subsequent to it?

13 Q. Yes.

14 A. I was involved, yes.

15 Q. Yes. Would you tell me about that
16 involvement? What happened inside the
17 company? How did you get tapped for the job,
18 and what was your job?

19 A. Starting in January 1st, 1970, I
20 was asked to take over a new, newly-formed
21 job with the title of Manager, Environmental
22 Control.

23 Q. Manager?

24 A. Manager, Environmental Control, to
25 help in coordinating the activities within

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1 Monsanto and Monsanto and the -- its
2 customers, and the governmental agencies, and
3 universities, other laboratories, to assure
4 as much as we could that the information
5 regarding PCB's was accurate, scientifically
6 sound, and that PCB's, if in use, would be
7 properly handled to prevent entry into the
8 environment. That was roughly my assignment.

9 Q. What did you do to carry out that
10 assignment?

11 A. Oh, I initially had, of course, to
12 familiarize myself with as much as I could
13 regarding all the facets of this problem,
14 including the health effects, the
15 environmental effects, the uses, the amounts
16 involved, the types of customers, the other
17 producers throughout the world, what the
18 governmental agencies knew about it or wanted
19 to know about it, the state of the art
20 regarding analytical methods. Once I did
21 that, then I found myself really serving as a
22 communications focal point where inquiries
23 coming into Monsanto would flow through my
24 office, I would sort of, if it was within the
25 realm of my expertise, I would respond. If

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1 not, I would ask the proper person within
2 Monsanto and elsewhere to respond. For
3 example, if it's a medical question, I'd go
4 to Monsanto's Medical Department. If it was
5 an analytical question, I'd go to the
6 analytical research chemist. I could handle
7 the manufacturing part fairly well, so I
8 guess I really served as the person who tried
9 to let the left hand know what the right was
10 doing, no matter whose arm it was, whether it
11 be government, or Monsanto, or Monsanto's
12 customer, or a university lab, or a foreign
13 producer.

14 Q. When you said if you had a medical
15 question, you went to the Medical Department,
16 who would you go to in the Medical
17 Department?

18 A. I would try to reach Dr. Kelly,
19 preferably, and in his absence, I would go to
20 his assistant, Mr. Elmer Wheeler. Of course,
21 if Mr. Wheeler wasn't available, I'd then
22 have to rely on others on the staff that were
23 available at the moment. If not, I would
24 have to ask the person making the inquiry to
25 wait until I caught up with the right people.

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1 Q. How long did you carry out this
2 role as sort of the communications focal
3 point?

4 A. From 19, starting in 1970 through
5 February '76.

6 Q. And what happened in '76?

7 A. I was assigned to a different part
8 of Monsanto, organizational part, which was
9 not involved with PCB's, and the PCB
10 assignment was transferred to another person.

11 Q. Who was that?

12 A. J. C. Weber.

13 Q. And what's the "J" stand for?

14 A. I honestly don't know. The middle
15 name was -- he went by Cole, C-o-l-e, Cole
16 Weber. I don't know what the "J" stands for.

17 Q. And do you know where Mr. Weber is
18 today?

19 A. I do not.

20 Q. How long did he stay in the employ
21 of Monsanto, to your knowledge?

22 A. I really don't know.

23 Q. Now, if you had a question
24 regarding toxicology or the toxicologic
25 properties of PCB's, who would you go to?

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1 A. I'd go to Mr. Wheeler.

2 Q. And why would you go to Wheeler

3 instead of Kelly?

4 A. Well, Mr. Wheeler was designated

5 by Dr. Kelly as the person who would manage

6 and monitor toxicology studies placed with

7 private laboratories, so it was Mr. Wheeler's

8 responsibility to stay abreast of

9 developments, so he was the most

10 knowledgeable person regarding details of

11 these studies.

12 Q. How about Levinskas?

13 A. Dr. Levinskas joined the Medical

14 Department, I'm going to say, about 1973-ish,

15 '72, '73. He came along later, but I still

16 relied on Mr. Wheeler as my principal

17 contact.

18 Q. And you started this activity in

19 the beginning of 1970?

20 A. Yes.

21 Q. Do you recall preparing a document

22 which was, "Management Plan, Polychlorinated

23 Biphenyl Environmental Problem"?

24 A. Yes, I do remember that.

25 Q. And was that sort of the genesis

1 of the efforts that were made within the
2 company for dealing with this problem?

3 A. I wouldn't define it as the
4 genesis. This is more a, an attempt to
5 summarize the thinking then prevailing in
6 Monsanto in preparation for a recommendation
7 to the top officials in the company for
8 actions to be taken.

9 Q. Did you begin, amongst other
10 things, monitoring the discharge of PCB's
11 from the various production facilities of
12 Monsanto?

13 A. Yes.

14 Q. And what did you discover?

15 A. We discovered that our wastes
16 coming from the two producing plants did
17 contain PCB's. Waste water.

18 Q. In what quantities?

19 A. Oh, I forgot the numbers. They
20 were, by today's standards, pretty high parts
21 per million.

22 Q. Do you know the source of the
23 waste water?

24 A. I'm sorry?

25 Q. Do you know the source of the

1 waste water in the plant?

2 A. In the plant? It was primarily
3 one of hosing down the floors in sort of an
4 attempt to keep the place fairly clean. That
5 would be the principal source.

6 Q. So the principal source of the
7 PCB's in the plant would have been a
8 production facility which dripped on the
9 floor which then was hosed down into drains
10 in the floor that ran into the sanitary sewer
11 from the facility, itself.

12 A. That is a good description, yes.

13 Q. So then that waste water combined
14 with other waste water from the plant would
15 enter into the public stream, sewerage stream
16 or discharge into rivers, whatever the
17 particular arrangements were, and it was in
18 those discharges that you found the
19 quantities of PCB's?

20 A. When you say those -- it was in
21 the discharge leaving the Monsanto site,
22 headed for the municipal treatment plant that
23 was sampled.

24 Q. So you were sampling it before it
25 went?

1 A. Before it went to the municipal
2 plants? In both situations, they went to
3 municipal treatment plants.

4 Q. When I referred to status reports,
5 monthly status reports, you, in fact, were
6 the author of those status reports, at least
7 during part of the time in 1970, were you
8 not?

9 A. Yes. I was the author of a series
10 of status reports. I don't know that there
11 are any other authors. I was the author.

12 Q. What was the information that you
13 were trying to communicate with those status
14 reports?

15 A. The intent of that report was to
16 communicate to the Monsanto people involved
17 with PCB's the activities as reported by each
18 of the functions within Monsanto so that
19 again, the left hand knew what the right was
20 doing, so the marketing man knew what the
21 research man was doing and thinking and vice
22 versa.

23 Q. You included within that report a
24 legal report on a monthly basis?

25 A. There was a contribution by the

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1 legal representative, yes.

2 Q. And this information then came to
3 you and you included it in the report for
4 Monsanto officials?

5 A. Yes.

6 Q. And what information did you
7 intend to communicate in the legal section of
8 the report?

9 A. Whatever the legal guy gave me. I
10 did the paste work. I just clipped out his
11 paragraph.

12 Q. But he sent these memos, you cut
13 them all up, put them together?

14 A. Put 'em together, and the
15 secretary typed it up and distributed it. I
16 had --

17 Q. What sort of information did he
18 give you? What was he telling you was
19 happening?

20 MR. MALIN: Hold on a moment.

21 (Inaudible discussion between
22 Mr. Malin and the witness.)

23 MR. MALIN: Well, I'm going to
24 object to that question and direct him not to
25 answer. That's privileged information.

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1 MR. COHEN: You are claiming
2 privilege to what? Was legal advice given?
3 Are you contending legal advice was given?

4 MR. MALIN: The Legal Department,
5 we're taking the privilege, assuming that
6 that it is.

7 MR. COHEN: Anything the Legal
8 Department said? If the Legal Department
9 said it was reported in the newspaper that
10 Monsanto may get sued for X, Y and Z, that
11 that's somehow privileged information?

12 MR. MALIN: Well, we don't know
13 that, do we?

14 MR. COHEN: We don't know. That's
15 what I'm trying to find out what is the --

16 MR. MALIN: I'm instructing him
17 not to disclose whatever information he got
18 from counsel.

19 MR. COHEN: Wait just a minute.

20 MR. MALIN: Monsanto's counsel.

21 BY MR. COHEN:

22 Q. Was this intended to be legal
23 advice to you, sir?

24 A. I have to confess, I don't
25 remember specifics, because latest versions

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1 of that document that I've been privileged to
2 look at did not contain that paragraph, so
3 I've not had the opportunity to refresh my
4 memory. It was not intended, as I recall, to
5 give me -- well, I just don't remember
6 anymore. It's been twenty years ago.

7 Q. You were reporting on legal
8 developments, weren't you?

9 A. Sometimes, as I remember. I just
10 don't remember the details.

11 Q. Well, this status report wasn't
12 intended to be an organ of legal advice to
13 Monsanto Chemical Company or to Monsanto the
14 parent company, either, was it?

15 MR. MALIN: I'll object to the
16 form of that question, of what his intentions
17 were. Suffice it to say the witness is
18 directed not to answer any question about
19 what any communications he had with
20 Monsanto's counsel at or about that time
21 which even if they were contained in the
22 letter unless they are actually disclosed.

23 MR. COHEN: I didn't ask for
24 communications from counsel, I'm asking him
25 whether this memo was intended to be giving

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1 or communicating legal advice to Monsanto's
2 management. He prepared the document.

3 MR. MALIN: But it was also
4 prepared by counsel. He took whatever
5 counsel had to say and collated it, so he
6 coordinated the document, he didn't
7 necessarily prepare what counsel had to say,
8 and that's a very large difference. I have
9 the same direction to the witness.

10 BY MR. COHEN:

11 Q. Did you read the information that
12 Counsel gave you before you put it into the
13 document?

14 MR. MALIN: You can answer that
15 question whether or not you read it.

16 A. Certainly I read it, yes.

17 BY MR. COHEN:

18 Q. And you described your activities
19 as basically cut and paste. Would it be fair
20 to say that whoever counsel or whoever the
21 contributor of the so-called legal section
22 was, was it your intention to change any of
23 that material in any way, or did you
24 literally cut and paste that material?

25 A. I did not change any of the pieces

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1 that make up the whole document. I
2 literally -- well, I shouldn't say
3 literally -- I circled the paragraphs that I
4 wanted the secretary to type, which was, in
5 essence, a cut and paste.

6 Q. Got you. Was the material
7 contained under "Legal" always from
8 Monsanto's legal counsel?

9 A. Yes.

10 Q. Do you remember who legal counsel
11 was at that time?

12 A. Mr. Phocian Park.

13 Q. I'm sorry?

14 A. Phocian Park, P-h-o-c-i-a-n?

15 Q. Did he get a copy of the document
16 back again?

17 A. He should have. He should be on
18 the list, I think.

19 Q. Okay, let's go down the list.

20 D. S. Cameron, who was that?

21 A. He was the European PCB
22 representative of the Marketing Group.

23 Q. W. S. Clark.

24 A. He was the representative of the
25 Monsanto Plasticizers Group in the U.S.

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1 Q. J. R. Durland.
2 A. He was Monsanto's representative
3 in Japan.
4 Q. M. W., it looks like "Parrar;
5 could be "Farrar."
6 A. Oh, Farrar.
7 Q. Farrar.
8 A. He's Director of Research for the
9 Plasticizers Group in Monsanto.
10 Q. What's "Second Street" mean?
11 A. I'm sorry?
12 Q. What does "Second Street" mean?
13 A. That is the location of his
14 office.
15 Q. The plasticizers unit?
16 A. His office was still there.
17 Q. Okay. Mr. John, or E. V. John,
18 Mr. or Ms.?
19 A. He's the representative of the
20 Public Relations Department.
21 Q. R. E. Keller.
22 A. He is the supervisor of the
23 analytical research group.
24 Q. R. N. Kountz?
25 A. He was the manager of

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1 manufacturing for PCB's.

2 Q. D. A. Olson.

3 A. He was director of marketing for

4 the PCB's sold as industrial fluids.

5 Q. And P. S. Park is Phocian Park,

6 legal counsel.

7 A. That is correct.

8 Q. W. R. Richard.

9 A. Director of Research for PCB's

10 used as industrial fluids.

11 Q. E. P. Wheeler, we know.

12 A. Yes.

13 Q. H. S. Bergen.

14 A. He was the director of the

15 Business Group, responsible for PCB's sold as

16 industrial fluids.

17 Q. J. Mason.

18 A. He was Mr. Bergen's boss. He was

19 an assistant general manager.

20 Q. And J. E. Springgate?

21 A. He was the director of the

22 Business Group, responsible for the sale of

23 PCB's as plasticizers.

24 (Pause)

25 BY MR. COHEN:

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1 Q. Let's see. So you were director
2 of, you have here, "Anniston plant PCB levels
3 in sewer," "Aroclor losses during November
4 average," then it says, "25," and there's
5 what looks like a tic-tac-toe mark. Is that
6 pounds? You want to look at it?

7 A. The cross hatch?

8 Q. Yeah.

9 A. That's generally pounds, yeah.

10 Q. That's what you meant by it,
11 anyway?

12 A. That's what the author of that
13 paragraph meant.

14 MR. COX: Can we go off the
15 record?

16 (Discussion off the record.)

17 BY MR. COHEN:

18 Q. So that meant 25 pounds per day.
19 Do you know how that was measured?

20 A. I do, yes.

21 Q. Tell me.

22 A. You take a sample.

23 Q. You can answer.

24 A. The sample is taken in such a way
25 that it represents a 24-hour period of time.

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1 A little bit is taken out every 15 minutes or
2 so, so the composite represents the 24-hour
3 output.

4 Q. Some sort of dipstick device or
5 something like that?

6 A. It's a pump, it's timed, it's got
7 the hoses, and I don't know how else to
8 describe it, but nevertheless, it's designed
9 to give a composite sample for a 24-hour
10 period. They also have ways of measuring the
11 flow in the sewer, so many gallons of water
12 in that 24-hour period. The laboratory
13 analyzes the amount of PCB's in that sample,
14 and they come up with so many parts per
15 million or parts per billion. They then go
16 through the necessary arithmetic to equate
17 the PCB's in that sample to the total flow
18 for a 24-hour period and that's how they come
19 up with 25 pounds a day.

20 Q. So if it says 4,620 parts per
21 billion, would that be the concentration of
22 PCB's in the sample?

23 A. Yes.

24 Q. And from that, they make a
25 calculation to the total pounds of PCB's in

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1 the sewerage for 24 hours?

2 A. Correct.

3 Q. Okay.

4 MR. COHEN: We'll have to make
5 extra copies, here, and this is a lengthy
6 document. Why don't we have this marked as
7 Papageorge next, then you can identify it for
8 the record, we'll get it all into the record,
9 here.

10 (Papageorge Deposition
11 Exhibit 4 marked for
12 identification.)

13 (Witness peruses said
14 document.)

15 (Discussion off the record.)

16 (Luncheon recess from 12:25
17 to 1:25.)

18 BY MR. COHEN:

19 Q. Okay, so you have had a chance to
20 look at that exhibit that's now been marked
21 as Papageorge 4, I think?

22 A. I have.

23 Q. And can you tell us what is
24 Papageorge 4, sir?

25 A. This is a copy of a status report

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1 that I've edited, and issued on December 7th,
2 1970, and it was addressed to Monsanto people
3 involved with the PCB environmental issue.

4 Q. And --

5 MR. McLAUGHLIN: Excuse me, how
6 many pages is that?

7 MR. COHEN: Thirteen, I think.

8 A. The last page is numbered Page 11.

9 MR. McLAUGHLIN: Thank you.

10 BY MR. COHEN:

11 Q. So would I take it that if I were
12 to look at another similar report for another
13 month where it said that PCB levels in the
14 sewer were calculated at 75.1 -- I'm sorry,
15 71.5 pounds per day, that that would mean
16 that the same calculation, same measurement,
17 same calculation had been made?

18 A. The calculation made in the same
19 manner. I don't know at this point whether
20 such information was reported each month. It
21 depended on the activity that took place
22 during the month.

23 Q. Well, for example, I'm looking at
24 a report dated October 6, 1970, referring to
25 September.

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1 A. September.

2 Q. And it says, "Current losses to
3 the river from the treatment plant range from
4 12 to 742 parts per billion with an average
5 loss of 311 parts per billion for 11 samples.
6 This is an equivalent average loss of 71.5
7 pounds per day." That would be the same
8 calculation?

9 A. Yes.

10 Q. So in the month of September,
11 then, the Krummrich plant, which this is
12 under, was putting out 71.5 pounds of PCB's
13 in its sewerage every day?

14 A. Yes.

15 Q. And where was that other one that
16 we -- do you know, sir, when did this
17 monitoring of sewerage for PCB output begin?

18 A. To the best of my recollection, it
19 began in '69 or '70.

20 Q. So was it something that was
21 started prior to the time you were issuing
22 these status reports?

23 A. Yes.

24 Q. Were records kept of the output of
25 PCB's in the sewerage from the time they

1 started?

2 A. Yes.

3 Q. Do you know of any changes that
4 had been made prior to the time they started
5 monitoring the output that would have had any
6 impact on the amount of PCB's that were
7 getting into the sewerage?

8 A. Well, certainly, changes were made
9 in the equipment and the arrangement of that
10 equipment in each of the producing units at
11 each of the plants. Some of these changes
12 were made to increase production, which means
13 increased activity. Assuming -- and this is
14 only an assumption -- that the amount of
15 material that found its way into the sewer
16 was a function of the amount produced, I
17 could see where the amount increased with
18 some of those changes. On the other hand,
19 there were some changes made that helped the
20 spill problem by improving the equipment. An
21 example. Better pumps were selected that did
22 not leak as much as the old pumps, so we have
23 examples, I have examples in mind of where
24 some of the changes reduced the amount and
25 yet others could have increased the amount,

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1 prior to the sampling program we discussed.

2 Q. Do you have any idea of the amount
3 of increase or decrease in what would have
4 been the PCB's getting into the sewers prior
5 to the time they started the monitoring?

6 A. No, I don't, because there was no
7 way to measure it so we really didn't know.

8 Q. Well, was there any type of
9 significant exchange -- strike that.

10 I gather from what you've said
11 earlier that the PCB's that got into the
12 sewerage got into the sewerage as a result of
13 cleanup activities in the plant.

14 A. Yes.

15 Q. They would do regular, ordinary
16 housekeeping practices, and in the course of
17 doing housekeeping practices, they were
18 washing spilled product down drains.

19 A. That's the major source, yes.

20 Q. Well, what other sources were
21 there that were of significance?

22 A. Well, it's a form of washing but
23 it is not man-induced. I have in mind a
24 situation where a spill could have occurred,
25 staining an area of the concrete pavement,

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1 heavy rainfall occurs before you've had a
2 chance to soak it up with, say, sawdust or
3 some other retrieving type of material. That
4 heavy rain could wash across that floor, pick
5 up the PCB's and end up either in the sewer,
6 the process sewer, or the storm sewers.

7 Q. So this, of necessity, would have
8 occurred outside of the building?

9 A. Well, the operation is an outside
10 operation.

11 Q. So the process, itself, was
12 conducted outside?

13 A. Yes.

14 Q. At all the plants?

15 A. Yes.

16 Q. Any other significant sources you
17 can think of?

18 A. Well, there is the occasional
19 rupture of a pipeline, a more or less
20 catastrophic kind of thing compared to the
21 small leakage. This didn't happen often but
22 when it did, it was a source of PCB's that
23 did get into the sewer system.

24 Q. So when there's a reference, for
25 example, to one very bad day at Snow Creek

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1 where 400 pounds of the material got into the
2 sewer, that would be an example of --

3 A. That's an example of something
4 unusual happened there because Snow Creek is
5 not a normal drainage -- it's a, it's a dry
6 creek except when there's heavy rains, so
7 this tells me that there's something happened
8 on the surface, on the ground, a rain came
9 along and helped push it into that creek.

10 Q. When it refers to the pounds of
11 PCB's, that's talking about product, like an
12 Aroclor, one of the Aroclors.

13 A. Yes.

14 Q. That's actually pounds of the PCB
15 product itself.

16 A. Yes.

17 Q. Is there any reason for you to
18 believe that there's been any significant
19 change in the amount of discharge over the
20 years prior to the time that you actually
21 began the monitoring program, other than
22 increases that might coincide with increases
23 in production?

24 A. Significant changes? I don't know
25 of anything that I would consider

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1 significant, no.

2 Q. So would it be fair to say,
3 without speculating too greatly, that the
4 same sort of discharge was occurring for some
5 time prior to the monitoring activities?

6 A. That is reasonable, yes?

7 Q. Did anyone, to your knowledge, in
8 Monsanto raise any concern about that?

9 A. At what point in time?

10 Q. Well, at any time prior to 1970
11 that you are aware of?

12 A. Prior to 1970, the amount
13 certainly was not known. The perception of
14 PCB's at the time was such that they were
15 considered to be innocuous. It was known
16 that the material was going to a municipal
17 treatment plant, and it was known that PCB's
18 were heavier than water, they would end up in
19 the treatment plant sludge, and we knew the
20 sludge was being disposed of in landfills, so
21 based on the knowledge available at the time,
22 this was not perceived to be a serious
23 problem. It seemed to be under control.

24 Q. When you say under control, it
25 really wasn't under your control anymore

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1 because it was going out of the plant plant
2 and into a municipal facility.

3 A. Very true. It was under control
4 of some -- somebody. Some person.

5 Q. From what source did the belief
6 derive that PCB's were innocuous?

7 A. I personally don't know where the
8 thought originated. I do know that this was
9 a, an accepted opinion amongst the research
10 chemists that live with this material day in,
11 day out. They knew that the material was not
12 reactive chemically, it was very stable, so
13 it was a, a natural assumption, almost, that
14 it's so stable under, with acids and alkalis
15 and what have you, surely it's stable out
16 there in sewerage water, for example.

17 Q. Stable in what way? That it would
18 not convert into other compounds?

19 A. That is a definition of stability,
20 yes. It does not change its chemical and
21 physical form.

22 Q. Is that the definition you were
23 using when you said that it was believed by
24 research chemists that it was stable?

25 A. Yes.

1 Q. So what was believed to be the
2 ultimate disposition? It would end up in the
3 sludge and not go any further?

4 A. Yes.

5 Q. I'm sorry, you had more to say? I
6 didn't mean to --

7 A. No, that's it.

8 Q. To your knowledge, were people
9 surprised to learn that it was getting into
10 rivers and streams?

11 A. It depends on where the sample was
12 taken. It was surprising to be found in
13 remote, nonindustrial areas. It was not
14 necessarily a surprise next to a factory,
15 just like our own plants. We wouldn't have
16 been surprised if it had been found, at the
17 municipal treatment plant, as an example, but
18 to find it in what appeared to be virgin
19 timberland in Arkansas was the type of
20 surprise that Monsanto people had.

21 Q. Did anyone ever determine how it
22 got to the virgin timberland?

23 A. No one has determined in a
24 scientific way how it got there, but there's
25 an awful lot of hypotheses offered. Air

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1 movement, rainfall, but none of it has ever
2 been demonstrated scientifically.

3 Q. Any of these hypotheses you
4 accept?

5 A. That I accept?

6 Q. Yes.

7 A. I find it easy for me to accept
8 the concept that, as an example, the normal
9 burning of waste paper, which included the
10 carbonless copy paper, the temperatures are
11 not reached where the PCB's are altered
12 chemically, they're just volatilized, go up
13 the stack, find themselves in the atmosphere,
14 and the wind movements circulate them, and
15 they're involved with some kind of rainfall,
16 and I can accept the fact that that rainfall
17 washes down, in essence, the PCB's in the air
18 and they are then found on the -- in this
19 virgin timberland I talked about. I can see
20 that happening.

21 Q. Any others you accept?

22 A. Well, that's an example of a free
23 release into the environment. I can see also
24 where, to pick another example, the white and
25 yellow traffic paint on highways and

1 roadways, there is wear and tear, as we know.
2 Those little particles break away from the
3 surface, a rainfall comes along, and takes
4 this down some creek into a river, and the
5 next thing you know, that river or small
6 stream ends up in some area far removed from
7 any industry, so I can see that being a
8 source. Those are just a couple of examples
9 of the kind of thing that could reasonably be
10 expected to have happen.

11 Q. By the way, did workmen in any of
12 the plants where the product was manufactured
13 wear clothing that was issued by Monsanto?

14 A. Oh, yeah. That's, that's a union
15 agreement, a change of clothing.

16 Q. Was the clothing laundered by
17 Monsanto?

18 A. Yes.

19 Q. At the plant?

20 A. No, they had a laundry service.

21 Q. So it was done elsewhere?

22 A. Yes.

23 Q. So the PCB's in the waste stream
24 from the plant would not have contained
25 anything that was the result of laundering of

1 workers' garments?

2 A. That is correct.

3 Q. Perhaps the waste stream of the
4 laundry that had the contract for laundering
5 the clothing worn by the workers could have
6 waste, -- PCB's in its waste stream?

7 A. Depends how dirty the clothes
8 were. Of course, they launder all the
9 clothing, which includes a hundred different
10 or 200 different chemicals. Assuming all the
11 clothes are very dirty, well, they're not
12 that dirty, really.

13 Q. So do I understand it that you
14 have never heard anyone, prior to 1970,
15 expressing any concern within Monsanto
16 regarding the waste stream of PCB's because
17 of this belief of their innocuous and stable
18 quality?

19 A. That is correct.

20 Q. Do you know anybody who made any
21 tests of the material, exposing it to
22 sunlight, exposing it to wind, exposing it to
23 water, exposing it to a combination of those
24 events, in order to determine its stability?

25 MR. MALIN: What time period are

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1 we talking about?

2 MR. COHEN: Prior to 1970.

3 A. I don't know of any. This does
4 not mean that it did not take place.

5 BY MR. COHEN:

6 Q. You were not aware of them having
7 not been done at that time?

8 A. That is correct.

9 Q. I know you did a lot of the
10 toxicologic studies on laboratory animals.
11 Did anyone make any tests to determine
12 whether the animals excreted the PCB's after
13 having ingested the PCB's?

14 A. Again, what point in time?

15 Q. Prior to 1970.

16 A. Prior to? I'm not aware of any
17 test of that type.

18 Q. So prior to the news, basically,
19 coming from Europe in 1966, I believe you
20 said --

21 A. Yes.

22 Q. Other than the toxicity tests that
23 were being done, there were no tests that you
24 know of to determine in any way the impact on
25 the environment generally of the product, the

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1 PCB's?

2 A. True, because the analytical
3 procedure wasn't available. You can't
4 conduct tests unless you can analyze for very
5 low quantities to detect changes.

6 Q. Is that the only reason it wasn't
7 done? Do you remember someone proposing,
8 gee, it might be a good idea if we go out and
9 dig up soil in the virgin woodlands and see
10 if there's any PCB's there?

11 A. Well, like I say, I wasn't
12 involved personally so I don't know what
13 discussions took place in the research
14 department.

15 Q. Do you have any knowledge of what
16 Monsanto was doing, if they were doing
17 anything, prior to the time that you became
18 involved in this environmental study in 1970,
19 to determine if PCB's were finding their way
20 into the environment?

21 A. I'm not aware of any personally.

22 Q. Now you said earlier that tests
23 were not being done because the analytical
24 tool was not available. Are you saying --

25 A. Well, I said the tests could not

1 have been done.

2 Q. I see.

3 A. But they were not feasible.

4 Q. To your knowledge, no one ever

5 proposed doing the tests?

6 A. That I don't know.

7 Q. I'm saying to you, though --

8 A. Somebody may have proposed it.

9 Q. You are not aware of anyone

10 proposing?

11 A. To my knowledge, no one spoke to

12 that subject in my presence, no.

13 Q. You are not aware of anyone

14 proposing tests; you know that tests were not

15 done, is that correct?

16 A. No, I don't know that. I just

17 have never heard of them.

18 Q. So if there were any tests, no one

19 ever told you about them.

20 A. That's true.

21 Q. And you believe that technically,

22 tests were not feasible in any event.

23 A. That is correct.

24 Q. Very early on in the investigation

25 of the so-called PCB pollution problem, a

1 meeting was held with General Electric
2 representatives in St. Louis. Do you recall
3 that?

4 A. I recall -- of course, there were
5 several meetings. The earliest was early
6 19 -- the earliest at which I was able to
7 attend was early 1970.

8 Q. Mm-hmm.

9 A. February or so, March.

10 Q. Do you remember having a meeting
11 in St. Louis with representatives of General
12 Electric?

13 A. Yes.

14 Q. I'm not sure I can pronounce this
15 name right. B-e-n-i-e-n-g-u-s (sic).

16 A. Bengignus?

17 Q. Benignus. What was his capacity
18 in and around that time?

19 A. He was the Manager, Marketing for
20 Dielectric Fluids.

21 MR. COHEN: Let me show you a
22 document, sir, that we can have marked as
23 Papageorge 5.

24 (Papageorge Deposition
25 Exhibit 5 marked for

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1 identification.)

2 (Witness peruses said
3 document.)

4 A. I have scanned the document.

5 BY MR. COHEN:

6 Q. Do you recall ever having seen it
7 before?

8 A. Yes.

9 Q. Who is the author of the document?

10 A. Mr. Paul Benignus.

11 Q. Do you see that that document
12 has -- strike that.

13 Do you notice that some of the
14 material that was originally in that document
15 has been somehow or another eradicated from
16 the document?

17 A. Yes, I did.

18 Q. Do you know what it said
19 originally?

20 A. I can only guess, because some of
21 them involve proper names of a person or
22 persons, and some, it appears, might be
23 referring to a company.

24 Q. Do you know what company they are
25 referring to?

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1 A. Again, I'd guess. I don't know.

2 Q. Do you know why the information
3 was deleted?

4 A. No, I don't.

5 Q. Why don't you identify the
6 document for the record.

7 A. This document is a copy, a
8 ten-page copy of what appears to be, in
9 essence, minutes of a meeting entitled, "The
10 PCB Pollution Problem, January 21 and 22,
11 1970, St. Louis Meeting with General
12 Electric," and this is a meeting with
13 Monsanto personnel.

14 Q. And you were present?

15 A. I was present, yes.

16 Q. Do you recall the meeting?

17 A. Yes, I do.

18 Q. What was General Electric's
19 concern at that time in January of 1970?

20 MR. MALIN: I'll object to the
21 form of the question, but answer the question
22 if you think you understand it.

23 Do you mean the stated concern at
24 the meeting, or --

25 MR. COHEN: I'm asking him if he

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1 recalls, being at the meeting, what was the
2 concern.

3 MR. MALIN: All right, state the
4 concern at the meeting.

5 A. I don't recall a concern as much
6 as it was a desire on the representatives of
7 General Electric to be you the toward and
8 brought up-to-date on the current status of
9 the PCB environmental issue as Monsanto knew
10 it at that point in time, and an attempt to
11 determine from Monsanto what possible actions
12 they should be taking, and so that their
13 activities coordinated well with Monsanto's
14 activities regarding continued use, control
15 of use, type of PCB to use, and so on.

16 BY MR. COHEN:

17 Q. Did they express any concern about
18 having available a continuing source of
19 product?

20 A. I don't remember the issue coming
21 up in that fashion so much as what type will
22 be available, not so much will any be
23 available. Because at that time, the focus
24 was on the higher chlorinated PCB's as being
25 the problem and it was presumed then that the

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1 lower chlorinated were not a problem;
2 therefore continue to be available.

3 Q. Which PCB's did you think would
4 continue to be available in the market?

5 A. At that time, it was the type
6 represented by the Monsanto Aroclor 1242 and
7 lower.

8 Q. What is lower than 1242?

9 A. There's a 1232, a 1221, those
10 three mixtures.

11 Q. Do you recall receiving a report
12 of atmospheric -- I'm sorry, of environmental
13 sprinkling being done in the early spring of
14 1970?

15 A. I've seen so many reports of that
16 type, it doesn't stand out in my memory.

17 MR. COHEN: Well, let's take this
18 and mark this document, then.

19 Let's mark it Papageorge 6.

20 (Papageorge Deposition
21 Exhibit 6 marked for
22 identification.)

23 (Witness peruses said
24 document.)

25 THE WITNESS: I have reviewed the

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1 article.

2 BY MR. COHEN:

3 Q. What is the document, sir?

4 A. The document is a Monsanto
5 memorandum authored by Dr. R. E. Kelly --
6 Keller, addressed to me, dated April 17th,
7 1970. It summarizes the results of analysis
8 of various samples for the presence of PCB's.

9 Q. If you'll allow me to come around
10 there, sir, I'll show you something and
11 perhaps you can clarify it for me.

12 We have a first page which is a
13 memorandum summarizing work that has been
14 done?

15 A. Yes.

16 Q. And then we have a three-page
17 chart that gives us information regarding the
18 tests that were done; is that correct?

19 A. That is correct.

20 Q. We start off with industrial
21 applications, industrial locations, and
22 identifying the particular industry that's
23 involved. Is that right?

24 A. That is correct.

25 Q. Then we have the waterway that

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1 we're looking at. Now, from which we're
2 taking samples. Is that correct?

3 A. That is correct.

4 Q. Then this says, "Matrix and number
5 of samples analyzed." "Matrix" refers to
6 what was the actual element that was being
7 sampled, is that correct?

8 A. Yes.

9 Q. For example, air, water, sediment,
10 which I gather is stream sediment, fish?

11 A. Yes.

12 Q. And then, we have the number of
13 samples; three air samples, 23 water samples,
14 12 sediment, two fish. Is that correct?

15 A. That is correct.

16 Q. Then it says, "PCB's found most
17 typical of Aroclor," and then numbers 1242,
18 1248, 1252 and 1260; is that correct?

19 A. That is correct.

20 Q. So does this tell me that if
21 there's an "X" in one of those columns, the
22 samples that they examined by gas
23 chromatography most resembled the tracing for
24 that particular Aroclor? Is that correct?

25 A. That is correct.

1 Q. How did they to do that? Do you
2 know what was the technique that was used?

3 A. We describe how the GC works, and
4 so on.

5 Q. Well, however you have to do it to
6 tell me how these tests were done to your
7 understanding.

8 A. As the sample is processed through
9 the instrument, the end result is a chart of
10 peaks and valleys which graphically shows the
11 response of the instrument to the presence or
12 absence of the PCB. The analytical chemist
13 then runs a known type of PCB through that
14 same instrument at roughly the same level of
15 concentration and he will again get a peak
16 and valley pattern. He will then look at the
17 two patterns and he will then describe the
18 unknown as equivalent to a particular
19 Monsanto Aroclor mixture, depending on how
20 close the peaks and valleys match. It very
21 seldom is a perfect match, but it's closer to
22 one than it is to all the others, so when the
23 chemist reports a certain concentration of a
24 PCB as equivalent to Aroclor 1242, he is
25 saying that, "As best I can tell, it looks

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1 like 1242. It may not exactly be that, but
2 that's what it looks like to me." That's
3 what is meant by this "most typical of
4 Aroclor," so and so, so when he puts an "X"
5 in there, it shows that the sample that he
6 looked at or at least one of the samples he
7 looked at looked like the type of PCB listed
8 above the "X."

9 Q. And you would agree that for
10 samples that were taken from fish, for
11 example, that would be from the flesh of
12 fish?

13 A. In general, it is. They fillet
14 the fish and analyze, yes.

15 Q. That would be PCB's that would
16 have already been metabolized by the
17 organism, the animal?

18 A. That's a reasonable assumption,
19 yes.

20 Q. Well, if it had gotten into the
21 flesh, that's about the only way; wouldn't
22 you agree?

23 A. Unless there's some entrapment in
24 the -- it depends on how they cut that fillet
25 with the skin on or not, and so on, so

1 generally, it would have to go through the
2 metabolic process to get into the tissue.

3 Q. Now let's see. This first one,
4 here, the first sample, we have air samples
5 is a, three air samples that most typically
6 resemble 1242. Is that correct?

7 A. That's what it says, yes.

8 Q. Then it says "PCB levels," and it
9 says, ".05 milligrams PCB per cubic meter,"
10 so is that the measure of how much they found
11 in the air?

12 A. That's a way to express
13 concentrations in air, yes.

14 Q. Then it says "Analysis Techniques,
15 "ECGC," electron capture gas chromatography?

16 A. That's what that says, yes.

17 Q. What were the PCB levels found?

18 A. I'm sorry?

19 Q. What were the levels found?

20 A. Like you read, .05 milligrams,
21 or -- yes, milligrams of PCB per cubic meter
22 of air.

23 Q. Okay, how about the water sample,
24 what were the levels found?

25 A. The water, they don't give us

1 numbers, they just say they found them from
2 the part per billion level up to the part per
3 million level.

4 Q. And in sediment, they found them
5 in the part per billion level to percentages?

6 A. Right, so the wider range of
7 results there.

8 Q. But the levels, themselves, are
9 not expressed in the chart anyway.

10 A. Not on this chart, no.

11 Q. And apparently, the 1242 did
12 continue to persist in the environmental
13 specimens that were tested at the industrial
14 sites.

15 A. Yes.

16 Q. Then we go to another series of
17 samples, and again the 1242 persisted.

18 A. Near the sites, yes.

19 Q. And this is nonindustrial sites.

20 A. That is correct.

21 Q. And all they found were tracings
22 similar to 1254; is that correct?

23 A. That is right.

24 Q. Even in the flesh of fish, human
25 fat biopsy?

1 A. Yes.

2 Q. They found 1254, specimens most
3 like 1254?

4 A. Yes.

5 Q. To whom was this report
6 disseminated? Do you know?

7 A. Let me see. You want me to
8 describe who these individuals are that are
9 listed here? They got copies of this report.

10 Q. Did anyone else get the
11 information contained in that report?

12 A. I do not know. These individuals
13 could have shared this information with
14 others that I'm not aware of.

15 Q. Do you know if anyone outside of
16 Monsanto received the information contained
17 in that report?

18 A. I do not know that.

19 Q. Do you know if Monsanto was at
20 that time making an effort to make the
21 results of this report known?

22 A. I do know that the intent was that
23 the samples, for example, taken at the
24 customer sites that are listed on this
25 report, those customers were informed of the

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1 data prior to the issuance of this report, so
2 the information was shared by others, but
3 whether they received copies of this report,
4 I do not know.

5 Q. Do you know if the information
6 contained in that report was given to any
7 governmental agencies?

8 A. Information was given or shared
9 with governmental agencies, but I don't
10 know -- I'm trying to think. Some of this
11 information was shared with representatives
12 of government agencies and laboratories at a
13 meeting held in Duluth in March of 1970, a
14 month before the date of this report, so what
15 information was available a month before the
16 issuance was shared, Dr. Keller, himself,
17 stood up before the audience and reported
18 them.

19 Q. Were you there?

20 A. Yes.

21 Q. And you recall that?

22 A. I'm sorry?

23 Q. And you recall that?

24 A. Yes. In fact, it seems that those
25 comments were published in a summary report

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1 issued out of that laboratory covering that
2 meeting.

3 Q. Which laboratory was that?

4 A. The Duluth, Minnesota, EPA water
5 laboratory.

6 Q. Can I see that report again for
7 just one moment, please?

8 (Witness complies)

9 MR. McLAUGHLIN: Off the record a
10 second.

11 (Discussion off the record.)

12 BY MR. COHEN:

13 Q. To your knowledge, sir, was this
14 the first such environmental analysis of
15 PCB's done under the aegis of Monsanto?

16 MR. MALIN: Object to the form of
17 the question. I don't know what you mean by
18 environmental analysis. Obviously, there
19 were plenty of other environmental analyses,
20 depending on how you are defining
21 environmental analyses. If you think you
22 understand the question, Mr. Papageorge,
23 attempt to answer it.

24 THE WITNESS: I think I do. It's
25 oriented, of course, to PCB's, and he's

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1 asking if there were -- if this is the first
2 report.

3 MR. MALIN: Is that by Monsanto
4 you are talking about?

5 MR. COHEN: I asked him, "done
6 under the aegis of Monsanto." That's what I
7 asked him.

8 A. I believe, yes, as best I recall,
9 yes.

10 BY MR. COHEN:

11 Q. This would have been the earliest
12 one?

13 A. Yes.

14 Q. As you sit, or towards PCB's you
15 were looking for PCB's in the environment?

16 A. Yes.

17 Q. This would have been the first one
18 done under the aegis of Monsanto, looking for
19 PCB's in the environment, and this is the
20 results of that?

21 A. Yes. Keep in mind some of those
22 studies started back in '69. This is the
23 first summary of that activity, yes.

24 Q. Do you recall having an analysis
25 done on Pensacola bay shrimp?

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1 A. I recall, I recall analyses
2 related to Pensacola, yes, at '69 or so, as I
3 remember.

4 Q. Is that the Pensacola Bay,
5 Pensacola, Florida?

6 A. Yes.

7 Q. Who was responsible for ordering
8 these studies done? Do you know?

9 A. I don't know.

10 Q. Do I take it from that it wasn't
11 you?

12 A. I wasn't involved when the
13 incident occurred down there at Escambia Bay
14 which is the name of that bay.

15 Q. What incident occurred?

16 A. PCB's were detected in the bay and
17 traced back to a leaking compressor on
18 Monsanto's property. There was a leak in the
19 piping of that unit, a small leak that was
20 not noticeable, and they traced it back to
21 that point. As a result, there were samples
22 taken, as I remember, of the sediment around
23 the compressor, the dirt around the
24 compressor, and the water nearby, and yes,
25 they did look at the shrimp, because there is

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1 a commercial fisheries laboratory located at
2 Gulf Breeze, Florida, that determined that
3 the shrimp were sensitive to PCB's, and
4 Monsanto was trying to determine the presence
5 of PCB's in that area.

6 Q. Let's talk about the compressor
7 for a moment. What was the PCB fluid being
8 used for?

9 A. It's a lubricant in the
10 compressor.

11 Q. As a lubricant in the compressor?

12 A. In the moving parts.

13 Q. Not a dielectric fluid, more like
14 a hydraulic fluid but not as a working fluid?

15 A. Pretty much like the motor oil in
16 your car engine.

17 Q. Just as a lubricant?

18 A. A lubricant, yes.

19 Q. Was that a usual use for PCB
20 fluid?

21 A. It's a, a common use. I don't
22 know if it's usual. There are other oils
23 available for compressors. This type is the
24 fire resistant so when you get high
25 temperatures, you don't have the potential

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1 for fires and explosions.

2 Q. What type of compressor was it?
3 Do you know? Refrigerant compressor, air
4 compressor?

5 A. Air, air compressor.

6 Q. Now you said that the shrimp were
7 sensitive to PCB's. What did you mean by
8 that?

9 A. The laboratory in Gulf Breeze
10 exposed some newly-hatched, I think that's
11 the right term -- shrimp.

12 Q. Whatever shrimp do.

13 A. Juvenile shrimp in a static tank
14 test, not out there in the bay, and they
15 determined that these juvenile shrimp did not
16 survive at very low-level concentrations of
17 PCB's. They were quite sensitive.

18 Q. So it was highly toxic to shrimp?

19 A. To the baby shrimp. The adult
20 shrimp tolerated it, not the baby shrimp, and
21 that information was relayed to Monsanto
22 Medical Department. Mr. Wheeler was active
23 in that program.

24 Q. What does "GO" mean, next to a
25 person's name?

1 A. "GO"? General offices.

2 Q. Let me show you a document, sir,

3 see if you can identify it for us.

4 MR. COHEN: We'll mark it as

5 Papageorge next.

6 (Papageorge Deposition

7 Exhibit 7 marked for

8 identification.)

9 (Witness peruses said

10 document.)

11 MR. MALIN: Do you have a question

12 on Papageorge 7?

13 THE WITNESS: I have reviewed the

14 document.

15 MR. COHEN: Thank you, sir.

16 BY MR. COHEN:

17 Q. What is it?

18 A. It's a copy of a memorandum dated

19 December 3, 1970, authored by Dr.

20 E. S. Tucker, addressed to me. The subject,

21 PCB content of Pensacola white or bay shrimp,

22 in which he reports analyses of these shrimp

23 for the presence of PCB's.

24 Q. Did they find PCB's in them?

25 A. They did.

1 Q. Which PCB?

2 A. Aroclor, equivalent to Aroclor
3 1254.

4 Q. Apparently, they made four
5 separate samples out of the shrimp. They
6 treated them differently, some were whole,
7 some were shelled, et cetera, et cetera?

8 A. Yes, sir.

9 Q. Processed them in different ways?

10 A. Yes.

11 MR. COHEN: They were deveined.

12 MR. McMANUS: Were they boiled
13 or --

14 BY MR. COHEN:

15 Q. There is an attachment that says
16 "Retention times of EC peaks for unknowns and
17 Aroclor 1254." Do you know what that is,
18 sir?

19 A. I believe I do.

20 Q. Would you tell us?

21 A. It's a listing by peaks in which
22 the peaks are designated by numbers 1 through
23 16, followed by a column entitled "Aroclor
24 1254 standard," so they used the Monsanto
25 product as the standard and determined for

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1 peak 1 retention times 2.1 seconds, peak 2,
2 2.6, and so on down the list.

3 They then took the samples 1
4 through 4 that were described previously and
5 compared the retention times for each of the
6 peaks with the retention time determined for
7 Aroclor 1254 and there appears to be, as I
8 look through here, a close --

9 Q. Almost identical?

10 A. Almost identical, yes.

11 Q. Except for peak number 7, which
12 appears to be absent from the samples.

13 A. 7 is missing, in the samples. It
14 is present, of course, in the Aroclor 1254.

15 Q. Nonetheless, the technician who
16 analyzed these samples concluded that this
17 was Aroclor 1254 in the samples; is that
18 correct?

19 A. Well, they normally don't say,
20 "I'm positive, it's --" they usually report
21 it as saying, "The material I have observed
22 in this, with this procedure, is equivalent
23 to or similar to Aroclor 1254."

24 Q. And then we have one more
25 attachment which is a map of where the

1 sampling was taking place?

2 A. That is correct.

3 Q. Do you know where the Monsanto
4 plant is with respect to the area samples?

5 A. Let's see if I can locate it.
6 It's a very poor reproduction. It's in the
7 upper part, a little bit left of center, in
8 this general area (Indicating) is where the
9 plant is located.

10 Q. Okay, do you want to draw a circle
11 with the court reporter's red pen which he's
12 been kind enough to agree to allow us to use
13 for that purpose?

14 A. It's in this general direction or
15 area there (Indicating).

16 Q. Let the record reflect that a
17 circle was drawn on the third page of
18 Exhibit, reflecting the location of the
19 plant.

20 BY MR. COHEN:

21 Q. Now with respect to Papageorge 7,
22 sir, can you tell me, was this information
23 shared with anyone?

24 A. As best I recall, I shared that
25 personally with Dr. Thomas Dugan at the

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1 federal laboratories in Gulf Breeze, Florida,
2 where the original shrimp studies were
3 conducted.

4 Q. You say you shared it personally.
5 Under what circumstances?

6 A. Oh, I made it a point to drop by
7 every four to six months to exchange notes
8 with them and find out what they were doing
9 and share with them what we had done, and I
10 reported that we had done this work.

11 Q. This was at the laboratory at
12 Escambia Bay?

13 A. It's Gulf Breeze, Florida, is the
14 official address. It's just outside
15 Pensacola.

16 Q. Do you know if it was shared with
17 any other representative of any federal or
18 state agency?

19 A. Not that I know of.

20 Q. Do you know what the gross sales
21 of Aroclor products were in and around that
22 time period in 1970 on an annual basis?

23 A. Whew. I used to know. I don't
24 remember the number. I -- the closest I can
25 come to that is, it's about 80 million pounds

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1 a year. I don't know how that translates to
2 dollars.

3 Q. You don't remember the price per
4 pound?

5 A. It changed with time. I just
6 don't remember what it was at that point.

7 Q. If I were to suggest to you 21
8 million in sales in a given fiscal year,
9 would that make sense to you?

10 A. I have no way of evaluating that.

11 Q. The information at one time was
12 available, though, I gather?

13 A. Oh, yes, yes, it was available. I
14 just don't remember the number.

15 Q. Was the Aroclor business, to your
16 knowledge, profitable for Monsanto?

17 A. It was profitable, yes.

18 Q. It's apparent from the review of
19 the documents that we've just had, that you
20 apparently -- that your analytical abilities
21 in that time period in 1970 permitted
22 detection levels in the parts per billion
23 range.

24 A. Oh, yes. Yes.

25 Q. Do you remember when you first had

1 analytical abilities to detect presence of
2 PCB's in the parts per billion range?

3 A. About the third quarter of 1969.

4 Q. Do you remember when your
5 laboratories developed the ability to have
6 detection limits in the parts per trillion
7 range?

8 A. Trillion? Hmm, as best I recall,
9 that occurred about eight months to a year
10 later.

11 Q. So that would have been in '71?

12 A. 1970.

13 Q. I'm sorry, 1970.

14 A. '69 to '70, yes.

15 Q. Do you know when products that
16 were substitutes for dielectric fluids
17 containing PCB's were developed?

18 MR. MALIN: Object to the form of
19 that question because I don't understand what
20 you mean by "similar." There always were
21 substitutes for it, they simply weren't as
22 suitable, so I don't know what that means.

23 MR. COHEN: Well, why don't I hear
24 that from your witness. I'm sure he can say
25 the same thing if he knows.

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1 A. There were available materials
2 that could have been used as dielectrics and
3 were being used. Examples include mineral
4 oil, and of course, the air, or gas-filled
5 units. The introduction of different kinds
6 of materials, as best I recall, began in '77.
7 The materials I have in mind include
8 dioctophthalates for capacitors, and
9 silicones for transformers.

10 BY MR. COHEN:

11 Q. These were products that had
12 performance characteristics similar to the
13 Aroclor products?

14 A. Well, there were slight
15 differences. The principal difference, as I
16 understand it, with capacitors, the
17 dioctophthalate is not inflammable, it will
18 burn, so that as I understand it, they had to
19 do, redesign the ballast units and include a,
20 a fuse-type device in it to trip when
21 temperatures or conditions reached an
22 unfavorable point.

23 I understand that the silicones,
24 when used to retrofit a PCB-type unit, had to
25 be downgraded. In other words, they could

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1 not do the job they originally could do in
2 terms of the transfer of electrical power.

3 Q. A transformer had to be
4 downgraded?

5 A. A transformer had to be
6 downgraded, yes. That's just an
7 understanding I have. I'm not a transformer
8 designer. That's really all I know about the
9 substituted materials.

10 Q. Who developed the substituted
11 materials? Do you know?

12 A. Would you help me with the word
13 "develop"?

14 Q. Yeah, was it Monsanto, was it GE,
15 was it Westinghouse, was it Samsung, was it
16 Coneco?

17 A. Well, again, the word
18 "development," I have trouble with that, in
19 that you can develop a chemical by mixing
20 other chemicals and producing an end product,
21 or you can develop technology for the
22 application of that chemical. I personally
23 don't know who is responsible for the
24 development of dioctophthalate. That's a
25 common plasticizer that many a chemical

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1 company makes or can make. I have an
2 understanding that General Electric took that
3 material, available material, and tried it
4 out in capacitors and eventually reached a
5 point where they felt that it was feasible.

6 On silicones, I do know that the
7 Dow-Corning Company was interested, I also
8 know that GE had their own capabilities for
9 the manufacture of silicones. I personally
10 do not know who took them to the laboratory
11 and put them in transformers and tested it.
12 That's all I really know.

13 Q. Do you know if Monsanto is in the
14 business of selling dielectric fluid at this
15 time?

16 A. No. They did not succeed in
17 staying in the business.

18 Q. So they have gone out of the
19 business of selling dielectric fluid for
20 transformers?

21 A. Yes.

22 Q. They did not succeed in coming up
23 with a successor to their Aroclor product
24 line?

25 A. That is correct.

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1 MR. INNELLI: Let's go off the
2 record for one second.

3 (Discussion off the record.)

4 BY MR. COHEN:

5 Q. Mr. Papageorge, do you know who
6 J. A. Zach is?

7 A. Yes.

8 Q. Who is he?

9 A. She was a member of Monsanto's
10 Medical Department. I, I believe that she
11 had training in toxicology, and she also had
12 some training in epidemiology.

13 Q. Do you know what her degree was?

14 A. No, I don't.

15 Q. To your knowledge, did she or does
16 she hold a Ph.D.?

17 A. I do not know.

18 Q. Do you know where Ms. Zach is at
19 this time?

20 A. No.

21 Q. She was an employee, however, of
22 Monsanto Chemical Company?

23 A. For a period of time, yes.

24 Q. Do you know what that time period
25 was?

1 A. Oh, in the middle Seventies, as
2 best I recall.

3 Q. Do you know who R. R. Suskind is?

4 A. I believe, yes, Dr. Suskind, he's
5 associated with -- in Cincinnati. I forget,
6 I forget the institution. I just don't
7 remember the details. I've met the man and
8 that's all I know.

9 Q. Were you aware of a recent
10 allegation made by the United States
11 Environmental Protection Agency against Ms.
12 Zach and Dr. Suskind regarding some
13 epidemiological studies that they had done on
14 employees of Monsanto Chemical Company?

15 A. I'm not aware of any EPA comments,
16 no.

17 Q. Were you involved in asking either
18 of these people to do any epidemiological
19 studies on any employees of Monsanto Company?

20 A. I have discussed the matter with
21 the director of Monsanto's Medical Department
22 at that period of time, and he agreed that
23 such a study might be in order and a study
24 was initiated.

25 Q. And who was that person you

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1 discussed it with? Dr. Kelly?

2 A. No, Dr. Kelly had retired and it
3 was Dr. George Roush.

4 Q. So this is Dr. Roush?

5 A. R-o-u-s-h.

6 Q. What time period are you referring
7 to?

8 A. Oh, somewhere around '75, '76.

9 Q. This would be what, tests on
10 employees exposed to PCB's?

11 A. As best I recall, there was a
12 study of employees who had died and had at
13 least a six-month tour of duty in the PCB
14 department. It was a mortality study, in
15 other words.

16 Q. And do you recall the results of
17 that study?

18 A. Yes.

19 Q. What were they?

20 A. It was found that increased lung
21 cancer incident amongst that population when
22 compared to the national average, but it was
23 the same as the county average in which the
24 plant was located and which many of these
25 employees live.

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1 Q. So it was not something that you
2 or the analysts involved related to their
3 exposure to PCB's in the plant?

4 A. Well, the summary report that I
5 saw indicated that this could not be
6 attributed to their PCB exposure and it was
7 further complicated by the fact that because
8 of the assignment practices in the plant
9 whereby the employees, by union agreement,
10 have opportunities to bid on jobs that are
11 open, there's an awful lot of movement
12 through that plant, which makes the study
13 extremely difficult. There are hundreds of
14 chemicals. It was difficult to really arrive
15 at a conclusion.

16 Q. Were you involved in any way in
17 getting any of the records regarding these
18 employees for the individuals who were doing
19 the tests?

20 A. No.

21 Q. Were you involved in any way in
22 any aspect of the tests other than having
23 discussed it with Dr. Roush in order to
24 determine to do the test?

25 A. I was only involved in the

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1 discussion.

2 Q. Were you involved in any other
3 tests on Monsanto employees who were exposed
4 to any other substance?

5 A. No.

6 Q. Do you know anything about the
7 mortality tests or the epidemiological study
8 that Dr. Suskind and Ms. Zach did regarding
9 the mortality experience of workers exposed
10 to tetrachlorodibenzodioxin?

11 A. No. I've heard of it, but that's
12 it. Tetrachlorodibenzodioxin.

13 Q. And you are unaware of any
14 criticism that has been directed against
15 those individuals as a result of their tests?

16 A. That is correct.

17 MR. COHEN: Okay.

18 FURTHER EXAMINATION

19 BY MR. INNELLI:

20 Q. Mr. Papageorge, earlier you had
21 stated that you were the plant manager at the
22 Anniston, Alabama, plant. When you took on
23 your new assignment sometime in 1970, what
24 was the title that was given to you?

25 A. Manager, Environmental Control.

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1 Q. Was a new unit established called
2 "Environmental Control"?

3 A. It wasn't so much a unit, it was a
4 one-man operation with a part-time secretary,
5 and I don't know that you'd call that a unit,
6 but --

7 Q. Okay, so you were the
8 environmental control person for Monsanto?

9 A. No, I was the environmental
10 control person for the PCB issue in that, in
11 those business groups that sold PCB's.

12 Q. Okay.

13 A. Not for all of Monsanto.

14 Q. To whom did you report?

15 A. Mr. Howard Bergen, B-e-r-g-e-n.

16 Q. And what was Mr. Bergen's title
17 and responsibility?

18 A. He was Business Group Director,
19 Fungal Fluids. In your capacity as Director
20 of Environmental Control for PCB's, did you
21 become aware of any studies that Monsanto was
22 involved in regarding the toxicity of PCB's?

23 A. Certainly.

24 Q. When was the earliest date you
25 became aware of such a study?

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1 A. When I became plant manager at
2 Anniston in 1965, and in preparing myself for
3 the job, I read some reports and talked with
4 the plant physician, and he made me aware of
5 the toxicity studies that had been with PCB's
6 in the Forties and Fifties. That was my
7 first exposure to toxicity studies with test
8 animals and PCBs.

9 Q. What was the name of the plant,
10 Doctor?

11 A. Dr. Francis, Jim, James Francis.

12 Q. The toxicity studies that you just
13 referred to, were they studies in which
14 Monsanto was a participant?

15 A. I would call them more Monsanto
16 was a sponsor that requested the work and it
17 was done by commercial laboratories in this
18 kind of work.

19 Q. It was February of 1970 that you
20 assumed your new duties as Director of
21 Environmental Control for PCB's?

22 A. It was January -- as manager, not
23 director.

24 Q. Manager?

25 A. Director is a step above.

1 Q. Just trying to --
2 A. You promoted me.
3 Q. -- give me some additional income,
4 right? Were there any ongoing toxicity
5 studies in January of 1970?
6 A. Yes.
7 Q. Were you made aware of those
8 studies at that point in time?
9 A. Yes.
10 Q. Can you describe for me what
11 studies were taking place?
12 A. At that point in time, the ongoing
13 studies included a lifetime rat feeding
14 study, an 18-month white leghorn chicken
15 feeding study, there was a rat reproduction
16 study, there was an 18-month Beagle dog
17 feeding study. That's all that comes to mind
18 at the moment.
19 Q. Okay.
20 Do you know who was conducting the
21 lifetime rat feeding study?
22 A. It was at the Industrial Bio-Test
23 Laboratories, Northbrook, Illinois.
24 Q. Now, how long had the lifetime rat
25 feeding study been going on when you became

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1 aware of it?

2 A. Nine months to a year.

3 Q. Do you know who commissioned this
4 study?

5 A. You mean who in Monsanto was --

6 Q. Yes, who in Monsanto requested the
7 study.

8 A. Of course, it came out of
9 Monsanto's Medical Department so that
10 officially would be Dr. Kelly, but it was
11 managed for Dr. Kelly by Elmer Wheeler.

12 Q. Now, when you say managed for Dr.
13 Kelly by Elmer Wheeler, what do you mean by
14 managed?

15 A. He is the individual in Monsanto
16 who was the closest to this work in terms of
17 discussing the protocols to be used, the
18 number of test animals involved, the feeding
19 levels, the dates of starting the tests, the
20 kinds of reports that were expected, the
21 types of chemicals to be tested, and the
22 levels.

23 Q. Who would have been involved in
24 selecting Industrial Bio-Test?

25 A. Primarily, Dr. Kelly, assisted by

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1 Elmer Wheeler, and it's quite likely,
2 although, of course, I wasn't there when they
3 started, there, at that time there was a Dr.
4 Bill Hunt, a toxicologist on the staff who
5 would participate in that kind of discussion.

6 Q. Do you know what criteria were
7 used for selecting the laboratories to run
8 the tests?

9 A. No, I don't.

10 Q. Who would know what criteria was
11 used?

12 A. Dr. Kelly for sure.

13 Q. Anyone else?

14 A. He's the only one living, so --

15 Q. I understand that Mr. Wheeler is
16 no longer alive. What about Dr. Hunt?

17 A. He died.

18 Q. What was the objective of the
19 lifetime rat feeding study?

20 A. The purpose of the study was to
21 establish whether -- what, if any, effects
22 are possible in mammals by exposure to the
23 different kinds of commercial PCB's. There
24 was no known protocol for evaluating
25 industrial chemicals. There were, of course,

1 protocols for evaluating pesticides and for
2 evaluating food additives in drugs.
3 Monsanto, as I understood it, through its
4 contacts in the governmental agencies, tried
5 to come up with some government-approved test
6 methods and did not succeed in getting any
7 agency to support any kind of program.
8 Therefore, Monsanto chose to mimic the
9 testing that's done for food additives,
10 although we had no intention in the world of
11 putting PCB's in foods, it was considered to
12 be the most severe test, so the objective of
13 that was to try to establish some kind of
14 test that would show an effect, if any, that
15 could later be looked at by those that
16 understand toxicology and attempt to
17 extrapolate it to human beings and to
18 wildlife, if possible.

19 Q. What is your understanding of what
20 prompted Monsanto to have a protocol for such
21 a test developed?

22 A. It's really stimulated by the
23 reports that they were present, alleged to be
24 present in wild birds, pelicans and peregrine
25 falcon being two examples that were quite

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1 popular in those days, much speculation about
2 what effect it might have on mammals,
3 warm-blooded mammals, and of course, there's
4 also some speculation at the time what effect
5 is it going to have, if any, on fish, and
6 this is why the rat was selected as something
7 that was available for testing that could
8 represent the mammals, and the dog being a
9 higher species of that same group, the white
10 leghorn chicken was picked, as I understood
11 it, because it was the only available bird,
12 available in controlled quantities, you know,
13 health-wise, as well as numbers, because
14 Monsanto missed an opportunity to place an
15 order for mallard ducks, which only hatch
16 once a year, and didn't want to lose a full
17 year waiting for the next opportunity, and
18 there were some fish studies planned to be
19 conducted also by Industrial Bio-Test
20 Laboratories to represent the aquatic species
21 and what effect that might have. So really,
22 the testing was done in response to the, the
23 question of what effect, if any, are the
24 PCB's in the environment having or could
25 have.

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1 Q. Now, the lifetime rat feeding
2 study, how long was that to last?

3 A. Oh, the rats, most of them will
4 live about two years, so the tests are
5 designed with two years in mind, with the
6 sacrifices periodically, to see if anything
7 is developing.

8 Q. Now, when was that study to be
9 concluded? Or when was it concluded?

10 A. As I remember, the tool study was
11 concluded and reported in 1972.

12 Q. Now, when you say reported, in
13 what form was it reported?

14 A. It's a bound report from the
15 laboratory to Monsanto.

16 Q. From Industrial Bio-Test?

17 A. No.

18 Q. Monsanto?

19 A. Yes.

20 Q. And to whom was the record made at
21 a Monsanto.

22 A. To Dr. Kelly and his department.

23 Q. Did you, were you a recipient of
24 the report?

25 A. I received a copy, yes.

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1 Q. And did you review it?

2 A. I only reviewed the summary
3 sections, because I'm not qualified to
4 understand the detailed technical parts, the
5 pathologist's report, and all the technical
6 details. I wouldn't have -- I did not
7 understand them.

8 Q. Were there any plans to prepare
9 any articles for medical journals arising
10 from the findings of the report?

11 A. There were plans. In fact, there
12 was a report given before a
13 government-sponsored meeting by the Bio-Test
14 Laboratories.

15 A. Director of the studies, reporting
16 the status of the studies by December 1971,
17 as I recall.

18 Q. And who was the director of
19 Industrial Bio-Testing?

20 A. Dr. -- let me think. The original
21 director was Dr. Otis Fancher, F-a-n-c-h-e-r,
22 but he retired, and as best I recall, Dr.
23 Kepplinger, K-e-p-p-l-i-n-g-e-r, reported the
24 status of the studies to this group in North
25 Carolina in 1970, December 1970.

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1 Q. Did Dr. Otis Fancher participate
2 in the study, itself?

3 A. Oh, yes, when he was still
4 employed by the laboratories, he was the
5 director and he participated in the, whatever
6 a director does in such a laboratory. He
7 didn't massage the rats himself, but he made
8 sure the program was started properly.

9 Q. Did he participate in the
10 establishment of the protocols?

11 A. Yes, he did, yeah, along with
12 Elmer Wheeler, yeah, he was involved in all
13 of that.

14 Q. So --

15 A. And he picked the staff, the
16 personnel that's going to do the work, and so
17 on.

18 Q. Explain for me the lines of
19 communication between Monsanto and Industrial
20 Bio-Test during the course that the studies
21 were running.

22 A. Well, the primary contact, from
23 where I was situated, was Elmer Wheeler.
24 Initially, he was held by Dr. Bill Hunt until
25 Dr. Hunt died, and Dr. Hunt was replaced by

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1 Dr. Levinskas. Dr. Hunt and Dr. Levinskas
2 were the individuals who helped Dr. Wheeler
3 in making trips to the laboratory and
4 communicating as appropriate, and -- by
5 telephone or by mail, keeping on top of
6 things. I don't know how else to -- that was
7 the line of communication.

8 Q. Now, you've indicated or testified
9 that Elmer Wheeler was involved in the
10 development of the protocol for these tests.

11 A. Yes.

12 Q. Did Monsanto, through Elmer
13 Wheeler, establish the protocol and send it
14 to Industrial Bio-Test?

15 A. No, it was a case of Elmer Wheeler
16 sat down with representatives of Industrial
17 Bio-Test Laboratories in St. Louis, the
18 Bio-Test laboratories representatives came to
19 St. Louis. They sat down and talked about
20 what is the best way to do the study, and
21 they discussed different kinds of protocols
22 in terms of how to establish the feeding
23 levels that would be appropriate, how many
24 animals to start in the study, were the
25 animals available, and from what animal

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1 breeding laboratory, what kind of testing
2 would be done as the program progressed, in
3 terms of blood samples, tissue samples, how
4 many animals would be sacrificed, and when,
5 how many -- and what kind of samples would be
6 taken, and how would these samples be
7 preserved. There's details that I even don't
8 understand, but that's the kind of discussion
9 that was held.

10 Dr. Fancher and his staff then
11 went back to the laboratory and put this all
12 down in a document, summarizing the approach
13 that they felt was proper, and mailed it back
14 to St. Louis and St. Louis concurred, through
15 Elmer Wheeler, that this was okay, let's get
16 started.

17 Q. Was there a regular schedule where
18 information garnered from the study would be
19 sent to Monsanto via Dr. Wheeler?

20 A. Yes.

21 Q. Who besides Dr. Fancher was
22 involved for Industrial Bio-Test?

23 A. Oh, I mentioned Dr. Kepplinger --

24 Q. Was he involved in the initial
25 meeting in St. Louis?

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1 A. Oh. There were so many meetings
2 held, I can't distinguish one from the other.
3 I believe he was, yes.

4 (Pause for court reporter to
5 change notepads)

6 (Recess)

7 (Discussion off the record.)

8 BY MR. INNELLI:

9 Q. Mr. Papageorge, to whom did Dr.
10 Hunt report?

11 A. To Mr. Wheeler.

12 Q. To Mr. Wheeler?

13 A. Yes.

14 Q. And when Dr. Hunt died, his
15 replacement was?

16 A. Dr. Levinskas.

17 Q. Dr. Levinskas. Dr. Levinskas in
18 turn reported to Mr. Wheeler?

19 A. Yes.

20 Q. And Mr. Wheeler reported to Dr.
21 Kelly?

22 A. Yes.

23 Q. To your knowledge, was Mr. Wheeler
24 aware of all communications between Monsanto
25 and Industrial Bio-Test on the series of

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1 tests that we've talked about, the lifetime
2 rat feeding study, the 18-month white-leg
3 chicken, the rat reproduction, and the
4 18-month Beagle dog studies?

5 A. Yes.

6 Q. If correspondence was to be
7 exchanged between Monsanto and Industrial
8 Bio-Test regarding the results of any of
9 those tests, to your knowledge would Mr.
10 Wheeler have to review the correspondence
11 before it went out?

12 A. That would be the normal
13 procedure, yes.

14 Q. Would you have an opportunity to
15 review any of the correspondence?

16 A. No.

17 Q. Would Dr. Kelly review any of the
18 correspondence?

19 A. Yes.

20 Q. All of it?

21 A. When he's available, in town, not
22 traveling.

23 Q. Dr. Kelly left Monsanto in
24 November of 1974?

25 A. Yes.

1 Q. And who was Dr. Kelly's
2 replacement?
3 A. Dr. George Roush.
4 Q. Now, did the procedure change
5 after November of 1974?
6 A. No.
7 Q. So Dr. --
8 A. Just Dr. Roush replaced Dr.
9 Kelly --
10 Q. So Dr. --
11 A. -- in --
12 Q. I'm sorry, go ahead.
13 A. In the line of communication.
14 Q. So Dr. Roush, then, would have to
15 review and approve any correspondence that
16 would be exchanged between Monsanto and
17 Industrial Bio-Test?
18 A. Yes.
19 Q. And where is Dr. Roush today?
20 A. The last I heard, he is still in
21 the St. Louis area. He retired.
22 Q. I'd like to show you a document
23 which we will have marked as Papageorge 8.
24 The form I'm going to give it to you in is as
25 follows. The first page is a letter which

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1 bears your signature, and then the next two
2 pages have been previously marked as Kelly
3 26. I'm going to ask you to take a look at
4 all three pages and identify it for the
5 record.

6 (Witness peruses said
7 document.)

8 A. I have reviewed the documents.

9 BY MR. INNELLI:

10 Q. It is my understanding that the
11 letter dated March 18, 1975, is the cover
12 letter to the pages which have been marked as
13 Kelly 26.

14 A. That is correct.

15 Q. Could you then identify what will
16 become Papageorge number 8?

17 A. This exhibit is a letter dated
18 March 18, 1975, and authored by me and mailed
19 to Dr. -- or to Mr. Dan Albert, Westinghouse
20 Electric Corporation. Attached to that
21 letter is a three-page question-and-answer
22 summary. This is in response to Mr. Albert's
23 letter that he had sent to me in early
24 February of '75.

25 Q. Now, you've said that you authored

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1 the letter. Did you author the three-page
2 question-and-answer sheet?

3 A. No.

4 Q. Do you know who did author it?

5 A. Yes.

6 Q. Who was that individual?

7 A. Mr. Elmer Wheeler.

8 Q. Were you the recipient of the
9 questions?

10 A. Yes.

11 Q. And did you turn them over to Mr.
12 Wheeler?

13 A. Yes.

14 Q. And asked him to prepare the
15 responses?

16 A. Yes.

17 Q. Did you have any input or any
18 participation in the preparation of the
19 responses?

20 A. Oh, I had discussions with Mr.
21 Wheeler. I don't know that I added anything
22 to what he was proposing. I was interested
23 in what his reaction and comments might be.
24 Other than that, I just told him, "Will you
25 please put it all in writing so I can forward

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1 it to Mr. Albert.

2 Q. You say that you don't know
3 whether you had any additions. Did you have
4 any deletions from comments Mr. Wheeler may
5 have made?

6 A. No.

7 MR. INNELLI: I have no further
8 questions at this time. Thank you.

9 MR. McMANUS: Mr. Papageorge I
10 have no questions for you, thank you.

11 MR. McLAUGHLIN: Can I ask off the
12 record?

13 (Discussion off the record.)

14 MR. COHEN: Does anybody have any
15 questions?

16 MS. GROSS: No. Thank you.

17 MS. COONELLY: I have one
18 question.

19 EXAMINATION

20 BY MS. COONELLY:

21 Q. Mr. Papageorge, you asked earlier
22 about after the PCB products leaving the
23 plant, you knew that some PCB products were
24 shipped to railroad locations; is that right?

25 A. Did I say it with those words?

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1 Q. No, you didn't say it in those
2 words.

3 A. I recall seeing lists which refer
4 to railroads. I am -- my memory is fuzzy in
5 terms of whether it was dielectric fluid or
6 other chemicals. I do not have the records
7 to peruse personally so I cannot determine
8 that for a certainty, but it is possible and
9 quite likely, because it was a very common
10 practice, for the service companies like the
11 GE's and the Westinghouses and others, to
12 order the material, charge it to their
13 account, but ship it to this address, is what
14 I meant earlier with my reference to "Bill
15 to" and "Ship to."

16 Q. Thank you. I know you were no
17 longer the plant manager in 1976 or
18 thereafter, but are you aware of any shipment
19 of PCB's to Conrail --

20 A. I'm not --

21 Q. -- from Monsanto?

22 A. I don't recall any personally.

23 Q. But you probably wouldn't have had
24 knowledge of that anyway?

25 A. Not that kind of detail, unless I

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1 had a chance to look at records.

2 MS. COONELLY: Thank you.

3 EXAMINATION

4 BY MR. McLAUGHLIN:

5 Q. Have you retired from Monsanto.

6 A. Yes, sir.

7 Q. And when did you retire?

8 A. My last working day, I'll have to

9 think, December 31st, 1986. I have to think

10 about it.

11 MR. McLAUGHLIN: Are we done?

12 MR. COX: I think we're done.

13 MS. COONELLY: No further

14 questions.

15 (Whereupon, at 3:15 p.m., the

16 deposition was concluded.)

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COMES NOW THE WITNESS, WILLIAM
B. PAPAGEORGE, and having read the foregoing
transcript of the deposition taken on the
17th day of July, 1991, acknowledges by
signature hereto that it is a true and
accurate transcript of the testimony given on
the date hereinabove mentioned.

William B Papageorge

WILLIAM B. PAPAGEORGE

Subscribed and sworn to before me
this 28th day of August, 1991.

JOSEPHINE S. NIBLOCK
NOTARY PUBLIC STATE OF MISSOURI
ST. LOUIS COUNTY
MY COMMISSION EXP. JAN. 15, 1995

My Commission expires: _____

Josephine S. Niblock

Notary Public

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1 STATE OF MISSOURI)

2 SS:)

3 CITY OF ST. LOUIS)

4 I J. Bryan Jordan, notary public
5 in and for the State of Missouri, duly
6 commissioned, qualified and authorized to
7 administer oaths and to certify depositions,
8 do hereby certify that pursuant to agreement
9 in the civil cause now pending and
10 undetermined in the Court of Common Pleas of
11 the County of Philadelphia, State of
12 Pennsylvania, and in the United States
13 District Court for the Eastern District of
14 Pennsylvania, to be used in the trial of said
15 cause in said court, I was attended at the
16 offices of Brown & James, in the City of St.
17 Louis, State of Missouri, by the aforesaid
18 witness and by the aforesaid attorneys, on
19 the 17th day of July, 1991.

20 The said witness, being of sound
21 mind and being by me first carefully examined
22 and duly cautioned and sworn to testify the
23 truth, the whole truth, and nothing but the
24 truth in the case aforesaid, thereupon
25 testified as is shown in the foregoing

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1 transcript, said testimony being by me
2 reported in shorthand and caused to be
3 transcribed into typewriting, and that the
4 foregoing pages correctly set forth the
5 testimony of the aforementioned witness,
6 together with the questions propounded by
7 counsel and remarks and objections thereto,
8 and is in all respects a full, true, correct
9 and complete transcript of the questions
10 propounded to and the answers given by said
11 witness; that signature of the deponent was
12 not waived by agreement of counsel.

13 I further certify that I am not of
14 counsel or attorney for either of the parties
15 to said suit, not related to nor interested
16 in any of the parties or their attorneys.

17 Witness my hand and notarial seal
18 at St. Louis, Missouri, this 21st day of
19 August, 1991.

20 My commission expires July 20,
21 1994.

22 J. Bryan Jordan

23 J. Bryan Jordan

24 Notary Public in and for the
25 State of Missouri

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