

IN THE CIRCUIT COURT OF ST. CLAIR COUNTY, ALABAMA
PELL CITY DIVISION

THOMAS C. and CHARLOTTE	)	
G. DYER,	)	
Plaintiffs,	)	CIVIL ACTION NUMBER
	)	CV-93-250 consolidated
VS.	)	with CV-94-50-PH for
	)	discovery only
MONSANTO COMPANY, A	)	
Delaware corporation,	)	DEPOSITION OF:
Defendants.	)	EARL SCOTT TUCKER, III
	)	
SHELTER COVE MANAGEMENT,	)	
INC., et al.,	)	
Plaintiffs,	)	
	)	CIVIL ACTION NUMBER
VS.	)	
	)	CV-94-50-PH
MONSANTO CORPORATION,	)	
et al.,	)	

S T I P U L A T I O N

IT IS STIPULATED AND AGREED, by and between
the parties through their respective counsel, that the
deposition of:

EARL SCOTT TUCKER, III,
may be taken before Jill Sanders, Commissioner and
Notary Public, State at Large, at the offices of
Lightfoot, Franklin and White, 400 20th Street North,
Birmingham, Alabama, on the 30th day of December 1998,
commencing at approximately 10:00 a.m.

Tucker, E. Scott (deft's analyt chem expert) in DYER

1 IT IS FURTHER STIPULATED AND AGREED that the
2 signature to and reading of the deposition by the
3 witness is not waived, the deposition to have the same
4 force and effect as if full compliance had been had
5 with all laws and rules of Court relating to the
6 taking of depositions.

7
8 IT IS FURTHER STIPULATED AND AGREED that it
9 shall not be necessary for any objections to be made
10 by counsel to any questions, except as to form or
11 leading questions, and that counsel for the parties
12 may make objections and assign grounds at the time of
13 the trial, or at the time said deposition is offered
14 in evidence, or prior thereto.

15
16 * * * * *
17

A P P E A R A N C E S

FOR THE PLAINTIFF:

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1 I, Jill B. Sanders, a Court Reporter of
2 Birmingham, Alabama, and a Notary Public for the State
3 of Alabama at large, acting as commissioner, certify
4 that on this date, pursuant to Rule 30 of the Alabama
5 Rules of Civil Procedure and the foregoing stipulation
6 of counsel, there came before me on the 30th day of
7 December 1998, at the offices of Lightfoot, Franklin &
8 White, 400 20th Street North, Birmingham, Alabama,
9 commencing at approximately 10:00 a.m., EARL SCOTT
10 TUCKER, III, witness in the above cause, for oral
11 examination, whereupon the following proceedings were
12 had:

13 EARL SCOTT TUCKER, III,
14 being first duly sworn, was examined and testified as
15 follows:

16
17 EXAMINATION BY MR. GRAMMAS:

18 Q Dr. Tucker, you have, I guess, a Ph.D.; is
19 that correct?

20 A Yes.

21 Q You're not a medical doctor?

22 A No, I'm not.

23 Q Could you state your full name, please, for

1 the record?

2 A My full name is Earl Scott Tucker, III.

3 Q Where do you currently reside?

4 A I live in Liberty, South Carolina.

5 Q You have been retained as an expert in this
6 case?

7 A As an expert in facts, yes.

8 Q When I say you've been retained as an
9 expert, you're being paid for your testimony in this
10 case?

11 A No.

12 Q You're not?

13 A No, not as far as the facts are concerned.

14 Q Are you in any degree or in any manner
15 receiving any compensation from Monsanto for your
16 testimony?

17 A Today?

18 Q At any time in this case.

19 A In this case, I will be reimbursed for my
20 expenses and for travel to get here and for the hotel
21 and things of that sort, but I'm not receiving a fee
22 for this deposition.

23 Q Not the deposition, for this case. Have you

1 received a fee from Monsanto for any of your time in
2 this case?

3 A Yes.

4 Q Okay. How much to date have you been paid,
5 if you know?

6 A I think only about two to three thousand
7 dollars.

8 Q What was that for?

9 A That was to review all of the expert reports
10 that our folks had put together and bring myself up to
11 speed.

12 Q And where are you currently employed?

13 A I'm currently employed with a company that's
14 called IT or International Technologies. They just
15 recently purchased a company that I was working for
16 called OHM, who purchased another company that I
17 worked for called Rust, which may be more familiar
18 with the folks here.

19 Q When did IT purchase OHM? Because in this
20 report that you've signed which is dated as recently
21 as October of this year, you stated in the first
22 paragraph that you were currently employed by OHM, so
23 I assume it was very recently.

1 A Correct. It's been in the last quarter of
2 this year that the deal was put forth and completed.

3 Q Okay. And you told me again and I forgot
4 what city you said you lived in South Carolina?

5 A Liberty, South Carolina.

6 Q Where is that?

7 A It's located approximately thirty miles
8 south of Greenville, South Carolina, roughly a hundred
9 and twenty miles north of Atlanta.

10 Q What is your current responsibilities for, I
11 guess, IT?

12 A My current responsibilities is to handle the
13 quality control/quality assurance with several
14 Superfund projects.

15 Q You're basically doing the same thing for IT
16 that you state you were doing for OHM in your report?

17 A Correct. Same projects, the company was
18 just purchased by IT.

19 Q And these companies are hired to work on
20 Superfund sites?

21 A Correct.

22 Q What role does your company take? Clean up?

23 A It's the clean up, correct, remediation.

1 And the particular area I'm involved is thermal
2 remediation.

3 Q What's that?

4 A It involves taking soil and running it
5 through a large thermal treatment unit that removes
6 the contaminants and then verifying that the
7 contaminants are no longer in the soil and returning
8 the soil to the site.

9 Q Is that a proper way to remediate PCB
10 contaminated product?

11 A It can be.

12 Q Tell me all the projects that you are aware
13 of either that you have worked on or through your
14 experience you have learned that PCB remediation was
15 treated by a thermal process.

16 A I've been directly involved with one PCB
17 thermal remediation project, it involved thermal
18 desorption and thermal desorption really is a means by
19 which the soil is heated in a nitrogen atmosphere.
20 The PCBs are vaporized and then condensed and then the
21 PCBs are then bulked and taken to an appropriate
22 incinerator for disposal.

23 Q Where was that, sir?

1 A That project was in Pickens, South Carolina,
2 and it was called the Samagano project.

3 Q Could you spell that?

4 A I'll try.

5 Q I'm a horrible speller.

6 A S-a-m-a-g-a-n-o, I believe.

7 Q In Pickens, South Carolina?

8 A Yes, sir.

9 Q What was the source of the PCBs?

10 A Capacitor impregnation plant.

11 Q What is that?

12 A Pardon?

13 Q Tell me what that is.

14 A PCBs were used predominantly as a dielectric
15 fluid. When you prepare a capacitor, you fill it with
16 PCB or impregnate it with a PCB dielectric fluid and
17 in the process of doing that they already got
18 contaminated years and years ago when they didn't
19 understand what they were working with.

20 Q You mean spills and things like that?

21 A Spills, not like railroad car accidents or
22 things of that sort but just through normal use of the
23 material, it had gotten into the area and using the

1 appropriate technology of the time, it had
2 contaminated a fair amount of the area there and the
3 soil had to be removed and the PCBs were removed and
4 put back in the ground.

5 Q Well, the area, was it a dry area or was it
6 a river or stream?

7 A Both.

8 Q Could you use a thermal remediation process
9 in a river or stream?

10 A Not without a great deal of pretreatment.

11 Q What would you do to go about doing it?

12 A Well, water is particularly difficult to
13 burn, so if you are going to run the PCBs -- well,
14 first of all, you wouldn't do the PCBs in water, you
15 would have to run the water through carbon and then
16 decide what you want to do with the carbon.

17 If you're going to do the PCBs in a
18 sediment, obviously you'd have to separate it from the
19 water, you'd have to dewater the material to a point
20 where you wouldn't use all your thermal energy getting
21 rid of the water, and then you would have to treat the
22 site.

23 It would not be a preferred technique

1 necessarily.

2 Q What is your preferred technique? Well, let
3 me ask you this: Have you personally ever been
4 involved in PCB remediation in river systems, creeks,
5 lakes?

6 A No. I'd like to qualify myself in terms of
7 what I really am technically competent about talking
8 about and that is I'm an analytical chemist and so my
9 area of expertise is really measuring PCBs in various
10 environmental mattresses and interpreting that
11 information for the folks that really decide how a
12 remediation should happen.

13 Q Okay. Well, let me ask you this then, are
14 you in a position to give any opinions or comments
15 about the proper way that PCBs should be remediated in
16 this case?

17 A My opinions would not be as a technical
18 expert in that kind of thing. That's not as I said my
19 area of expertise. There are a number of ways that
20 PCBs have been remediated in the past and probably
21 will continue to be remediated in the future. Each
22 site, depending upon the concentration, other
23 contaminants, the type of soil, the whole gamut of

1 things, variables that are around has to be looked at
2 before you can decide what the appropriate treatment
3 technology is.

4 Q So what you've just done to me you just
5 given me an opinion on remediation. Now, either --
6 and that's fine.

7 A I'll make it easy for you. I'm not
8 qualified to give opinions on remediation because
9 that's not my technical area of expertise.

10 Q And that would include the last opinion.

11 MR. PECK: We're not putting him up to give
12 opinions about the -- if you ask him about it, he'll
13 give answers, but we are not putting him up -- we do
14 not plan to ask him at trial opinions about the
15 adequacy of any proposal we have to remediate really
16 anything around the plant, particularly not around,
17 you know, Choccolocco Creek, Snow Creek or Lake Logan
18 Martin, that's just not what the witness is here for.

19 Q You agree with what Mr. Peck --

20 A I certainly do. If they ask me to offer an
21 opinion of that sort, I would recommend people that I
22 know who really do that.

23 Q And who are these people that you know that

1 -- let me ask you this: Who do you know that is
2 qualified to give an opinion about what remediation
3 efforts should be made, if any, with respect to the
4 PCBs in Snow Creek, Choccolocco Creek and Lake Logan
5 Martin?

6 A I think one of the places that most opinions
7 come from and most opinions finally end up happens to
8 be the Environmental Protection Agency, so I certainly
9 would want to know what they thought about the subject
10 and then there are certainly state agencies that in
11 RCRA situations and things of that sort have premase.

12 Q What about individuals?

13 A There are a number of them available.

14 Q Have you read --

15 A Through the many engineering firms that
16 specializes in that kind of thing.

17 Q Have you read all of the expert reports
18 or -- and Adam may be the better person to answer
19 this.

20 MR. GRAMMAS: Do you know, Adam, whether
21 this gentleman has been given all the expert reports
22 in this case, both the plaintiff side and defense
23 side?

1 MR. PECK: I'm confident he's not.

2 Q Have you read any expert reports either from
3 experts hired by my clients or from experts hired by
4 Monsanto that offered opinions regarding remediation
5 of this project?

6 A No, I have not.

7 Q Your company -- there are individuals at
8 your company that are -- or that do have expertise in
9 PCB remediation?

10 A You're talking about IT?

11 Q Right.

12 A Correct.

13 Q And it's not uncommon for IT to be hired
14 when someone like the EPA or some state agency or even
15 a particular company discovers that due to it's
16 conduct PCBs were allowed to escape from their land
17 sites and enter into waterways?

18 A It depends on whether or not the company
19 would, first of all, want to bid on any projects that
20 they were knowledgeable about. And secondly whether
21 or not they won the competitive bid on the project
22 with both the best way to do it and the best dollar
23 amount.

1 So it really depends. Remediation is
2 remediation. There's all sorts of remediation. And
3 PCB isn't the only thing that gets remediated.

4 Q Right. But what I want to establish and
5 what I want this jury to understand is that you have
6 spent an entire career working in an industry
7 regarding at least the measurements of PCBs, right?

8 A Correct.

9 Q And in some form or fashion entire career
10 regarding remediation of PCB spills or discharges,
11 right?

12 A From 1985 to date was when I worked in the
13 remediation industry and maybe about a tenth to a
14 fifth of the projects that I was associated with were
15 -- a tenth to maybe five percent of the projects I was
16 associated with had something to do with PCBs.

17 As I said, PCBs are not the only contaminant
18 around.

19 Q Right. And I don't want to suggest that all
20 you do is work on PCB-related issues.

21 A Right. And that's what I wanted to clarify,
22 in fact, most of my work has absolutely nothing to do
23 with PCBs in terms of remediation area.

1 Q Fair enough. But what I do want the jury to
2 understand is it is not uncommon at all in your
3 experience that PCBs when discovered to be present in
4 a river system are in some form or fashion cleaned up
5 through companies like the one you worked with?

6 MR. PECK: Object to the form of the
7 question.

8 A Correct.

9 Q Okay. Before we get any further I want to
10 talk to you about a few things concerning PCBs in
11 general and just see if you will agree with me about
12 certain aspects of PCBs.

13 You will agree with me, Dr. Tucker, that
14 PCBs are a persistent chemical, would you not?

15 A You know, again, on the surface I would say
16 yes but I prefer to understand what you mean by
17 persistent since technical terms have different
18 meanings to different folks.

19 Q What do you mean by persistent?

20 A Persistent means that on an average it
21 probably can exist in the environment a longer period
22 of time than other things.

23 Now, on the other hand, things like sodium

1 chloride and stuff like that are a hundred percent
2 persistent, they never go away.

3 So it really, it really needs to be defined
4 appropriately. PCBs have been considered as organic
5 molecules to be persistent under certain
6 circumstances.

7 Q What about thirty years, if a chemical stays
8 basically in an unaltered state after being put there
9 for over a thirty year period at that minimum, would
10 you consider that to be a persistent material?

11 A Correct, yes.

12 Q You know -- and you used to work for
13 Monsanto, right?

14 A Yes.

15 Q When you first got out of college, that was
16 the first job you took with Monsanto?

17 A That's correct.

18 Q And you worked there for a period of, if I
19 remember correctly, of about eleven to twelve years?

20 A Correct.

21 Q All right. Now, during that period of time
22 some of the very first projects you worked on were
23 ways to measure very small amounts of PCBs, right?

1 A Correct.

2 Q You in that work became aware of a study
3 that was done in Gainesville, Florida, where some PCBs
4 were placed there in the late '30s and were discovered
5 virtually in their unaltered state as late as 1963,
6 right?

7 A Yes.

8 Q And you were aware that it was there really
9 in the early '70s that PCBs were there at that site in
10 virtually an unaltered state, right?

11 MR. PECK: Object to the form of the
12 question.

13 A I already answered that.

14 Q Okay. Is the answer yes?

15 A Would you restate the question?

16 Q Yes. You knew that the PCBs at that site
17 stayed in virtually an unaltered state even sometime
18 in the '70s at the Gainesville site?

19 A Correct.

20 Q All right. So we know that the PCBs that
21 were placed there at that Gainesville site remained
22 there virtually unchanged for, at least at that time,
23 close to a forty year period?

1 A Is that a question?

2 Q Yes, sir.

3 A Actually that's not what we know. What we
4 know is is that the bulk of the material in the manner
5 in which it was placed in that area did remain there
6 and that's not as surprising as you might think. I
7 assure you if you took PCBs and put them in a bottle,
8 dug a hole and put the bottle in the hole and came
9 back in forty years, if nobody disturbed it, it would
10 still be there. Basically that's kind of what
11 happened.

12 Q Well, the bottom line is -- tell me who Mr.
13 Marsh is.

14 A I believe that --

15 Q Actually Marsh Magner, who is Mr. Magner?

16 A Marsh Magner, I believe, was part of the
17 agricultural division at Monsanto.

18 Q He applied some Aroclors to a soil test plot
19 at the University of Florida in Gainesville on June
20 28, 1939, didn't he?

21 A He was responsible for supervising the
22 application.

23 Q Right. And they noticed back in, like I

1 said earlier, 1963, they looked at these same soil
2 plots and they found that the PCBs were still there in
3 the virtually identical form, shape and manner that
4 they were there when they were placed there in the
5 soil?

6 A Correct. The bulk of PCBs that were placed
7 there were still there. And I would caution you that
8 the reason they were still there was the manner in
9 which they were put there and the concentration that
10 they were put there.

11 Q The bottom line is, based on tests you knew
12 because you're Scott Tucker, right?

13 A That's correct.

14 Q You've seen this document I'm talking about,
15 haven't you?

16 A I'd like to take a look at it.

17 Q Okay, sure. The reason I'm not making it as
18 an exhibit is it's the only one I have.

19 A Well, I want to make sure what you're
20 talking from.

21 Q It's a document dated April 8th, 1969, and
22 on this particular document it doesn't have a Bates
23 stamp number on it. That's your name right here?

1 A That is my name, Scott Tucker. I'm on the
2 distribution list.

3 Q You were employed by Monsanto at this time?

4 A Yes, I was.

5 Q Have you seen this document before today
6 other than when you saw it obviously when you got it
7 back in 1969?

8 A I probably have seen it over the years.

9 MR. PECK: Did you finish reading it?

10 A I don't know how much further he's going to
11 go.

12 Q That's all I'm going to go into it.

13 A Let me just refresh my memory.

14 Q Sure. Have you seen that document as
15 recently as yesterday or when you met with your
16 Monsanto lawyers?

17 A I don't believe this is one of the documents
18 that I looked at yesterday.

19 Q The only point I'm trying to make in all of
20 this is, Monsanto has known for years and years and
21 years, at least since 1969, that PCBs applied to soil
22 will stay there virtually unchanged for thirty years
23 or more, that's the only point I'm trying to make,

1 right?

2 MR. PECK: Object to the form of the
3 question.

4 Q That doesn't come as any surprise to you,
5 does it, Dr. Tucker?

6 A Well, as I said, qualifying what the point
7 you're trying to make in terms of the way I look at
8 things, the amount of PCBs that were placed there, the
9 pure PCBs that were placed there and the manner in
10 which they were placed there, intended that they stay
11 there and that they not go away.

12 So you asked me if I'm surprised that most
13 of the material is still there, and the answer is yes,
14 I'm surprised that most of the material is still
15 there.

16 On the other hand, when you really sit down
17 and think about it and the manner in which it was done
18 it's not quite so surprising as it might be to someone
19 like yourself.

20 Q It's not surprising to me because I've read
21 the literature that talks about how persistent this
22 chemical is. I've read the literature that talks
23 about how the chemical doesn't break down and stays

1 virtually unchanged for decades and decades. Some
2 literature you've read, Dr. Tucker, has even suggested
3 that it never breaks down, haven't you read literature
4 like that about PCBs?

5 A I've read opinions like that.

6 Q Okay.

7 A I've seen very few factual information -- in
8 fact, I've seen facts that are the exact opposite of
9 what you're trying to make of this particular item.

10 Q Sir, I'm not trying to make anything. I
11 just want the status of things.

12 A Well, I get the feeling that you might be
13 and so in trying to answer your questions correctly, I
14 need to understand where you're going with them.

15 Q Right. I asked you a simple question, if
16 PCBs are persistent, and that led into this document.

17 A They are considered persistent if you define
18 persistent correctly.

19 Q As in lasting for decades?

20 A No, that is not the kind of persistence that
21 I believe you are trying to talk about, absolutely
22 not.

23 Q Well, let me ask you this, then. Are you

1 disagreeing that the PCBs that are found right now in
2 Snow Creek, Choccolocco Creek and Lake Logan Martin
3 did not come from the Monsanto facility?

4 MR. PECK: Object to the form of the
5 question.

6 A That's a quantum jump that I'm not sure how
7 you made.

8 Q I'm just asking you that. Do you --

9 A Am I sure that those PCBs in the area that
10 you just talked about came specifically from the
11 Anniston plant; is that the question you're asking me?

12 Q No, that wasn't my question. My question is
13 is there any doubt in your mind that the PCBs in Snow
14 Creek, Choccolocco Creek and Lake Logan Martin did not
15 come from the Monsanto facility in Anniston?

16 A Sure, absolutely.

17 Q There is a doubt?

18 A Oh, absolutely.

19 Q Why is that?

20 A Because a lot of other people used PCBs
21 besides that facility.

22 Q What I want to know is you tell me who these
23 people are.

1 A Anybody that purchased the product from
2 Monsanto and used it in any particular application
3 could be responsible, if they were on that particular
4 watershed, for the PCBs that are in that watershed; I
5 think that is obvious.

6 Q Maybe you didn't understand my question and
7 that's my fault.

8 I'm not saying nor am I trying to suggest
9 that it's your opinion that Monsanto is the only
10 source of PCBs there. What I want to know is is there
11 any doubt in your mind that Monsanto is a source of
12 the PCBs in Snow Creek, Choccolocco Creek and Lake
13 Logan Martin?

14 MR. PECK: Object to the form of the
15 question, no foundation.

16 A To answer that question yes or no, I would
17 have to say yes, there is doubt.

18 Q Okay.

19 A And I've expressed that.

20 Q Do you know, sir, based on your -- and you
21 did testing of these PCBs when you were working at
22 Monsanto, right?

23 A Yes, I did.

1 Q You tested in Snow Creek?

2 A Yes, I did.

3 Q You were responsible for testing Choccolocco
4 Creek?

5 A Yes.

6 Q And you tested in Lake Logan Martin for
7 PCBs, didn't you?

8 A Yes -- wait a minute, I'm not so sure that
9 we went down that far as Lake Logan Martin. We might
10 have. I would have to review documents to make sure.
11 How far is Lake Logan Martin from the plant?

12 Q I don't know how many miles from, you know,
13 the river bending, I don't have any idea.

14 A The primary samples that we looked at, I'm
15 trying to remember were at, there was a drainage ditch
16 that went into Snow Creek and those would be the kind
17 of areas that we primarily looked at. There were some
18 other ones.

19 Q You were responsible for developing methods
20 to inspect or to test for PCBs at very, very small
21 levels, you developed these methods, right?

22 A Yes.

23 Q While you were employed at Monsanto.

1 A Yes.

2 Q Monsanto asked you, based on your education
3 and background, to come up with a way so that they
4 could test very small amounts of PCBs?

5 A Correct.

6 Q And you did that for them?

7 A Yes.

8 Q And you were successful in doing that?

9 A Yes.

10 Q And Monsanto had this technology, certainly
11 by the '60s?

12 A No.

13 Q The late '60s?

14 A No.

15 Q 1969?

16 A The technology was really not well
17 established until the early '70s.

18 Q And y'all, based on the technology that you
19 developed, were testing for PCBs in both Snow Creek
20 and Choccolocco Creek, right?

21 A Yes. We analyzed samples that were supplied
22 to us that were labeled as being taken from those
23 areas; that's correct.

1 Q And you found PCBs in those samples, right?

2 A To the best of my recollection we did, yes,
3 some we found some in and some we didn't find some in.

4 Q That's not what I asked you. I just said
5 you found PCBs in those samples.

6 A In some of the samples.

7 Q Fair enough.

8 A Thank you.

9 Q Dr. Tucker, was there any doubt in your mind
10 at that time that the PCBs got there because of
11 Monsanto's operations in the Anniston plant?

12 MR. PECK: Object to the form of the
13 question.

14 A No. I would have to admit that the PCBs in
15 the samples that were closely -- close to the plant
16 and hadn't gotten to where other people were
17 contributing, I was convinced that that was from the
18 plant, yes.

19 Q PCBs you will admit, sir, adhere to
20 sediments?

21 A Pardon?

22 Q PCBs adhere to sediments, soils and
23 sediments?

1 A They are hydrophobic and they're absorbed by
2 solids, yes.

3 Q If they are dropped in water, they are not
4 water soluble, right?

5 A Not in the classical sense.

6 Q And they're heavier than water?

7 A Yes.

8 Q Which means you would expect PCBs being both
9 nonwater soluble and heavier than water to drop out
10 of the water column down to the bottom of the water?

11 A Correct. I would expect PCBs to behave like
12 motor oil.

13 Q And PCBs have a characteristic that allows
14 them or has the tendency to bond to the sediments at
15 the bottom of a river or a lake, right?

16 A They don't bond but they like that
17 environment better than water. They are not very
18 water soluble. Conversely, not much goes into water.
19 So if you put them into water, they go to the bottom.

20 Q And when testing in a river system, you
21 wouldn't really expect to find, unless it was just an
22 unbelievably contaminated site, to actually have PCBs
23 in the water itself, would you?

1 MR. PECK: Object to the form of the
2 question.

3 A I think -- are we talking at that time or
4 are we talking at this time?

5 Q At any time.

6 A I think PCBs are so ubiquitous, if you have
7 a sensitive enough method, that you can probably find
8 them anywhere.

9 Q Now, you understand, sir, that PCBs are not
10 biodegradable?

11 A No, I don't understand that.

12 Q You don't know that?

13 A I published articles that say exactly the
14 opposite of that.

15 Q They say they are biodegradable?

16 A Yes.

17 Q Were you working for Monsanto at the time
18 you published those articles?

19 A Yes.

20 Q Now, you would recognize volumes of
21 literature that disagree with the articles that you
22 published, right?

23 I'm not saying you agree with them, I'm just

1 saying there are many, many experts in your same field
2 that disagree with your conclusion that PCBs are
3 biodegradable.

4 A I don't think that's the case. I think the
5 issue is is that how biodegradable they are and which
6 specific isomers you're talking about.

7 I think given enough time all PCBs are
8 biodegradable.

9 Q And the documents, Monsanto documents that
10 discuss the fact that PCBs are not biodegradable, you
11 disagree with those documents, too?

12 MR. PECK: Object to the form of the
13 question.

14 A I think you've taken a shortcut here that's
15 an important shortcut not to take. And that shortcut
16 is that you're calling biodegradability black and
17 white, on and off, and that's not the case. Some PCBs
18 are more biodegradable than others. PCBs are more
19 biodegradable than some compounds but less
20 biodegradable than other ones.

21 But in my way of thinking, all PCBs are
22 biodegradable. It's just a matter of how quickly they
23 can be biodegraded and how rapidly -- and what they

1 are exposed to and things of that sort.

2 Q So if PCBs are in fish or in human beings,
3 how long would it take for them to become
4 biodegradable?

5 MR. PECK: Object to the form of the
6 question and foundation.

7 A It depends on where they are in the fish and
8 human beings. If they are stored in the lipid pool
9 that's never mobilized, it will stay there forever,
10 because that is where the body wants to keep them.

11 Q And that's where PCBs are typically stored,
12 aren't they?

13 A Correct. But that doesn't mean they are not
14 biodegradable. What it means is is that because of
15 the physical properties of PCBs that's where they go,
16 so therefore they are not available to the liver and
17 other portions that can metabolize them, that's all it
18 means. It doesn't mean they're not biodegradable.

19 Q And again, you disagree with literature and
20 Monsanto documents that describe PCBs as being
21 nonbiodegradable?

22 MR. PECK: Object to the form of the
23 question.

1 A As long -- I don't disagree with it. What
2 I'm trying to say is, if you say PCBs are absolutely
3 never biodegradable, you're wrong.

4 Q I'm not saying anything. All I'm doing is
5 reading Monsanto documents.

6 A People say that PCBs are not very
7 biodegradable or that this portion of PCBs is not
8 biodegradable. You have to understand the definition
9 of biodegradability. If the test is a twenty-four
10 hour test, then if they aren't disappearing in
11 twenty-four hours, they are not biodegradable under
12 those conditions.

13 If the test is a longer period of time or a
14 different kind of organism, things change.

15 So, in essence, if the information that
16 people are putting forth is based on good scientific
17 experiments and it's in context and I can understand
18 it, I probably would agree with it.

19 Q You will agree that PCBs bioaccumulate?

20 A Correct.

21 Q Tell me what that means.

22 A Bioaccumulation to me means that PCBs are
23 very hydrophobic. It means that they like things

1 oil-like things. So if they, for example, went into a
2 human being, you would expect that the body will
3 cleanse itself by depositing them in the fat.

4 Q And they would stay there for how long?

5 A As long as that fat is not mobilized, they
6 stay there.

7 Q Forever?

8 A I don't know what forever is.

9 Q They would stay there longer than you would
10 expect the human being carrying them around to live?

11 A Let me --

12 Q Could you answer that?

13 A Let me rephrase my answer to your question.
14 As long as that lipid pool is not mobilized or reused,
15 for example, the individual decides to lose weight or
16 something of that sort, the PCBs won't be mobilized
17 and they will stay there as long as that lipid pool is
18 not saturated.

19 If the lipid pool becomes saturated, then
20 the PCBs won't go there anymore and they'll flow
21 through the organism and go out through normal
22 metabolic pathway through the feces, through the
23 urine, or whatever.

1 Q Okay. You would expect the PCBs in this
2 fatty tissue to stay there certainly longer than the
3 human being will live?

4 MR. PECK: Object to the form, asked
5 and answered.

6 A I don't know where you're going with this, I
7 think I've answered the question. What I said to you
8 is that as long as the lipid pool remains unsaturated
9 and stays intact, the PCBs will stay there.

10 Q Okay. You will also agree, sir, that PCBs
11 last for decades in the environment if not remediated?

12 A There are conditions under which PCBs can
13 last for decades in the environment if not remediated,
14 yes.

15 Q You will also agree with me, sir, that PCBs
16 are a probable human carcinogen?

17 A No, I don't agree with that.

18 Q You disagree with those conclusions?

19 A Yes, sir, I do.

20 Q You will agree with me that PCBs have been
21 known to cause cancer in animals at certain doses?

22 A Yes, there are studies that state that.

23 Q And you will agree with me that PCBs are

1 listed as a probable human carcinogen by the federal
2 government?

3 A I will agree that PCBs are listed as a
4 probable carcinogen.

5 Q That's what I said.

6 A Correct.

7 Q Monsanto manufactured PCBs in Anniston for
8 over thirty years, correct?

9 A Correct.

10 Q Monsanto, sir, allowed PCBs to enter Snow
11 Creek and Choccolocco Creek and Lake Logan Martin?

12 MR. PECK: Object to the form of the
13 question.

14 A As a result of their activities, PCBs did
15 enter, yes. But I don't think they gave them
16 permission, necessarily, you're using the word
17 allowed.

18 Q It's just a verb that I chose.

19 A And I wanted to be more technical in the
20 sense that --

21 Q Let me rephrase the question.

22 A -- during the manufacturing process there
23 were PCBs that were released, yes.

1 Q Into Snow Creek, Choccolocco Creek and Lake
2 Logan Martin by Monsanto?

3 A I can speak to those areas where analysis --
4 I did analysis and I would say that Snow Creek and I
5 think we probably did samples from Choccolocco and
6 things of that sort.

7 Now, once you get outside of the boundaries
8 of the Monsanto plant and get into the larger
9 watershed, I think it's not only Monsanto, I think
10 there's a lot of other contributors as we discussed
11 earlier.

12 Q While you were employed at Monsanto, Dr.
13 Tucker, you personally developed techniques for
14 Monsanto to test for the presence of PCBs and that --
15 and these technologies were developed by the very
16 early '70s, 1970s?

17 A In the early '70s, correct.

18 Q And at least by that time, the very early
19 1970s, Monsanto had the technical capabilities to test
20 for the presence of PCBs in the environment, right?

21 A Correct.

22 Q Monsanto could have used the capabilities,
23 the technical capabilities that they paid you to

1 develop for them to test for the presence of PCBs in
2 Lake Logan Martin in the early 1970s, correct?

3 A They could have -- this is a supposition,
4 they could have; is that correct?

5 Q They could have.

6 A That methodology can be applied anywhere.

7 Q My point is, Monsanto had possession of the
8 methodology that you developed to test for PCBs in the
9 1970s and they could have used that technology to test
10 for it in Lake Logan Martin at that time?

11 A Yes.

12 Q And those tests would have allowed Monsanto
13 to determine exactly where the PCBs were located, if
14 any, in Lake Logan Martin in 1970, right?

15 MR. PECK: Object to the form of the
16 question.

17 A It would allow them to determine the
18 distribution, yes.

19 Q Now, in your --

20 A I get back to the point that Lake Logan
21 Martin, Monsanto is probably not the only contributor.
22 So that would not have been really germane to what
23 Monsanto was attempting to do.

1 Q Well, what was Monsanto attempting to do?

2 A Monsanto was attempting to find out where
3 and why the leakage was occurring and an attempt to
4 remediate that and to discontinue it. I think that's
5 evident from the record.

6 Q What's not evident from the record the, what
7 I'm hearing you saying and what you do not recall
8 while you were employed there during that eleven or so
9 year period of time, is that Monsanto was not
10 concerned about PCBs in Lake Logan Martin.

11 A I disagree.

12 Q Well, tell me, sir.

13 A I think Monsanto was concerned about PCBs in
14 the environment in general. And I think that the
15 whole thing that triggered Monsanto's concern were
16 some findings by some scientists in Sweden, so to say
17 they didn't have a little more cosmopolitan global
18 attitude toward the environmental impact is, I think,
19 erroneous.

20 Q Monsanto had you working on a way to test
21 for PCBs in the environment before these Swedish
22 people found that PCBs were in the environment?

23 A No.

1 Q After that?

2 A Yes.

3 Q Are you aware of anything that Monsanto had
4 before then, before that period of time, any process
5 they had in place that would allow them to test for
6 PCBs in the environment?

7 A At the levels and in the matrices we were
8 looking at, the testing wasn't available. So you
9 yourself stated that we were the first to develop it.

10 Q No, that's what your reports indicate.

11 A Okay.

12 Q What were you doing, sir, in 1955? And I
13 don't mean --

14 A Who was I working for and things of that
15 sort?

16 Q Yes. How old were you in 1955?

17 A I was born in 1939, so that would make me, I
18 think, probably about sixteen years old.

19 Q And you were in high school?

20 A I would hope so. At sixteen, yes, sir. I'm
21 trying to remember. Yes, I was probably in Central
22 High School in Flint, Michigan, at that time.

23 Q You didn't know anything about PCBs or how

1 to test for them or anything of that nature back then,
2 did you?

3 A Certainly not. No.

4 Q Have you read documents from Monsanto that
5 suggest that Monsanto knew that PCBs were toxic as
6 early as 1955?

7 A I've read -- I believe there are some --
8 Monsanto has -- okay.

9 Monsanto as a chemical company has always
10 been concerned about the impact of its chemicals on
11 its workers. And I think what we're kind of getting
12 at is the concern about workers who are exposed to
13 PCBs or other kinds of chemicals period during the
14 manufacturing of those materials.

15 And I have read documents that the medical
16 department -- yes, I recall documents that were
17 concerned about the exposure that it might have on
18 employees and things of that sort.

19 Q In 1955 Monsanto knew that PCBs were toxic
20 to human beings?

21 A I don't know that to be a fact.

22 Q What documents are you talking about that
23 you read?

1 A I vaguely recall memos that -- I can't
2 remember whether I've actually seen 1955 documents
3 which I may have or whether I've seen the reference to
4 that. And I'm not sure about 1955. I would have to
5 look at whatever you're talking about to tell you
6 whether or not I've seen it.

7 Q Did you review any documents with any
8 lawyers from this firm recently?

9 A Yes.

10 Q When did you come up here?

11 A I came up here yesterday afternoon.

12 Q And what document did you look at?

13 A You would have to show them to me. They
14 were historical documents, mainly ones that had my
15 name on it as something I wrote or as something that
16 was distributed that I might be on and it was
17 basically to kind of refresh my memory. Some of the
18 documents were -- I'm trying to remember, most of them
19 were in the late '60s, '68, '69, '70, '71, '72, things
20 like that.

21 Q What time yesterday did you get here?

22 A My plane got in at 12:20, it was a little
23 late. I think I got here around a quarter to 2:00.

1 Q Who did you meet with?

2 A I met with Adam and I think the first person
3 I met when I came in was Mr. Cox.

4 Q Buddy Cox?

5 A Yes, correct.

6 Q And he introduced you or brought you to
7 Adam?

8 A Yes.

9 Q Was that the first time you had ever met Mr.
10 Peck?

11 A Yes.

12 Q How long a period of time did you and Mr.
13 Peck talk about your testimony today?

14 A We talked about -- I mean, it wasn't that we
15 were talking about the testimony.

16 MR. PECK: Wait, let me caution you in
17 answering the question. I don't think he's asked you
18 an improper question yet, but in answering the
19 question, be careful not to disclose the content of
20 the information, that is privileged.

21 MR. GRAMMAS: Wait a minute, Adam.
22 This is an expert witness. I am entitled to know
23 every single thing y'all talked about.

1 MR. PECK: No, you're not.

2 MR. GRAMMAS: Yes, I am.

3 MR. PECK: Well, you can take it up
4 with the court, but you're not entitled to know that.
5 He is a former Monsanto employee. He's told you --

6 MR. GRAMMAS: You're paying for his
7 testimony.

8 MR. PECK: Let me finish my statement.

9 MR. GRAMMAS: You're paying for his
10 testimony. We've already established that.

11 MR. PECK: No, we're not.

12 MR. GRAMMAS: You paid this man over
13 two or three thousand dollars to date for his
14 testimony.

15 MR. PECK: No, we've not.

16 MR. GRAMMAS: Well, whatever. Let me
17 just ask the question and --

18 MR. PECK: He didn't testify to that.

19 Q (By Mr. Grammas) Did you not tell me
20 earlier, Dr. Tucker --

21 MR. PECK: Pete, you can ask it all the
22 times you want, but I'm going to instruct him not to
23 answer any questions that were asking him to reveal

1 communications we had with him because he is a former
2 Monsanto employee, he can bind the company with that
3 testimony. When you're asking him about factual
4 information that occurred during that time period and
5 discussions that you may have had about it, that's
6 privileged. If you ask him about things and analysis
7 he may have done on this case, which he hasn't done
8 any, then that wouldn't be privileged. That's the
9 line I'm drawing.

10 Everything we discussed would be within
11 the context of privilege.

12 MR. GRAMMAS: Are you finished?

13 MR. PECK: Yes, I'm finished.

14 Q (By Mr. Grammas) Did you not testify
15 earlier, Dr. Tucker, that you had been compensated to
16 date approximately two to three thousand dollars for
17 your time apart from any expenses you've incurred?

18 A Yes.

19 Q Okay. And you got that two or three
20 thousand dollars to compensate you as an expert
21 witness in this case?

22 A No. I was given documents that I was asked
23 to spend time to review, and I haven't been asked

1 anything about them.

2 Q Why did you charge them then?

3 A Because I spent time doing it.

4 Q In other words, you get paid for your time
5 just like lawyers get paid for their time?

6 A When I'm not dealing with factual aspects of
7 the case I do, yes.

8 Q And therefore there's only one conclusion we
9 can draw, Dr. Tucker, you have received compensation
10 in this lawsuit, according to your testimony, for at
11 least two or three thousand dollars, correct?

12 A Correct.

13 Q Okay. Now, how long did you meet -- you
14 said you met two or three hours with Mr. Peck
15 yesterday?

16 A I said I got here at a quarter to 2:00 and
17 we met until normal business closing hours.

18 Q At that time did you meet with any lawyers
19 at that time or did you leave?

20 A No, I left and went to dinner.

21 Q With the lawyers?

22 A I went to dinner with a couple of lawyers,
23 yes.

1 Q Did y'all talk about your testimony today
2 over dinner?

3 A No. We talked about horses.

4 Q So the only time you discussed your
5 testimony here today with any lawyers that have hired
6 you to testify was during the period of time you came
7 to this law firm and met with Mr. Peck?

8 A Correct.

9 Q Now, tell me, sir, what you and Mr. Peck
10 talked about as far as preparing you for your
11 testimony?

12 MR. PECK: I'm instructing you -- I
13 object to the form of that question on the grounds it
14 calls for attorney-client communication and therefore
15 instruct you not to answer.

16 Q You will admit that y'all did talk about
17 your testimony today and Mr. Peck advised you as to
18 where he thought I may ask you questions and presented
19 you documents and those type things?

20 MR. PECK: Object to that question and
21 calls for attorney-client communication and instruct
22 him not to answer.

23 Q Are you going to follow Mr. Peck's advice

1 and not answer my questions?

2 A Yes, sir.

3 Q Why did Monsanto hire you to develop a
4 method to test for very small levels of PCBs in the
5 late '60s?

6 A To be truthful with you, I wasn't hired to
7 do that. I was hired because I had a Ph.D. in
8 chemistry and I just completed my work at the
9 University of Iowa in analytical/organic chemistry and
10 that's where I was.

11 Q Why did they ask you, then, after you were
12 already hired to try to come up with a method to test
13 for very minuscule levels of PCBs in the environment?

14 A To the best of my recollection, we had
15 received a communication from the United Kingdom, we
16 had some facilities over in Robin and they had passed
17 a Telex to us that indicated that the Swedish folks
18 were finding some compounds that they referred to in
19 that Telex as polychlorinated biphenols which
20 subsequently we learned were not polychlorinated
21 biphenols but polychlorinated biphenyls and there is a
22 difference.

23 MR. PECK: Spell that.

1 THE WITNESS: B-i-p-h-e-n-o-l-s is
2 biphenols. And biphenyls is b-i-p-h-e-n-y-l-s. It is
3 a difference in molecular structure.

4 Q And the PCBs is the one with the Y in it?

5 A Yes, sir.

6 Q Okay.

7 A And there was some concern as to whether or
8 not these reports could be true and so it was just
9 kind of like a heads up, kind of routine because these
10 folks were the ones that were looking primarily at DDT
11 and some other compounds that had been intentionally
12 broadcast around that there was some concern about.

13 Q What do you mean by intentionally broadcast?

14 A Well, I mean that DDT and in pesticides like
15 that were intentionally sprayed all over the plant to
16 do what they were supposed to do. And so it was kind
17 of surprising to folks that they could find them
18 wherever they looked and that was attributed to the
19 fact that they were kind of recalcitrant, in other
20 words, they lasted in the environment a while but also
21 it was true that they were continuously sprayed and
22 continued to be sprayed, but they were intentionally
23 sprayed around so there was no surprise that they were

1 all over the place.

2 Q I guess what I'm trying to figure out is why
3 did Monsanto ask you to devise some way to test for
4 PCBs at these minuscule levels, I mean, we're talking
5 about parts per billion levels, right?

6 A Correct.

7 Q I mean, you developed technology to test in
8 the parts per billion. That to me is a mind boggling
9 number, that is a very small number. Would you agree
10 with that?

11 A Correct.

12 Q Why in the world were you trying to test
13 PCBs at that such of a small level?

14 A That small of a level has to do with the
15 methodology that's used in the sensitivity of the
16 methodology and that turns out to be the sensitivity
17 of the methodology that was employed to measure these
18 things that we've finally developed and established.

19 The reason I was asked to take on that and to
20 look at it was because Monsanto was curious and not
21 necessarily concerned but curious as to whether or not
22 this could be really true.

23 And the reason I was given the assignment

1 was I was the newest Ph.D. out of school, and probably
2 the one that was most familiar with the techniques
3 that were being developed, and in a position to carry
4 forward that kind of thing because of the fact that I
5 was this brand new Ph.D. out of school.

6 Q Well, Monsanto knew that PCBs from its plant
7 were in the river systems below its plant because
8 there are documents that say they saw free globules of
9 PCBs floating down Snow Creek and Choccolocco Creek.

10 MR. PECK: Object to the form of the
11 question.

12 Q So if they already know -- here's what I
13 don't understand. You're not disputing that Monsanto
14 knew that PCBs were in this river system because they
15 saw them in there long before you became involved,
16 right?

17 MR. PECK: Object to the form of the
18 question.

19 Q What I am trying to get, do you agree or
20 disagree with that?

21 A I don't agree that you can see PCBs. I've
22 never seen a PCB that I could look at and say that's a
23 PCB unless it had a label on it or unless I used very

1 sophisticated analytical techniques to discern that
2 from a million other things that look just like PCBs
3 when you can see them.

4 Q Well, let me ask you this: What if --

5 A So that's why I'm having problems with it --

6 Q Have you ever seen a document where Monsanto
7 said there are free globules of PCBs floating down the
8 river?

9 A Yes, I have.

10 Q All right. Now, did you doubt or can you
11 even -- can you doubt that that is exactly what it
12 was?

13 A Sure.

14 Q Even though these people worked around PCBs
15 for decades saw exactly what it looked like, knew what
16 it looked like when they were globules and said that
17 looks just like the PCBs in our plant?

18 A Let me try to put into context if you'll
19 allow me.

20 If I took Quaker State Oil and poured it
21 into a glass and I took Shell Oil and poured it in a
22 glass, I showed you the two without you being able to
23 see the labels, could you tell me which one was Shell

1 and which was Quaker State? You could tell me they
2 were both oils.

3 So I don't doubt the fact that these folks
4 may have seen oil at the bottom of that. That's not
5 an uncommon thing at a plant.

6 Q Oil or PCBs --

7 A I draw the conclusion --

8 Q Wait a minute --

9 MR. PECK: Let him -- he's not done
10 answering the question. Let him finish.

11 MR. GRAMMAS: Wait a minute --

12 MR. PECK: You can't cut him off.

13 MR. GRAMMAS: He's not answering my
14 question.

15 MR. PECK: He's going to finish his
16 answer.

17 A To draw the conclusion that oily materials
18 that you saw in the bottom of the stream were PCBs
19 requires more sophisticated detection techniques than
20 that. To draw the conclusion that they might be does
21 not.

22 Q Okay. So you dispute that what these
23 witnesses said they saw were in fact PCBs?

1 MR. PECK: Object to the form of the
2 question.

3 A I dispute the fact that they were all PCBs.

4 Q What I'm trying to get at here is and you
5 can split hairs with me all day long, it doesn't
6 matter to me, we can stay here all day. It's a simple
7 point I'm trying to understand.

8 They were manufacturing millions of pounds
9 of PCBs at the Anniston facility, Monsanto was, right?

10 A Correct.

11 Q And we know thousands and thousands of
12 pounds of PCBs were escaping that facility and finding
13 their way into Snow Creek and Choccolocco Creek,
14 right?

15 MR. PECK: Object to the form of the
16 question.

17 A Are you talking over a twenty year period?

18 Q Over the entire period they manufactured it.

19 A Sure, we do know in retrospect that PCBs
20 were escaping from the plant, absolutely.

21 Q And we're talking about thousands and
22 thousands and thousands of pounds of it?

23 MR. PECK: Object to the form of the

1 question.

2 A I don't think that's been firmly
3 established.

4 Q Well, don't you think that Monsanto should
5 know how many PCBs escaped its facility?

6 A Correct.

7 Q They don't know that?

8 A I think they could look at -- let's keep it
9 in context, if I may. That was a product we
10 manufactured to sell, the intention was not to lose
11 the material down the road or not get it to the
12 customer. The intention was to get 99.99 percent or
13 even 99.99 percent if you could to the client because
14 that's the way the company made business, that's the
15 way it paid the shareholders and that's the way the
16 shareholders bought food and things of that sort.

17 The intention was not to manufacture PCBs
18 and throw them away. The intention was to deliver
19 them to the customer, so every effort was made to
20 deliver a hundred percent of the material to the
21 customer. There is no incentive not to.

22 Now, the problem comes in what is a hundred
23 percent. And as you pointed out, if you're

1 manufacturing millions of pounds of things, one pound
2 is not -- you're pretty close to a hundred percent if
3 that's all you lost.

4 Q If you're manufacturing millions of pounds
5 and by your words all you lost is thousands of pounds,
6 you're still pretty close to a hundred percent, right?

7 MR. PECK: Object to the form of the
8 question, those weren't his words.

9 A I said yes.

10 Q My point is, over this period of time
11 Monsanto knew that thousands and thousands of pounds
12 of this stuff, PCB, were escaping its plant, whether
13 intentionally or not, were escaping its plant to find
14 its way into Snow Creek and Choccolocco Creek?

15 MR. PECK: Object to the form.

16 A I don't agree with that.

17 Q You don't agree with that. But you will
18 agree that Monsanto knew PCBs were there?

19 A Let me -- if Monsanto was so damn sure PCBs
20 were there, why did they ask me to develop a
21 methodology to measure that?

22 Q Now you're coming into my next line of
23 questioning.

1 I don't understand why they paid you to
2 figure out a way to test PCBs at such small levels
3 when they already knew that free globules of the stuff
4 were floating down the river.

5 MR. PECK: Object to the form of the
6 question.

7 Q Did they ever tell you why they wanted you
8 to test for such small levels?

9 A The reason we designed tests to test for
10 small levels because that's what we were finding in
11 the environment, were small levels, parts per million
12 or less.

13 Q If nothing was developed, as you say, until
14 you came up with this way of testing it, how did they
15 know they were finding it at that such small levels?

16 A The results from the Swedish folks indicated
17 that the levels were at the parts per million level.

18 Q How did the Swedish people have the
19 technology to find that out if you were the one who
20 developed this methodology?

21 A The Swedish people used similar technology
22 to identify the pesticides like DDT and things of that
23 sort. That was the very first time that they had

1 adopted any of that and actually used it to measure
2 PCBs.

3 Q There were technologies available, sir,
4 before you were charged with the task of testing PCBs
5 at such a small level that would allow Monsanto to do
6 the very same thing, that the people in Sweden did?

7 MR. PECK: Object to the form of the
8 question.

9 A I don't agree with that.

10 Q Here is what I don't understand. If the
11 people were finding it at these small levels, they
12 obviously were using some technology that allowed them
13 to do that.

14 A But the technology that was used was called
15 electron capture, that was the detection system that
16 was used.

17 Electron capture detects things that capture
18 electrons. And chlorinated aromatics which is the
19 type of organic compound that PCBs and DDTs and a lot
20 of other constituents are capture electrons.

21 So if those materials were in a sample and
22 were extracted, prepared properly, delivered to the
23 detector, the detector would see it.

1 Now, the detector only says there is
2 something that captures electrons there. It doesn't
3 say that it's PCBs, it doesn't say that it's DDT, it
4 doesn't say what it is, it just says it has the
5 property of capturing electrons. So a lot of people
6 were seeing a lot of things that had property of
7 capturing electrons. They didn't know if they were
8 PCBs or DDT or Toxaphene or exoprobenzene (spelled
9 phonetically) or any of those things.

10 So to say the technology was available is
11 fine.

12 Q Why did --

13 A I think it was --

14 MR. LIGHTFOOT: Wait a minute, he
15 hasn't finished his answer, Pete.

16 Q Go ahead.

17 A To say that people -- that that kind of
18 technology was available to measure PCBs is a little
19 erroneous. I mean, nobody knew that PCBs were out
20 there until some more sophisticated technology came
21 along that was used that actually does an absolute
22 identification of the materials in these samples. And
23 that's where the Swedes had been and that is where

1 they connected a master counter to a GEC and that was
2 the first time that was done.

3 Q Okay. The Swedes knew that there are
4 minuscule levels of PCBs being found, true or false?

5 MR. PECK: Object to the form of the
6 question.

7 A The Swedes reported they had found minuscule
8 levels of PCBs in the same samples that they were
9 analyzing for pesticides.

10 Q And are we talking about parts per million
11 or parts per billion or what are we talking about?

12 A Both.

13 Q All right. The Swedes had a technology.
14 What period of time was this?

15 A It was in the late '60s.

16 Q Before you developed these things you came
17 up with for Monsanto?

18 A Correct. When you say developed, they
19 discovered and did the first few steps. We piggy
20 backed on what they had done when we became aware of
21 it and established those techniques in the United
22 States and developed them further and made them better
23 so that they did your job faster, they did their job

1 more precisely and used those just like you would as
2 eyes to see what was going on so we could begin to
3 understand what was going on.

4 So I didn't invent the electron capture
5 detector. That was invented by a physicist a long
6 time before any of us decided to use it for these
7 things.

8 Q And Monsanto was using that technology
9 before they hired you to test what levels of PCBs were
10 escaping its plant, right?

11 A No. Absolutely not.

12 Q They could have used it?

13 A No.

14 Q They couldn't have?

15 A No.

16 Q The Swedes could but Monsanto couldn't?

17 A As soon as we became aware of what the
18 Swedish folks were doing, we set up to do the same
19 thing that they were doing to, one, make sure that
20 what they were doing was really correct and accurate.
21 And two, if it was correct and accurate, be able to
22 use it to find out what was going on.

23 Q Isn't it a fact, sir, that the reason y'all,

1 you personally, were charged with the task of
2 developing an accurate way of testing PCBs in these
3 small quantities is because even in these small
4 quantities PCBs are bad for the environment and bad
5 for human beings?

6 A No.

7 Q It has nothing to do with that?

8 A I did not develop those techniques to
9 determine whether they were bad for human beings or
10 whether they were not bad for human beings. That's
11 not what that technique does. That technique simply
12 tells you if you look at a certain matrix if the
13 materials are there, how much and what kind. It
14 doesn't tell you that they are bad or good.

15 Q What is -- is it avian, a-v-i-a-n, how do
16 you pronounce that?

17 A Avian.

18 Q What is that?

19 A It's like fowl, birds, like aquatic or --
20 means aquatic critters.

21 Q It says here in your report you developed or
22 you designed and implemented avian, mammalian -- I
23 guess that is what, animals?

1 A Yes.

2 Q Would that include human beings?

3 A Yes.

4 Q Aquatic --

5 A Human beings are mammals.

6 Q Sir?

7 A Yes, human beings are mammals.

8 Q Aquatic technology, what is that?

9 A Aquatic means water.

10 Q So you developed avian, mammalian and
11 aquatic technology study protocols for tissue residue,
12 bacterial degradation and bioaccumulation studies?

13 A Correct.

14 Q What does all of that mean?

15 A What it means is we developed study
16 protocols that allowed us to study how PCBs interacted
17 with mammalian, aquatic and avian species when they
18 were exposed to them.

19 In other words, if PCBs or PCB containing
20 materials were ingested, for example, by a chicken or
21 rat or a dog, then what happened to it, was it
22 metabolized, where did it go, was it excreted, what
23 happened to it, that's what that means.

1 Q When was this?

2 A That was in the early -- it must have been
3 early '70s.

4 Q Can you get more specific?

5 A If -- not at the moment, not without looking
6 at some documents.

7 Q Is it your testimony that before that period
8 of time Monsanto had no idea what the impact of PCBs
9 were to birds, animals or aquatic systems?

10 A Yes.

11 Q And how do you -- how are you aware of that
12 understanding?

13 A These -- well, first of all, tissue
14 protocols aren't designed to determine the impact on
15 animals or fish or birds. They are designed to find
16 out what happens to these molecules when they were
17 ingested by the animal or by the fish, by the rat or
18 by the fowl, which are representative of things that
19 are in the environment.

20 In other words, if you were to ingest some
21 food with PCBs in it, what happened, where did it go,
22 does it just pass right through the system, does it
23 come out in feces, does it come out in the urine. As

1 you pointed out earlier, some go into the lipid pool,
2 what happens to it when it goes through the liver,
3 does the liver metabolize it, does it produce and
4 congregate and it's then excreted, that's the kind of
5 thing. It doesn't have anything to do with impact.

6 Q Are you finished?

7 A Yes, sir.

8 Q And I don't want to interrupt you, if I
9 interrupt you, just stop me.

10 What you're saying then is your expertise
11 focuses on the PCB molecule and how its affected in
12 the environment as opposed to how the PCB molecule
13 affects the environment?

14 A Correct.

15 Q You've learned in your studies that the PCB
16 molecule isn't very much affected by the environment
17 or by birds or by animals or by anything?

18 MR. PECK: Object to the form.

19 A That's not the case at all.

20 Q Tell me how that is not the case.

21 A As I pointed out earlier, we published a
22 number of articles that talked about the
23 biodegradability of PCBs, that talked about the affect

1 of sunlight, the affect of other kinds of physical
2 things on PCBs and about the metabolism of PCBs by
3 various avian, aquatic and mammalian species.

4 Q Is it your opinion then if you just leave
5 PCBs alone that's an adequate way to remedy a
6 situation where you're finding them in a river system?

7 MR. PECK: Object to the form of the
8 question.

9 A Is it my opinion?

10 Q Yes.

11 A I don't have an opinion on that particular
12 thing. It's a lot more complex situation than that.
13 And to be fair about something of that sort, you need
14 to look at it, you need to study it, you need to
15 evaluate it and you need to decide what the risk
16 factored ratios are and what's going to be risk
17 factored and what isn't.

18 So to ask me is it my opinion that it's
19 better to leave it there, I will have to admit there
20 may be circumstances where it may just be better to
21 leave it there.

22 Q Will you also admit just as reluctantly that
23 there may be circumstances where you just need to

1 clean it up?

2 A I apologize if I'm giving you the impression
3 I'm being reluctant, I'm not. I'm trying to
4 understand your questions and understand whether I've
5 got the knowledge to answer it.

6 Would you do that question again?

7 Q Yes. You were able to tell me that there
8 may be circumstances where you're just better off to
9 leave it there, right?

10 A I'm saying those circumstances could exist.
11 And in fact a lot of PCBs go into hazardous landfills
12 where they just are left there and that's exactly the
13 way they are disposed of. So it's very common.

14 Q Yeah. Hazardous landfill you can put it
15 there, that's what it's designed to hold, hazardous
16 materials, right?

17 A Right.

18 Q PCBs are hazardous material?

19 A They are classified has hazardous material
20 under certain circumstances, yes.

21 Q So you would expect PCBs that are removed
22 from a site to be put in a hazardous landfill that is
23 designed to hold them, right?

1 A That's one option.

2 Q You would not expect that same hazardous
3 material to be left in an aquatic system that is not
4 designed to hold PCBs, right?

5 MR. PECK: Object to the form of the
6 question.

7 A I would not expect -- I think you are asking
8 me can you cause more harm by dredging up a river than
9 not dredging it up. And I'd have to say you can.

10 Q I'm not asking you that. I didn't say
11 anything about dredging. I didn't ask you that.

12 A Then do your question again.

13 Q If you want to talk about how it's worse to
14 dredge --

15 A Do me a favor and do your question again so
16 I can understand and answer properly.

17 Q Yes, sir. You have told me there are
18 certain situations you are aware of that you're better
19 off leaving the PCBs where they are.

20 A You asked me if I thought there were
21 situations where that could be the best thing to do
22 and I said I thought there probably were. Is that
23 what you said?

1 Q Right. Now, by the same token, Dr. Tucker,
2 do you know of a situation where they shouldn't be
3 left where they were and they should be remediated?

4 A I'm certain those situations exist too.

5 Q You've spent a whole career working around
6 ways to test for PCBs so people can come in and
7 remediate it, right?

8 A Right. That's one of the uses of that kind
9 of test.

10 Q Right. I mean, your whole career hasn't
11 been something that is useless, has it, I mean it had
12 a purpose?

13 A I doubt it.

14 Q I doubt it, too. I'm not trying to be
15 flippant at all.

16 You spent thirty years developing
17 technologies to figure out better and better ways to
18 find these PCBs, among other things, at smaller and
19 smaller amounts, correct?

20 A Correct.

21 Q And the whole reason you did that is because
22 we know the stuff is bad and we want to know where it
23 is no matter how small it is so we can do something

1 about it, right?

2 A No.

3 Q I just don't understand why you're testing
4 at such small levels for nothing then.

5 A Methodology is sensitive to that level.

6 Q I understand that, sir. But if it doesn't
7 have a purpose --

8 A So if you want to see if there is something
9 there or not, you have to know how sensitive the
10 method is.

11 Once you achieve the lowest limit that you
12 can, then you have to say to the best of our ability
13 we can't see it anymore so it might not be there.

14 Q All right.

15 A That particular -- electron capture happens
16 to be one of those kinds of techniques that are ultra
17 sensitive. I mean, the technique was not designed to
18 do parts per trillion stuff initially, that wasn't
19 what it was even intended for. In fact, it wasn't
20 even capable of it until later on when refinements
21 came along.

22 So that's why -- the question you're asking
23 me is didn't you design these to look for very, very,

1 very, very low levels and the answer is the
2 methodology could look for very low levels so we used
3 it that way. Where we found high levels, we recorded
4 high levels. Where we found low levels, we recorded
5 low levels. Where we found nothing, we recorded that
6 the method could no longer see anything.

7 Q That brings up an interesting point. We'll
8 talk about it very briefly, but you still haven't
9 answered my question, we'll come back to it.

10 A Do your question again.

11 Q When you say something is nondetect, what
12 you're saying is at this level we don't know if there
13 is anything there or not anymore?

14 A Correct.

15 Q You're not saying that it's not there?

16 A Correct.

17 Q Okay. Now, my only point is and it's my
18 fault, I'm probably not being clear enough in my
19 questions. I don't understand why Monsanto and all
20 these other companies over this thirty-year period
21 that you've worked with is asking you to test for some
22 chemical at such small levels, why is it necessary to
23 know that PCBs are present in the parts per billion

1 level as opposed to just picking up a glob of it in
2 your hand and saying there is some PCBs in here. Why
3 do we have to distinguish between the amounts is what
4 I'm getting at?

5 To me it seems, correct me if I'm wrong, the
6 reason is we know that PCBs even at those amounts are
7 a bad thing.

8 MR. PECK: Object to the form.

9 Q For example, we know that PCBs at two parts
10 per million or greater is sufficient enough to trigger
11 a fish advisory.

12 MR. PECK: Object to the form. There
13 are about three or four questions in there.

14 MR. GRAMMAS: That's what I'm talking
15 about.

16 MR. LIGHTFOOT: There is not a
17 question.

18 A Question?

19 Q Yes. The question is why are you doing it
20 at that such a small level? All the other stuff was
21 there just to help you understand where I'm coming
22 from.

23 MR. PECK: Object to the form.

1 A When you analyze a sample for PCBs, you
2 don't know what's there. You don't know if there is a
3 lot or a little. So you run it through a standard
4 routine, you run it through the instrument. If the
5 instrument doesn't see anything, you may concentrate
6 the material that you extracted down to see if you can
7 see something down to the method detection on it and
8 if there's nothing there, you record to this
9 instrument, to the best of its capability, there is
10 nothing there.

11 If there is very high levels of the
12 material, for example, if you took a hundred percent
13 PCB sample and you put it in a little hexane and ran
14 it through, and when you ran it through the
15 instrument, the instrument would just let you know
16 that it was overwhelmed by what you gave it.

17 So at that point you then would dilute it
18 down to the point where it would fall down in the
19 region where the instrument is linear and can
20 quantitatively tell you how much is there.

21 So the electron capture technique is capable
22 of measuring parts per trillion and sometimes lower
23 limits of certain kinds of molecules. That's just it,

1 that's the animal. And that animal has always been
2 that way. So that technique has been used to monitor
3 PCBs down to its method detection limit and its method
4 detection limit happens to be very low.

5 So from the analytical viewpoint, if the
6 method detection limit and the best you can do is one
7 percent, that's the low.

8 Early on before people knew anything about
9 anything they used a sensitivity of method as to
10 finding out whether something was there and whether or
11 not it should be there or shouldn't be there. They
12 didn't know and that's the state of art back there in
13 the '60s and '70s.

14 Q Again, you didn't answer my question. I'm
15 not asking --

16 A Well, I'm trying.

17 Q I know you are. I'm not asking how you did
18 it yet. What I want to know is why were you trying to
19 find it at such small levels, why couldn't you just be
20 satisfied saying, we know it's there at some level,
21 why do we have to keep pushing the technology the
22 farther along we get to get smaller and smaller and
23 smaller techniques to test for it. That's what I

1 don't understand.

2 A I think your problem is that your assumption
3 that we didn't agree on earlier that the materials
4 that people, quote, saw as globules were a hundred
5 percent PCBs, we didn't agree on that.

6 You seem to want to portray to me that these
7 were a hundred percent PCBs. I try to portray to you
8 that they weren't. And the reason for developing more
9 sophisticated techniques than visual was that those
10 things there could have been motor oil, just as much
11 as they could have been PCBs. I'm certain that there
12 were motor oils and other kinds of hydraulic fluids
13 used at any chemical plant, so those just as easily
14 could have been those kinds of things that were used
15 in some of the equipment that was used to manufacture
16 the things.

17 So what I was trying to say to you was that
18 these gentlemen had looked at the material, they said,
19 gee, we see some oil materials down there and we think
20 they might be PCBs. That's fine. There was nothing
21 wrong with that statement, that was the state of art
22 and that was good enough at that point in time because
23 there weren't concerns about any of those kinds of

1 stuff. This is many, many years ago.

2 When people began seeing what they thought
3 were PCBs at very low levels, long ways away, things
4 of that, that very first report that Soren Jensen and
5 folks saw as something in the eagle feathers and
6 things of that sort, how can that be, and so at that
7 point in time I was asked to reproduce their work and
8 to verify what they were finding was really true
9 because nobody knew that it was true, so that's why I
10 was asked to do it.

11 Q We're not on the same page, Dr. Tucker.

12 A I apologize for that.

13 Q It's not your fault. A couple of things you
14 mentioned in there.

15 Number one, you did in fact verify that the
16 Swedes findings were correct, you eventually verified
17 that, right?

18 A Yes.

19 Q There were PCBs they were finding there?

20 A Yes.

21 MR. PECK: Sorry, what?

22 Q I asked him if there were PCBs they were
23 finding in there, in these testing samples.

1 Now, what I'm trying to do, you designed
2 methods to test for the presence or not of, among
3 other things, PCBs.

4 A Correct.

5 Q You weren't designing methods to test for
6 the presence of, say, an oxygen molecule or a water
7 molecule or carbon or things like that by Monsanto,
8 were you?

9 A Sure, I did.

10 Q You were there to see whether PCBs were
11 present or not?

12 A This particular methodology was orientated
13 toward discerning PCBs amongst all the other myriad of
14 things that can be out there, so in this case yes.

15 But as an analytical chemist, I measured a
16 lot of things for Monsanto for a lot of reasons.

17 Q I understand that.

18 A So when you say I didn't develop methods for
19 carbon and for water and those kinds of things, that
20 is incorrect.

21 Q All right. Fair enough. I'm talking about
22 PCB and what was leaving that plant. I don't care
23 about -- I don't want to open up that can of worms and

1 whatever else you did for Monsanto. I'm limiting my
2 question here to what is germane in this lawsuit. And
3 I think you understand what's germane in the lawsuit,
4 PCB contamination.

5 Is that a fair statement?

6 MR. PECK: Pete, if you're trying to
7 suggest he's not answering your questions, that is not
8 the case. You make references to other things and
9 then he has to answer them.

10 Q Do you understand that this is about PCB
11 contamination?

12 A Yes, sir, I do.

13 Q All right. Now, you were out there
14 designing a way to test for these very, very, very
15 parts per billion, parts per trillion levels of PCBs.
16 And I just don't understand why if you're at parts per
17 million why do you have to go to parts per billion.
18 That to me is a small number. Why keep pushing it to
19 the edge. And to me it seems like because you want to
20 know what's there at any level.

21 A The question that you've asked, and I
22 believe I've answered, I would like to try to answer
23 one more time.

1 Q Okay.

2 A The techniques that were being used by the
3 Swedish folks were the techniques that they used to
4 say that they thought they were seeing PCBs in some
5 environmental samples.

6 Those techniques were the ones that we
7 reestablished in the United States and developed
8 further to determine whether or not what they were
9 saying was really true.

10 So that was the objective of what we were
11 doing. The fact that we were dealing at -- with a
12 technique that can measure anything from percent
13 levels down to parts per trillion has to do with the
14 characteristics of the technique and not necessarily
15 the reason for doing that.

16 So the reason we or I was asked to establish
17 that methodology in the United States and to verify
18 what these folks were finding, that's the reason we
19 chose the techniques they were using.

20 And I think I said that earlier. I thought
21 I tried to say that to you earlier.

22 (Brief recess taken.)

23 Q In your report, let's go ahead and make this

1 an exhibit.

2
3 (Plaintiff's Exhibit
3 Number 1 was marked
4 for identification.)
4

5
5
6 Q I've made that an exhibit. I've got a copy
7 of it.

8 Have you seen that before?

9 A Yes.

10 Q Did you prepare the words that are contained
11 in this document entitled "expert report of E. Scott
12 Tucker, III"?

13 A Yes.

14 Q Did you actually physically type the words
15 and gave them to the lawyers?

16 A Yes.

17 Q Were any changes made to this report after
18 you gave it -- obviously this is the final report,
19 correct?

20 A Yes.

21 Q Were there any drafts of the report before
22 it became a final report?

23 A I'm trying to remember. There might have

1 been some typographical changes but nothing of
2 substance. And anything that is in here -- I can read
3 them more carefully, anything in here I would have
4 approved.

5 Q You would have actually written it?

6 A I wrote it. But, I mean, if someone decided
7 that they wanted me to graduate in 1960 instead of
8 '61, I would have to agree with it.

9 Q You would have to say whether it was true or
10 not -- in other words, you wouldn't let lawyers just
11 tell you what to testify unless you agreed with it?

12 A Correct.

13 Q I don't blame you. Paragraph six. It says
14 that you will testify from a scientific -- are you
15 with me? You will testify from a scientific and
16 analytical perspective regarding the details of
17 Monsanto's response to the discoveries of the
18 international scientific community in the late '60s
19 and early '70s regarding the persistence and
20 accumulation of PCBs in the environment.

21 Did I read that correctly?

22 A Yes.

23 Q Tell me what those details of Monsanto's

1 response were.

2 A It meant, it means to say that as
3 information became available, Monsanto became aware of
4 it, that the information was checked to see how
5 correct it was and that actulins (spelled
6 phonetically) were formulated continuously as a result
7 of the information that was coming in in terms of if
8 anything should be done and if anything should be done
9 what was going to be done. In other words,
10 there was a planned orderly manner in which was
11 proceed -- we proceeded as information became
12 available both internally and externally.

13 Q What information are you talking about?

14 A Well, there were a lot of folks out there
15 that were doing electron capture measurements of
16 pesticides. And right after Soren Jensen and Gunther
17 Widmirk did the first -- announced that they thought
18 that these peaks that they had been seen were PCBS,
19 their folks started looking at it, including us.

20 A lot of people became interested in the
21 fact that some of the things they may have been seeing
22 could potentially be PCBs but they didn't know what
23 they were.

1 And so there were a lot of reports --
2 everyone jumped on the band wagon, oh, boy, you know,
3 we finally found out what these things were that we've
4 been seeing for a long period of time, maybe they are
5 PCBs. So a lot of that information had to be looked
6 at and looked at carefully because a lot of the things
7 people were seeing, not all of them were PCBs, that's
8 for sure.

9 Q What period of time are we talking about
10 here?

11 A I believe early -- late 1960's. I didn't
12 join Monsanto until about 1967. And I believe in 1968
13 or so is when we received the first reports and so it
14 would be -- it would start then.

15 Q And you received these first reports from
16 the Swedes?

17 A No. We received them from the plant that
18 was in the United Kingdom in Robin and they forwarded
19 to us the fact that they understood these folks were
20 reporting to have seen polychlorinated biphenols,
21 that's the way it started. And polychlorinated
22 biphenols are not biphenyls. So that -- it's kind of
23 like an evolutionary process, it was like, gee,

1 they're reporting these kinds of things, we make
2 products like that, could that be. And that is how it
3 started.

4 Q All right. The information then that you
5 talked about earlier when I asked you what the details
6 of Monsanto's response were, you said when information
7 became available, you were talking about when these
8 people over in Europe began discovering that PCBs were
9 being found in the environment at small levels, they
10 let Monsanto know about it; is that the information
11 you're talking about?

12 A No. The scientific community has two routes
13 by which information are published: one is official
14 and one is unofficial. A lot of conversations go on
15 in a conjecture and that kind of things, at meetings
16 and that kind of thing, so the official reports were
17 not far along, far enough along to be verified and
18 that Widmirk and folks felt comfortable with to have
19 necessarily published. But they were saying, gee,
20 we're seeing these things and we think they're PCBs,
21 you know, it's an ongoing kind of thing.

22 So that's when we began to first hear about
23 it and that was when we began to think, well, gee, you

1 know, we make these, we wonder if there is any
2 connection.

3 Q Did you have any involvement at Monsanto
4 other than developing these analytical tests and
5 studying the PCB molecule itself, did you have any
6 input in other decisions, for example, like whether to
7 continue making PCBs, whether to warn customers about
8 things that you learned that Monsanto learned about
9 PCBs, or those type of things?

10 A No, those are not the areas of my
11 expertise. My expertise was to provide analytical
12 information and to testify to the veracity of it, how
13 good it was and especially what other people were
14 finding and what we were finding, whether everything
15 made sense and that sort. And then the kind of thing
16 you were talking about were handled by people that are
17 technically trained to do those things.

18 Q Are you able then to testify or do you
19 intend to give testimony regarding the actions
20 Monsanto took outside of determining whether or not
21 these were PCBs once they learned that they were in
22 fact PCBs around the globe being found? Bad question.

23 A Yeah.

1 Q I agree. Were you involved in any way in
2 Monsanto's actions that were taken to warn customers
3 about what they were finding and to tell the customers
4 not to let PCBs get out in the environment, those type
5 of things, once you learned that there really were
6 PCBs being found around the globe?

7 A I did not make a decision that the customer
8 should be notified or the manner in which the customer
9 should be notified.

10 I did provide the data that said where the
11 PCBs were and the levels at which they were and what
12 they were and began to put together the puzzle that
13 started, that would explain what was going on.

14 I think it's necessary to understand that in
15 1968 or '69 it was a major surprise that something
16 like PCBs which were not intentionally spread around
17 could be found. I mean that was just phenomenal.
18 Nobody understood that kind of thing. And so that's
19 kind of like where you're at.

20 So we had one small piece of a million piece
21 puzzle and we began to look at the pieces and start to
22 put them together.

23 I provided the analytical methodology that

1 was used to see for real where PCBs were and where
2 PCBs weren't and at what levels they were.

3 So to the extent that that information was
4 used in making decisions, I would be asked is it real,
5 is it true, how good is the data, why do you think
6 these things went here and didn't go there on the
7 basis of the chemistry of the thing, which I was -- I
8 was a chemist.

9 Q They were asking you your opinions as to how
10 the PCBs got there and why they got there?

11 A Based on the chemical properties of the
12 molecular structure, sure.

13 Q Were you charged with doing that in the
14 entire globe or just the United States or where were
15 your responsibilities?

16 A I think the best way to describe it would be
17 that the responsibilities started out by verifying
18 what Widmirk and Jensen discovered. So if you want
19 that to be global, that's fine.

20 But we really started out closer to home
21 with what we knew and what we had available to us.

22 Q Now, did you go to places outside of your
23 own plant?

1 A The first thing we did was get standards of
2 PCBs which are very complex mixtures of the products
3 themselves, representative samples that had good chain
4 of custody and we knew where they went and how they
5 were made and when they were made and things of that
6 sort. And then we used the techniques, electron
7 capture techniques and later on, much later on, the
8 mass spectrometry and the chromatography to
9 characterize these things because nobody really
10 characterized the products that way previously, you
11 know, in the environmental type samples.

12 And then at that point in time when we felt
13 comfortable we knew how they behaved in these
14 analytical techniques, then we went out and took
15 actual real samples that didn't have things in them
16 and put them in there and saw if we could recover them
17 and if they changed and if we got them back a hundred
18 percent, if the methods were working.

19 And then once that was done, then we went
20 out and we got samples where we obviously thought the
21 materials had the highest probability of being to see
22 if they were even there.

23 Q Okay. Where were these locations?

1 A The closer to the source, the better off.

2 Q Tell me what sources you looked at.

3 A Initially we looked at, I think, right close
4 up to the operations in the process.

5 Q Monsanto's facilities?

6 A Some of those, right.

7 Q How many of them made PCBs?

8 A I believe in the United States there were
9 two facilities that manufactured PCBs, one was a
10 Krummrich Plant, it's in Sauget, Illinois.

11 One of the product lines manufactured at
12 Sauget or the Krummrich Plant were PCBs.

13 And then Anniston, Alabama, of course, was
14 the other location in the United States that PCBs were
15 manufactured.

16 Q Where else were they manufactured by
17 Monsanto?

18 A I think we had a manufacturing operation in
19 the United Kingdom. And I think outside of that, the
20 rest of them were, you know, the French manufactured
21 PCBs, Japanese manufactured PCBs, the Soviets
22 manufactured PCBs all over the place, the Germans
23 manufactured PCBs. Outside of the United States, most

1 every country that was as developed as we were, even
2 not as developed as we were, manufactured and used
3 PCBs.

4 Q How many of those countries that you are
5 aware of, if you know, sold PCBs here in the United
6 States?

7 A I think they may all at one point in time.

8 Q Do you know what percentage of PCBs were
9 purchased by Monsanto or from Monsanto as opposed to
10 these other sources?

11 A Monsanto was the predominant supplier of
12 PCBs in the United States.

13 Q Are we talking about 99 percent supplier,
14 something along that nature?

15 MR. PECK: Object to the form.

16 A I think what we're talking about is
17 predominant because if you want me to say 99 versus
18 99.8, I can't. If you want me to say 90, it could be
19 90, it could be 80.

20 I don't think there were real good records
21 in terms of the amount of PCBs that really were
22 exported in the United States, especially early on.

23 Q Earlier on, what period of time are we

1 talking about?

2 A We're talking in the early '60s, that's what
3 I thought we were talking about, late '60s and early
4 '70s.

5 Q Did you report to the ad hoc committee for
6 PCBs?

7 A Did I provide information that was used by
8 the ad hoc committee or did I report directly to them?

9 Q Either way.

10 A Both.

11 Q Okay.

12 A And by reporting directly to them, if I
13 remember correctly, the individuals on the ad hoc
14 committee were people like Bill Richards and some of
15 those kinds of folks.

16 Q Wheeler, Richard?

17 A Yeah, Richard.

18 Q John, E. B. John, do you recall him being on
19 there?

20 A Bill Richards was the director of the
21 functional fluids group and I reported information
22 directly to him at times and to his people.

23 Q Mr. Farrar?

1 A Martin Farrar was the director of the
2 plasticizers group and I reported directly to him and
3 to his people. Both those groups used PCBs as fluids.

4 Q When did you first start your research here
5 when this information became available, what period of
6 time did the Swedes do this?

7 A It was in the late '60s.

8 Q Can you get more specific?

9 A You can get more specific by looking at the
10 publications. I mean, they eventually published that
11 information.

12 Q Okay. Now, Monsanto knew that PCBs were in
13 the environment well before that time, didn't they,
14 are you aware of that?

15 MR. PECK: Object to the form.

16 A We saw them. They were all over the place.

17 Q No. You were aware of documents where
18 Monsanto verified that PCBs were in the environment
19 before the Swedes ever knew they were in the
20 environment.

21 MR. PECK: Object to the form of
22 question.

23 A If you exclude the word environment, I will

1 agree with you. If you won't exclude the word
2 environment, I won't agree with you. Swedes analyzed
3 environmental samples that were a long distance from
4 any source -- point source of use or manufacture.
5 That was the surprising thing about the Swedes, okay.

6 Q Okay.

7 A To know that you might have some PCBs coming
8 out of one of the process streams or something of that
9 sort, that is different than you knew it was in the
10 environment, because that doesn't mean it's widespread
11 in the environment, it means it's just right outside
12 the plant. Or if somebody was using it to make
13 transformers or if somebody was using it as a
14 hydraulic fluid, to know there might be on the floor
15 of that plant, you could use that, well, you knew it
16 was in the environment.

17 Q That makes sense.

18 A That's not true, that's not what we mean
19 when we say something is in the environment.

20 Q Correct me if I'm wrong, what you're saying
21 is the significance of the Swedish study was that
22 Monsanto first became aware in the late '60s or
23 whenever the date of this study, the exact date of the

1 study was, that PCBs were ubiquitous?

2 MR. LIGHTFOOT: Object to the form.

3 A No, absolutely not. That is not what I
4 mean.

5 Q Tell me how that's not, tell me how I am
6 wrong there.

7 A Monsanto became aware that the Swedish folks
8 had found PCBs in eagle feathers with some of the
9 stuff that they had found it in, taken out of a museum
10 and that they had found some in environmental samples
11 that they were analyzing for DDT and Dieldrin and
12 Aldrin and all the soup of chlorinated pesticides that
13 are out there, and it first came over as
14 polychlorinated biphenols which is a different product
15 line. It's a product line that's manufactured by
16 chemical companies but it wasn't PCBs. And then later
17 that was verified that it was really PCBs, that that
18 was a typo error in the telex and they became aware
19 that they found them in a few samples in Sweden and it
20 was like, gee, what are they doing there, we need to
21 look at this. Monsanto was the kind of company that
22 was concerned, as you pointed out earlier, about the
23 impact of its products on everything. They said, gee,

1 this is unusual, we wonder if it's true.

2 Scott, see how they're doing it, their
3 analytical chemists and see what we need to do to put
4 together to do what they're doing to verify whether or
5 not what they're finding is true or whether it could
6 be something else, whether they're confused.

7 Q And that, again, I think we've said this
8 earlier, that's what you did in your early work and
9 you did in fact verify that what they were finding was
10 true.

11 A Yes, we did verify that. In some instances
12 when people thought peaks were PCBs, they really were.
13 In some instance we verified that when they thought
14 they were PCBs, they were not, too. I need to say
15 that.

16 Q Fair enough. Now, you testified when I
17 asked you earlier about the details of Monsanto's
18 response to these early findings, you said that you
19 were charged with determining or you were going to
20 testify about what actions Monsanto formulated in
21 response to these findings.

22 A To the extent they involved me and to the
23 extent I was aware of what they were doing, it

1 basically said that -- you just want a summary?

2 Q Summary.

3 A My impression was that as the information
4 became available, Monsanto understood the importance
5 of it and looked at it very carefully and developed
6 their actions based on that information.

7 Q Again, and I don't want to talk too much
8 generality, when you say the information, what I'm
9 asking you is is once Monsanto learned that PCBs were
10 in fact in the environment and got you to verify that,
11 what actions did they take at that point, if any?

12 A The actions that they took, as I recall,
13 were first they wondered why because sure there was no
14 intention to distribute these things all over the
15 place. And at that point in time nobody understood
16 how things moved around so freely in the environment.
17 Especially something that wasn't very volatile, wasn't
18 very soluble in anything, wasn't, you know,
19 intentionally thrown around and in fact was a very
20 valuable product that people attempted not to lose.

21 So it was a real enigma. I mean, we just
22 didn't understand how these things could move about in
23 the environment. So they began to generate more

1 knowledge about the individual characteristics of the
2 molecule and how they interacted with the environment
3 to begin to explain how this was occurring.

4 Q Okay. What did they learn about how PCBs
5 moved around in the environment?

6 A Maybe it will help if I tell you that the
7 first PCBs that they found in the environment didn't
8 look anything like the products. The materials found
9 by the Swedish folks were not identical fingerprints
10 to any polychlorinated by-products. They were
11 individual groups of isomers that were identified as
12 polychlorinated biphenols.

13 So even at that time the relationship
14 between the product itself as it exactly looks and the
15 materials that they were finding were only in name
16 only. Nobody had really pinned down the fact that the
17 PCBs that were manufactured by Monsanto and those
18 people that manufactured them for the same reasons
19 Monsanto did were the source of those PCBs.

20 They easily could have been from other types
21 of things, other tram components and other products
22 that were intentionally used in a manner that
23 distributed them throughout the environment and in

1 fact that turns out to be the case. It's not the
2 predominant source we know today.

3 Q I just want to know that once Monsanto
4 learned that PCBs were out in the environment, what --
5 you said they looked into the issue of how PCBs moved
6 around in the environment to explain how they got
7 there. All I want to know is what was their
8 eventual explanation?

9 A The eventual explanation was that the
10 materials were getting into the environment through
11 the end use of the materials, that the people that we
12 were selling them to and things of that sort, even
13 though they didn't intend to have them spread around,
14 were actually spreading them around.

15 Q How?

16 A Through the use of the materials.

17 Q Elaborate on that.

18 A A transformer leaks, a capacitor leaks,
19 hydraulic fluid system leaks. Nobody knew -- I mean,
20 you have to remember at that time EPA didn't exist.
21 Environmental Protection Agency didn't exist. Nobody
22 was real concerned about that kind of thing.

23 Q About what kind of thing?

1 A About impact of our activities on the
2 environment.

3 Q Monsanto was not concerned about the impact
4 of its activities on the environment before the EPA
5 came into existence?

6 MR. PECK: Object to the form.

7 A They were in those areas that the chemicals
8 were intentionally spread about in the environment.
9 Sure, absolutely. An agricultural division where
10 pesticides and things of that sort, people were
11 concerned.

12 But the EPA wasn't around at that point in
13 time. The point I'm trying to make to you is is that
14 the general use of products that weren't used as
15 pesticides and things of that sort, nobody understood
16 that they could be spread around so easily.

17 Q All right. You said that nobody was
18 concerned about the impact of the environment at that
19 time before the EPA became involved.

20 What I want to do is follow up on that. Was
21 Monsanto concerned prior to the EPA coming into
22 existence about the impact that PCBs they manufactured
23 may have had on the environment --

1 MR. PECK: Object to the form of the
2 question.

3 Q -- to your knowledge?

4 A What I said, I did not say nobody was
5 concerned, what I said was nobody knew they should be
6 concerned.

7 The state of the knowledge at that point in
8 time was that PCBs and other kinds of products like
9 those were quite safe, there wasn't any big issue with
10 it and nobody understood that they were spread around,
11 nobody knew that. So at that point in time there were
12 sure concerns from a worker exposure viewpoint, a user
13 exposure viewpoint, things of that sort, but
14 everything that had been looked at on those products
15 there had been no problems when they were used
16 properly. Now came along this report that, gee,
17 they're finding them at -- they're finding the same
18 kind of molecule at very low levels in Sweden. They
19 don't look like our product and there is no -- nobody
20 understands how they could possibly be and where did
21 they come from.

22 Q And --

23 A As Monsanto became aware of more and more

1 what was going on, they were very concerned and they
2 took proper actions and the record reflects that if
3 you look at it.

4 Q Dr. Tucker, you advised at the ad hoc
5 committee that one of the sources were the end users
6 of the product.

7 A Yes.

8 Q Did you also advise the ad hoc committee
9 that for PCB contamination at Monsanto that one of the
10 sources was the Monsanto facility that manufactured
11 PCBs?

12 A Certainly the information that I generated
13 established both of those things.

14 Let me clarify something, I didn't advise
15 the ad hoc committee of anything. I reported to
16 individuals who were on the ad hoc committee who then
17 assembled that information in a format of, you know,
18 looking at it from all the different kinds of angles
19 they could to see what should be done, if anything.

20 Q Right. And I'm reading from a document, I'm
21 not going to make it an exhibit, I'll bring it over to
22 you so you can look at it with me. It's Bates stamped
23 number DSW014625. It's been identified in previous

1 depositions. It's a document with a confidential
2 stamp on the top of it entitled minutes of Aroclor Ad
3 Hoc Committee, first meeting dated September 5th,
4 1969. Correct?

5 A Correct.

6 Q And some of these people we've already
7 talked about as being on the ad hoc committee and you
8 see their names there, right?

9 A Yes, I do.

10 Q The way I'm reading this means there are
11 obviously some objectives written there from the ad
12 hoc committee. Were you made aware of the ad hoc
13 committee's objectives regarding the -- by the way, so
14 the record is clear, Aroclor means PCB, doesn't it?

15 A Aroclor is one of the product names that
16 Monsanto used for PCBs, yes.

17 Q So this --

18 A Aroclor doesn't mean PCBs.

19 Q I understand. Aroclor is like the trade
20 name Monsanto gave its PCBs?

21 A Correct, PCB products manufactured by
22 Monsanto.

23 Q And this document could just as easily say

1 minutes of PCB ad hoc committee and make the same
2 sense?

3 A Or it could say minutes of Anaclor adhoc
4 committee, too, which is the Japanese PCB product or
5 Prodolac.

6 Q Well, all I want to know is this document
7 could say minutes of PCB ad hoc committee and it means
8 the same thing?

9 A No, it wouldn't, absolutely not.

10 Q It would not. And why not?

11 A Because Aroclor was the product we
12 manufactured.

13 Q And it was a PCB?

14 A It was a specific type of PCB that we
15 manufactured. Aroclor was our trade name. This was
16 about our product.

17 Q Okay. Were you made aware of these
18 objectives?

19 A Yes, I've seen this document.

20 Q Okay. Were you -- at the time, I'm talking
21 about, were you made aware the objectives of the ad
22 hoc committee were to prevent continued sales and
23 profits of aroclors to permit continued development of

1 uses and sales and to protect the image of organic
2 division and the corporation, were you aware of those
3 objectives?

4 A Yes.

5 Q At the time?

6 A Yes.

7 Q Okay. Where is it, sir, listed in these
8 objectives to protect the environment from PCBs?

9 A I'll have to tell you a couple of things
10 about this.

11 One, at this point in time, nobody was
12 accusing PCBs of having any impact on the
13 environment.

14 Q So --

15 A This is in 1969, September 5th, and this is
16 just shortly after the Jensen-Widmirk discovery, so
17 nobody is predicting dire consequences or saying
18 anything is wrong with PCBs. All they're saying is,
19 gee, we're finding them in the environment and we
20 can't explain it.

21 Q Well, if Monsanto --

22 A So --

23 Q Let me ask you this --

1 A What's your question?

2 Q If Monsanto didn't think that PCBs being
3 found in the environment were a problem, why was it a
4 concern with protecting its image at that time?

5 A How do I answer this question? I think that
6 perhaps it shows their words well at the time but
7 poorly in today's context.

8 I think when they talk about protecting
9 their image, I think what they're talking about is
10 making sure people understand that the company is a
11 concerned citizen and that it needs to gather the
12 information to do things, to do the correct things,
13 make the right decision.

14 PCBs were a product line that had many
15 safety consequences associated with their uses. A lot
16 of buildings didn't burn down or explode because of
17 PCB uses. A lot of hydraulic systems could be used
18 close to fire and heat transfers and a lot of lives
19 were saved by using these kinds of fluids.

20 We just couldn't say, uh, we won't make
21 those anymore, and who would, I mean, nobody knew
22 there was anything wrong at this point in time.

23 So the objective was to put the effort in to

1 determine what was going on so responsible decisions
2 could be made.

3 Q It's your testimony sitting here today that
4 as of September 5th, 1969 Monsanto did not know that
5 anything negative could happen with exposure to PCBs
6 by humans, the environment, fish, aquatic life, by
7 anything, right? That's what you just said.

8 MR. PECK: Object to the form.

9 A Well, I know what I said and that wasn't
10 quite what I said.

11 What I said was that there was no
12 information that established that.

13 Q Well, that's --

14 A To try to say that it couldn't happen and
15 that they knew it couldn't happen, I mean, you can't
16 do that.

17 Q What you're saying then is there is no
18 published information to establish that?

19 A No. What I'm saying here is the public and
20 private information that was available to us at that
21 point in time did not clearly indicate that there were
22 any environmental impact.

23 Q You will admit that there is nowhere listed

1 in these objectives from this first ad hoc committee
2 meeting that Monsanto should do whatever it takes to
3 protect the environment, the aquatic life, birds,
4 animals, fish, humans or anything like that as part of
5 the objectives?

6 MR. PECK: Object to the form of the
7 question.

8 A You know --

9 Q It's not there, is it, sir?

10 A I will not -- I tried to tell you that when
11 the company said they wanted to protect the image of
12 the organic division that what they were trying to say
13 was that they wanted to be a responsible corporate
14 citizen which includes the fact that we're all human
15 beings and they didn't want to hurt anybody, but they
16 didn't want to make precipitous decisions that would
17 impair the safety of the product line because of what
18 its uses were.

19 Q Didn't have anything to do with the money it
20 was making from the product?

21 A Absolutely it had something to do with the
22 money.

23 Q We know down here on this background

1 discussion a number of things that the ad hoc
2 committee had at its disposal regarding PCBs.

3 Did you provide or people working under you
4 provide some of the information on this background
5 discussion?

6 A Yes, I'm sure we did.

7 Q For example, under paragraph heading number
8 two, this ad hoc committee states that PCBs have been
9 found in fish, oysters, shrimp and birds.

10 Did you confirm that to the committee based
11 on your studies?

12 A No. What that says basically is it's a
13 general statement that says PCBs have been found, it
14 has been reported that PCBs have been found in fish,
15 oysters and shrimp and birds. Some types of those
16 samples we analyze, too, other ones were analyzed by
17 their folks. So what it's basically saying is there
18 have been reports of PCBs in fish, oyster, shrimp and
19 birds.

20 Q Okay. It doesn't say anything about reports
21 being found, this document says in fact PCBs have been
22 found in fish, oysters, shrimp and birds. Did I read
23 that correctly?

1 A That's correct. But I'll have to tell you
2 I've never analyzed an oyster.

3 Q Okay. That's fine. Did anybody under your
4 direction do that?

5 A No.

6 MR. LIGHTFOOT: Hang on. Maybe I need
7 to make a copy of that. Is that your only copy, Pete?

8 MR. GRAMMAS: It is here. If you want
9 to make a copy, I will make it an exhibit.

10 MR. LIGHTFOOT: Well, I just don't want
11 you to hover over the witness unduly and this has gone
12 on for quite a while.

13 MR. GRAMMAS: You can make a copy of
14 it. I will be glad for you to do it.

15 MR. LIGHTFOOT: Okay.

16 (Discussion held off the record.)

17
18 (Plaintiff's Exhibit
18 Number 2 was marked
19 for identification.)
19
20
20

21 Q What we've done, Dr. Tucker, we've made this
22 document that I said I wasn't going to make an exhibit
23 now an exhibit. It's Exhibit 2 to your deposition,

1 right?

2 A Yes, sir.

3 Q It's the same document we've been talking
4 about, it's the minutes from the Aroclor ad hoc
5 committee meeting dated September 5th, 1969, right?

6 A I'm sure it is but let me look at it. Yes,
7 sir.

8 Q Who did the testing then under this
9 background discussion of problem, who provided the
10 information that PCBs were known to be present in
11 fish, oysters, shrimp and birds?

12 A Well, there are a variety of folks. As it
13 says, the information was coming from Great Britain,
14 Sweden, from the Rhine area, there was some
15 information being generated by Lake Michigan,
16 Pensacola Bay in Florida, there were a lot of people
17 that were measuring chlorinated hydrocarbons in the
18 environment, pesticides. And these folks, when they
19 discovered that the peaks they were looking at and
20 didn't know what they were could potentially be PCBs,
21 as well as some other things by the way, they began to
22 make reports of, gee, we're seeing those same peaks,
23 gee, we're seeing PCBs which in some cases were true

1 and some cases not.

2 Q How did Monsanto become aware of that?

3 A There was a lot of private communications,
4 there was a lot of cooperation between the scientists
5 and everybody else who was trying to figure out what
6 the heck was going on.

7 Q At that time, I think you've said this
8 earlier, but I want to make certain, at that time in
9 September of 1969 you're saying that Monsanto did not
10 know that PCBs in the environment had an adverse
11 impact on the environment in terms of aquatic life,
12 fish, birds, things like that?

13 A That's right. Let me mention one more
14 thing. There was no such thing as a PCB standard.
15 The only standards that were available were products
16 that were manufactured by the companies that were
17 manufacturing.

18 So if anybody wanted a PCB standard to use
19 as a reference material or anything of that sort, they
20 really came to the manufacturers and asked them for
21 samples of the material. And we openly provided that
22 to anyone that had credentials and asked.

23 And so at the same time information was

1 shared both from us and from them.

2 Q Well, if someone were to ask for this
3 information on this document, Monsanto wouldn't have
4 given it to them because it has a big old confidential
5 stamp on top of it.

6 A Well, I think we're talking about apples and
7 oranges.

8 Q Back to this same Exhibit 2, sir. Look, if
9 you would, at page three, paragraph seven, problem in
10 producing plants.

11 Did you provide the ad hoc committee any
12 information about PCBs escaping from the Anniston
13 facility that allowed them to write any of the
14 information contained in this topic?

15 A The possibility exists. I mean, we analyzed
16 samples that were submitted to us by the plant folks
17 and even in some instances suggest what they might
18 want to sample.

19 Q What were your conclusions regarding PCBs
20 escaping into the environment from the Anniston
21 facility at that time?

22 A The conclusions were, as we established
23 earlier, that there were PCBs escaping from the plant

1 during the manufacture.

2 Q And going where, sir?

3 A I would have to look at specific samples.

4 But they were going, as I recall, into a drainage

5 ditch and they were going into a settling basin.

6 Q Were any of them leaving the facility?

7 A I'm sure there might have been some leaving
8 the facility.

9 Q Well, didn't you do testing that confirmed
10 that?

11 A Later we did, yes. They required, you know,
12 sophisticated techniques to establish that.

13 Q This document, the ad hoc committee members
14 stated that they agreed that until the problems of
15 gross environmental contamination of Monsanto's
16 customers were alleviated, there was little object in
17 going to expensive extremes in limiting discharges
18 from the plants.

19 Did I read that correctly?

20 A Show me where in the document you're
21 reading.

22 Q It's the last sentence on the first
23 paragraph under paragraph seven.

1 A Okay. That's what that says.

2 Q And were you made aware of that decision at
3 the time?

4 A I don't think this was a decision as much as
5 a priority list. This is work in progress. And this
6 is an attempt by these folks who had interest for the
7 various business groups to put together all the
8 information that was available, look at it from every
9 angle they could and to really kind of brain storm
10 what were the questions that should be considered.
11 So --

12 Q All I'm asking --

13 A This was really priority, it wasn't policy.

14 Q All I'm asking you, Dr. Tucker, all I'm
15 asking you is were you aware of this agreement, I'll
16 use that word, by the ad hoc committee at that time?

17 A This was not an agreement, this was work in
18 progress. These were recommendations based on
19 available information, not necessarily actions that
20 were taken.

21 Q All right. Paragraph seven, page three,
22 last sentence, it says, "it was agreed that", did I
23 read that word correctly?

1 A So far you have it absolutely correct.

2 Q "Agreed", the word they used in the ad hoc
3 committee was agreed, correct?

4 A Right.

5 Q All I'm asking you, sir, is at that time
6 were you made aware of the ad hoc committee agreement
7 to not focus on their own plant discharges and to
8 focus on the gross environmental contamination of
9 Monsanto's customers?

10 MR. PECK: Object to the form of the
11 question.

12 A I was aware of this document and I was aware
13 of that sentence. I wasn't aware of the way you just
14 put it.

15 Q Were you complaining to them at that time,
16 sir, that you needed more help in your lab to be able
17 to do your job properly?

18 A No.

19 Q You weren't?

20 A No.

21 Q How did the ad hoc committee know you needed
22 additional help at that time?

23 A Because they wanted us to do more work.

1 Q But at that time they didn't fund the
2 project any more or provide any specific actions, did
3 they?

4 A First of all, I didn't complain that we
5 didn't have enough resources. I made them aware that
6 in order to do the kinds of things that we needed to
7 do and they felt we needed to do to give them the
8 answers to questions they had, we would need more
9 resources to do it in a timely fashion.

10 As I said, this is work in progress. It's
11 kind of like, okay, where are we at, what do we need
12 to do next and what do we need to do it and that's
13 what that's about.

14 To characterize this as a complaint is just
15 way out of context. Where does it say complain in
16 here?

17 Q I'm just asking the question.

18 A No, but I object to the way you phrase that.
19 I mean, that just really --

20 Q I'm just asking a question. If you don't
21 agree with it, then give your answer.

22 A I have given my answer.

23 Q Paragraph eight, sir. It says,

1 environmental contamination by customers. Our
2 in-plant problems are very small versus problems of
3 dealing with environmental contamination by customers.

4 Did I read that correctly?

5 A Yes, sir.

6 Q What information did you provide this
7 committee that allowed them to make that analysis?

8 MR. PECK: Object to the form of the
9 question.

10 A We verified the findings of the folks in
11 Sweden. And --

12 Q Well --

13 A And looked at various other samples and were
14 beginning to find PCBs in a lot of places that we
15 never thought they ever would be.

16 Q I understand that there was agreement at
17 that time that PCBs were much more pervasive in the
18 environment than anyone thought.

19 What I want to know is how was the ad hoc
20 committee able to make the comparison that the
21 problems that Monsanto had at the plant were small
22 compared to what they were facing with the customers?

23 MR. PECK: Object to the form of the

1 question.

2 A Well, I think the example in the paragraph
3 that you called out is a clear one. They apparently
4 were aware that the material was being used in oils
5 and utilized in paint that was put on highways and
6 that there was a million pounds of the material put on
7 highways that way.

8 Now, that's getting out there. And so the
9 point is is that the amount that was really coming out
10 of the production unit was minuscule relative to that
11 on a priority basis, if something needed to be done,
12 then you certainly wouldn't go clean the plant up
13 first, you might want to decided whether or not that
14 was an application that should be continued.

15 Q So that means the plant knew at this time
16 how much was escaping, that Monsanto knew at this time
17 how much PCBs were escaping out of the plant?

18 A That's a quantum leap.

19 Q Well, it's not because you've got to make
20 comparisons.

21 A We're talking about a million pounds here
22 and you have an operating unit that's manufacturing a
23 lot of material and you've already established that

1 some is escaping, not a million pounds or anything of
2 the sort, but something significantly less than that
3 and so on a priority basis which problem do you go
4 after first if it's decided something needs to be
5 done.

6 Q What was done then with respect to the
7 problems that the customers of Monsanto were causing
8 at this time?

9 A Well --

10 Q What was done?

11 A Okay. There was -- as knowledge became
12 available, there was an educational program that went
13 on in terms of making the customers each and every one
14 aware of the environmental findings which eventually
15 through conjecture became environmental concerns and
16 the customers were kept up to breast on what was going
17 on. Because anybody could sit down and do a worst
18 case scenario, and say, gee, what happens if we find
19 we need to quit manufacturing these materials, which
20 by the way that's what happened.

21 What do we do, what do those people who use
22 them in paint do, what do those people who use them in
23 capacitors do. So there was a whole educational

1 program to let our customers know what was going on so
2 that everybody could become aware of what needed to be
3 done or what should be done.

4 And, you know, these people at that time it
5 was really felt that, gee, maybe we better be more
6 careful about how we handle the leftover paint, about
7 how we handle this and how we handle that, and maybe
8 some of these applications where we broadcast it need
9 to be curtailed.

10 Q All right.

11 A Maybe.

12 Q What I'm asking, though, is what did
13 Monsanto do with respect to the problems in dealing
14 with the environmental contamination by its customers
15 at this time?

16 MR. PECK: Object to the form of the
17 question, asked and answered.

18 Q What did Monsanto do, if anything?

19 A I answered the question. I said that we
20 began to develop an understanding of what was going on
21 and as we developed the understanding, we shared it
22 with our customers, we shared it with government
23 agencies and any agency that was interested and we

1 shared it with scientists, we shared it with
2 universities, we shared it with the USDA, we shared it
3 with the FDA, we shared that information with
4 everybody because we felt that it was a problem that
5 everybody had to be aware of, if something happened.
6 And everybody was concerned about it, they were all
7 interested. So it was like, gee, we're trying to
8 understand what's going on.

9 Q Okay.

10 A So they developed a manner in which to
11 notify the clients, to become more aware about where
12 our products were being used and how they were being
13 used by the clients and to offer them our knowledge in
14 terms of whether or not that was a good use, possibly
15 there was something else they might want to substitute
16 for it, you know, things like that.

17 Q All right. What they did is they shared
18 information with the customers to let the customers
19 know the seriousness of the problem at that point in
20 time, right?

21 A I thought I said that without the
22 seriousness at that point.

23 They let the client know what we knew so

1 that the client could participate in the decision and
2 understand where we were going and that we weren't
3 acting precipitously.

4 Q Did they go -- did anyone at Monsanto hire
5 contractors to go out and actually start figuring out
6 ways to remediate the PCBs that its customers put in
7 the environment?

8 A Okay, we're talking in 1969?

9 Q Yes, sir.

10 A No.

11 Q All right. What was preventing Monsanto, if
12 anything, what prevented Monsanto from focusing its
13 concerns on its customers and simultaneously worry
14 about its in-plant problems with respect to PCB
15 contamination in the environment at that time?

16 A Do that question again.

17 Q Yes, sir. What, if anything, are you aware
18 of that prevented Monsanto from simultaneously
19 focusing its concerns on both the customer's
20 contamination of PCBs in the environment and its own
21 in-plant contamination of PCBs in the environment?

22 A First of all, nobody established that there
23 was a problem with PCBs in the environment. We had

1 only established that there were PCBs in the
2 environment and that, gee, I wonder if they are having
3 any problem, if there is any impact whatsoever.

4 So there had been no problem established
5 outside of the fact that we were finding them in the
6 environment.

7 So there wasn't even the knowledge bases to
8 know that anything needed to be done. All this that
9 you're dealing with here is work in progress,
10 conjecture, brain storming, gee, what if this happens,
11 it's a responsible response to information at that
12 point in time on September 5th, 1969. And it's
13 minutes of a meeting where people were trying to take
14 all the information that was available and figure out,
15 gee, what should we do about this.

16 Q You think it is responsible for Monsanto to
17 state that because the gross environmental
18 contamination of its customers has not been alleviated
19 yet that at that time they didn't need to do much of
20 anything to limit the discharges from its own plant?

21 MR. PECK: Object to the form of the
22 question.

23 A I think I answered that when I said that

1 what they were saying is, gee, let's keep this in
2 context. On a priority scale of one to ten where do
3 we have need to start if we need to start.

4 Q What I'm asking you is, sir, when you
5 prioritize something, that at least suggests to me
6 that you can't do both at the same time.

7 What information do you know that prevented
8 Monsanto from giving its customers all the information
9 that you were out there developing from Monsanto while
10 at the same time figuring out a way to stop
11 discharging all of the PCBs into Snow Creek and
12 Choccolocco Creek from its Anniston plant?

13 MR. LIGHTFOOT: Just a minute, I have an
14 objection if counsel raises his voice at the witness
15 and counsel also fails to take into account the whole
16 paragraph seven which covers what is being done at
17 Anniston.

18 Q You can answer the question, sir.

19 A First I need to understand the question and
20 I'd like you to sort the question out from all the
21 editorial rhetoric, please. I mean, I'm very serious
22 about that. That was more of a statement than a
23 question. And if I missed it, please be polite enough

1 to give it to me again.

2 MR. GRAMMAS: Read it back, Jill.

3 (Record read.)

4 A I think in context the statement is
5 responsible. And I would want to include that actions
6 were being taken on all fronts. And I think even
7 earlier you kind of implied that all of the
8 information wasn't being shared. Well, I have to tell
9 you truthfully, a lot of the customers didn't really
10 want to hear it because that was the level of
11 understanding environmental problems at that time,
12 gee, what's the matter with these guys, you know, what
13 are these guys getting all excited about.

14 Q Monsanto felt the same way?

15 A No, absolutely not. Monsanto was trying to
16 communicate that information to people, including
17 government agencies and everybody else, that here's
18 what we're finding, you know, we're not keeping
19 anything from anybody, we don't know what it means,
20 hey, let's get together and figure out what's going on
21 here.

22 Q All I'm asking you, sir, and I don't think
23 you answered my question, what prevented Monsanto from

1 cleaning up its own problems while at the same time
2 warning its customers about potential problems that it
3 became aware of?

4 A Nothing. And they were doing both and the
5 record reflects that, if you get into looking at the
6 record as it developed.

7 Q Okay. Isn't it a fact, sir, and don't you
8 know it to be a fact based on your experience at this
9 time for the company that Monsanto decided not to
10 reduce its discharges of PCBs into Snow Creek and
11 Choccolocco Creek because it didn't want to spend the
12 month to do so at that time?

13 MR. PECK: Object to the form of the
14 question.

15 A Do I agree with that or did I know that? I
16 did not know that.

17 Q Do you agree with that sitting here today
18 reading the document?

19 A Do I agree with your statement?

20 Q Right.

21 A No.

22 Q And the document that you're looking at,
23 Exhibit 2, I believe, does not say that?

1 A It does not say that.

2 Q You don't think Monsanto has done anything
3 wrong as far as its releases of PCBs into the
4 environment down in Anniston and in St. Clair County,
5 true or false?

6 MR. PECK: Object to the form of the
7 question.

8 A That's an impossible question to answer.
9 First of all, would you be kind enough to define wrong
10 for me?

11 Q You don't know what wrong means?

12 A I know what you're implying. I know during
13 the period of time when they first began to
14 manufacture PCBs and things of that concern, nobody
15 had the knowledge to know whether it was right, wrong
16 or indifferent.

17 I know they made every effort to take all of
18 the product they manufactured to the marketplace and
19 that's the way it was.

20 And I also know that as they became aware of
21 the fact that material was escaping that they
22 formulated plans to handle that and those plans were
23 accelerated as more information became available as to

1 the potential impacts of PCBs on things. Some of
2 which today aren't even proven yet.

3 I think they acted responsibly and I think
4 the record shows that. To take an excerpt from a
5 document like this which is work in progress and which
6 is draft and which is a first meeting and which is a
7 fact finding situation and try to display it today in
8 the context of the knowledge we have today is
9 difficult for me to swallow. That's why I'm having a
10 hard time answering your questions.

11 Q All I'm asking you to do is tell me, and I
12 think you said the answer is no, did Monsanto do
13 anything wrong over the thirty-year period of
14 manufacture and over the thirty-year period since then
15 of exposure in allowing PCB to leave its facility and
16 get into Snow Creek, Choccolocco Creek and Lake Logan
17 Martin?

18 MR. LIGHTFOOT: Object to the question,
19 because it doesn't take into account knowledge and
20 information available at the time versus knowledge and
21 information available now.

22 Q You can answer the question.

23 A I concur with what I just heard in the sense

1 that --

2 Q You're letting Mr. Lightfoot testify for
3 you?

4 A No, I'm absolutely not letting him testify
5 for me. I'm merely stating that he's trying to
6 clarify the answer to you.

7 My answer is is that Monsanto acted in a
8 responsible fashion based on the knowledge available
9 to them at the time it was available in each and every
10 case.

11 Q So you don't think Monsanto has done
12 anything wrong?

13 A That's correct.

14 Q Okay. Now, how many -- you've testified in
15 other cases, have you not, as an expert witness?

16 A As a fact witness.

17 Q Have you ever testified in other cases not
18 for Monsanto but for any company as an expert witness?

19 A Yes.

20 Q How many cases have you testified in whether
21 it be by affidavit, deposition or trial testimony?

22 A Probably two or three.

23 Q And tell me all the cases you've testified

1 in.

2 A Most recent case that --

3 MR. PECK: As an expert; is that what
4 you're talking about?

5 MR. GRAMMAS: Right. We'll talk about
6 the others in a minute.

7 A We recently had a Circuit Court, United
8 States Circuit Court in Pennsylvania review whether or
9 not we should proceed with remediation based on a suit
10 by a group called AIR, and I was called to testify at
11 that on some analytical information and what it meant
12 and things of that sort.

13 Q When you say --

14 A I don't know whether -- that's kind of like,
15 I mean, I don't know whether that's expert or fact, I
16 think it's both.

17 Q Let's don't distinguish. Let's just talk
18 about your testimony in general. And we'll talk about
19 this one you just started. Because I don't want you
20 to have to make a distinction as to what was fact or
21 what was expert. I don't think that's fair for you to
22 do.

23 So what I want to know is the cases you've

1 testified in the past and you just mentioned this one.
2 When you said "we", who were you testifying on behalf
3 of?

4 A I was testifying on behalf of Environmental
5 Protection Agency, for the Department of Justice.

6 Q The EPA asked you to testify for them?

7 A Yes.

8 Q And did they pay you for your testimony?

9 A No.

10 Q What was your testimony?

11 A What do you mean by pay?

12 Q Did they pay you to testify?

13 A The company donated my time to testify and I
14 was paid for that. But I don't consider them paying
15 me.

16 Q Did you offer --

17 A What do you mean by pay?

18 Q Did you offer opinions?

19 A Yes. I testified -- I did testify as an
20 expert at that one, I did offer opinions.

21 Q And in a very broad brush, sir, tell me what
22 your opinions were with respect to this remediation.
23 First of all, did it have anything to do with PCBs?

1 A That's correct.

2 Q Did or did not?

3 A Did not have anything to do with PCBs.

4 Q Did you advise the federal court that a
5 clean up was necessary or was not necessary?

6 A I advised the federal court that the clean
7 up was necessary.

8 Q What was the chemical that you said should
9 be cleaned up?

10 A The chemical that I said should be cleaned
11 up was betaformalin which is a known human carcinogen.
12 And by known I mean that it has immunological data
13 that says that it causes bladder cancer in human
14 beings because of people that were exposed to it when
15 they worked for it.

16 Q Bladder cancer, is that what you said?

17 A Bladder cancer.

18 Q That was the first case you mentioned. Tell
19 me all the other ones, sir.

20 A The other case that I can recall where I
21 provided probably fact and expert testimony was in a
22 pipeline case that happened in Los Angeles,
23 California, and it was similar to -- it involved PCBs

1 and was Monsanto.

2 Q You were testifying for Monsanto?

3 A Yes.

4 Q What period of time was this, sir?

5 A Probably two or three or four years ago,
6 maybe even further than that. I would have to look at
7 my records.

8 Q You were not working for Monsanto at the
9 time?

10 A No, I was not.

11 Q How much did they pay you, do you recall,
12 for your testimony?

13 A Just the cost of getting there and being
14 there and getting back.

15 Q They didn't actually pay you over and above
16 any expenses you incurred?

17 A No, sir, they did not.

18 Q And your company did not receive any money?

19 A That's correct.

20 Q And PCBs were contaminating a natural gas
21 pipeline?

22 A PCBs were used as a hydraulic fluid in
23 compressors and the company had let the PCBs get into

1 the natural gas pipelines and it had traveled through
2 the pipelines and had caused contamination at the
3 various substations when people didn't handle it
4 properly.

5 Q The company is what company?

6 A It's one of the big pipelines.

7 Q How did Monsanto get involved in that case?

8 A I believe they were named as a co whatever,
9 because they manufactured the product.

10 Q What was your testimony in short concerning?

11 A To the development of the analytical
12 methodology, its application and the development of
13 the state-of-the-art of the analytical methodology.

14 Q Similar to what you are testifying here
15 today?

16 A Correct.

17 Q Do you know what the result of that lawsuit
18 was?

19 A I don't know the exact result, it's my
20 understanding that -- I don't remember.

21 Q Do you recall if Monsanto paid any money or
22 had to do anything as far as clean up in that lawsuit?

23 A I don't recall. That's not my concern.

1 Q Is that your concern in this case?

2 A No.

3 Q You don't care if Monsanto is ultimately
4 forced to pay any money or forced to do a clean up?

5 A Doesn't impact me one way or the other.

6 Q What other cases have you testified to, if
7 any?

8 A Way back when I testified and I think it was
9 -- and this was testimony in the Chicago U.S. Circuit
10 Court back in the '70s I think it was.

11 Q Where was that?

12 A It was testimony that I gave in Stanford,
13 Connecticut, at the company I worked for, the EPA
14 brought in lawyers, the plaintiffs brought in lawyers
15 and Monsanto sent a lawyer, this kind of thing, there
16 was a court reporter and they took testimony that was
17 to be presented at the U.S. Circuit Court in Chicago
18 where the suit was occurring. It was the Outboard
19 Marine in Waukegan, Illinois.

20 Q You testified for Monsanto?

21 A Yes.

22 Q What did you testify in that case about?

23 A To the same things that I testified earlier

1 to, the analytical methodology, state-of-the-art, its
2 development, what PCBs were from an analytical
3 viewpoint, those kind of things, how it all came
4 about.

5 Q Did you get paid for your testimony in that
6 lawsuit?

7 A No. And that one as a matter of fact they
8 came to me, so -- and in fact the company I was
9 working with at that time allowed them to use the
10 conference room and things of that sort, so there was
11 no reimbursement for any expenses because I didn't
12 have to go anywhere.

13 Q They came to me, you mean the plaintiff
14 subpoenaed you to testify?

15 A I mean everybody came to Stanford,
16 Connecticut, and met in the conference room in
17 Stanford, Connecticut, the EPA, Monsanto, Outboard
18 Marine representatives.

19 Q The reason you were called to testify was
20 Monsanto called you and said, hey, we need you to
21 testify?

22 A I don't remember whether Outboard Marine
23 subpoenaed me or Monsanto provided me, tall and short

1 of it was I testified and it is a matter of record.

2 Q Any other cases you've testified in?

3 A That's getting pretty close to it.

4 Q Now, in each one of these cases how were you
5 made aware that Monsanto needed you to testify for
6 them?

7 A I'm trying to remember. Usually I was
8 notified by Monsanto that they had to provide my name
9 to somebody who had requested names of the people who
10 were involved with PCBs and things of that sort and
11 that I might be communicated by them. They, as a
12 courtesy, let me know that somebody had asked for
13 information and they had provided it.

14 Q How were you first notified about testifying
15 in this case?

16 A Same way.

17 Q Who did that?

18 A I believe Mr. Cox was the individual.

19 Q Who was your first contact?

20 A I believe Mr. Cox was the individual who
21 contacted me.

22 Q It wasn't anyone from Monsanto?

23 A As I said, it was Mr. Cox.

1 Q Not Buddy Cox?

2 A Yes.

3 Q What I'm saying is, somebody from Monsanto,
4 I mean within the organization?

5 A No.

6 Q Do you know how Mr. Cox got your name?

7 A I don't know, no, I don't know how he
8 specifically got my name. I can probably guess but I
9 don't know.

10 Q Now, is this all the testimony that you've
11 ever provided whether it be by affidavit, deposition
12 or actually at trial? This is a deposition.
13 Affidavit is when you swear and you sign a document
14 that says you're an affiant and all that.

15 A The only other one that I can think of is
16 for the Pennsylvania Attorney General's Office and I
17 provided an opinion on some PCB analytical data,
18 laboratory data, that they provided me that I went
19 through to verify that the lab had done what they were
20 supposed to. That's the only one.

21 Q Have you ever been asked to give any
22 opinions about whether PCBs at a particular site
23 should be cleaned up?

1 A No.

2 Q But you have given opinions in the past
3 about whether chemicals other than PCBs should be
4 cleaned up?

5 A Yes.

6 Q How many times have you testified on behalf
7 of a plaintiff?

8 A Define it for me so we make sure we're on
9 the same page.

10 Q A plaintiff by my definition is people like
11 my clients who sued Monsanto for putting PCBs into
12 their river system.

13 MR. LIGHTFOOT: It could be EPA or
14 Department of Justice.

15 MR. GRAMMAS: No, he asked me to define
16 it.

17 MR. LIGHTFOOT: Well, I'm
18 supplementing.

19 MR. GRAMMAS: Well, use my definition
20 not Mr. Lightfoot's.

21 MR. PECK: Let's use the real
22 definition, it would be the party who has the burden
23 of proof, burden of proving that something needs to be

1 done or somebody needs to pay money.

2 Q What I want you to do, sir, is tell me how
3 many cases you have testified on behalf of plaintiffs
4 like my clients who have sued defendants like Monsanto
5 asking Monsanto to pay them for the damages they have
6 incurred by a result of PCBs or some chemical like
7 that being discharged in and around their company.

8 MR. PECK: Object to the form.

9 Q That's what I want to know.

10 A I'm trying to -- I have worked for the
11 plaintiff as you're defining the plaintiff in a case
12 involving Toxaphene in a Georgia plant where the
13 plaintiff asked me to use my analytical capabilities
14 to review data that had been generated and to verify
15 that the information was correct. I cannot remember
16 whether I provided an expert report. I know I did not
17 provide a deposition. I think the situation may have
18 been settled before it got to that point.

19 I'm an analytical chemist. If somebody
20 wants to know whether or not analytical information is
21 generated using certain kinds of analytical techniques
22 has been done correctly in terms of the rules in
23 generating that information, I'm qualified to do that.

1 And I've been asked to do that. And very frankly, it
2 doesn't matter to me whether it's what you're defining
3 as a plaintiff or whether it's Monsanto. What matters
4 to me is my opinion on the information after I have
5 reviewed it.

6 Q You have now added another case that you
7 just recalled about, this Georgia case. Are there any
8 other ones that you have testified in?

9 A No. And the Georgia case I added I'm not
10 sure whether it met your original definition that you
11 asked in your question.

12 Q Because you didn't actually have to give
13 testimony, you were a consultant?

14 A That's correct. These folks were plaintiffs
15 as you mentioned them.

16 Q Fair enough. Are there any cases that you
17 have consulted on that you've never testified in that
18 you haven't already mentioned?

19 A I think you got them all.

20 MR. PECK: Dr. Tucker may include this
21 as one big litigation but he has consulted with us on
22 the Abernant case.

23 MR. GRAMMAS: On what case?

1 MR. PECK: He has consulted with us on
2 the Abernant v. Monsanto case which is -- I think he
3 thinks of that as one big consultation.

4 MR. GRAMMAS: Fair enough.

5 Q In your report, in the executive summary
6 section of your curriculum vitae, second sentence
7 under the executive summary -- see where it says
8 executive summary, excuse me, experience summary?

9 A Now I see where you're at.

10 Q I've been reading executive, it says
11 experience summary, second sentence starts with the
12 word "he", that is describing you, correct?

13 A Yes.

14 Q Says you are one of the original principal
15 industrial scientists and team leaders that confirmed
16 the widespread presence and sources of polychlorinated
17 biphenyl (PCBs) residues in our environment through
18 the development and application of analytical methods
19 for the absolute identification and analysis of PCB
20 residues in industrial products and environmental
21 samples.

22 Did I read that correctly?

23 A Yes.

1 Q In other words, through your expertise you
2 are able to identify the sources of PCB contamination
3 in the environment?

4 A Yes.

5 Q And that would include, of course, Monsanto?

6 A Yes.

7 Q Monsanto is in your opinion a source of PCB
8 contamination in the environment?

9 A Yes.

10 Q Including the PCBs that are found in the
11 Anniston area and in and around my plaintiffs
12 property?

13 MR. PECK: Object to the form of the
14 question. No foundation.

15 A Yes.

16 Q Okay. Now, let's go down farther under the
17 bullets here, same page, the third bullet, you say
18 that you have extensive direct technical knowledge and
19 scientific expertise in the following areas. Third
20 bullet says the environmental impact for PCBs.

21 Did I read that correctly?

22 A It says environmental impact expert and fact
23 witness for PCB, Dioxin, Furan, Hexachlorobenzene,

1 Toxaphene.

2 Q Right. I'm just focusing on the PCBs to
3 shorten this process.

4 A Right. You asked me if you read something
5 correctly and you abbreviated.

6 Q Did what I read -- was what I read correct?
7 I'm not saying that it was inclusive. Are you in fact
8 -- first of all, did you write this?

9 A Yes.

10 Q Are you in fact describing yourself as an
11 environmental expert and fact witness for PCBs?

12 A Yes.

13 Q Okay. And that would include remediation of
14 PCBs, that's how you're describing yourself here,
15 correct?

16 A In remediation litigation, if somebody needs
17 somebody to testify about the analytical methodology
18 for PCBs or to read some information and say how good
19 or how bad it is, I can do that, yes.

20 Q I thought you told me --

21 A It doesn't have anything to do that I am a
22 remediation expert. There are many aspects to
23 remediation. I don't know anybody that does it all.

1 Q I understand that. And I don't expect you
2 to do it all.

3 What I'm trying to do is, is I want to know
4 what you are going to testify about and what you are
5 not going to testify about. That's all I'm trying to
6 do.

7 A The remediation and the approaches used for
8 mediation, things of that sort, I probably won't
9 testify about. Because I'm not an expert in that. I
10 told you earlier, and I thought I did it fairly
11 clearly, that I'm an expert in analytical chemistry
12 and the analysis of environmental samples for all
13 sorts of different kinds of contaminants using the
14 analytical techniques that are used for that.

15 Q See, I thought --

16 A One of those techniques are for PCBs.

17 Q I thought you told me that, too, and then I
18 read down here where you're classifying yourself as
19 environmental impact expert for PCBs.

20 A Correct.

21 Q But you don't know what the environmental
22 impact of PCBs are because that's not your expertise?

23 A In determining the impact of something, it

1 takes a lot of different technical folks to do that.
2 And once people have evaluated how much of something
3 is some place and where it is and what gets exposed to
4 it, that's the analytical part. That analytical
5 information is then provided to toxicologists, fish
6 toxicologist, bird toxicologist, those kind of things,
7 and they use that information to make impact
8 decisions. So it's all part of the process. I don't
9 know anybody that does everything by themselves.

10 Q You're not in a position then to dispute or
11 disagree with any opinions that other witnesses have
12 offered regarding the toxicological affects of PCBs in
13 Snow Creek, Choccolocco Creek and Lake Logan Martin or
14 the need for remediation?

15 A From a technical viewpoint, that's not my
16 area of expertise; however, I can still agree or
17 disagree with it. I didn't understand your question
18 quite there.

19 Am I a toxicologist? No. Is that my area
20 of expertise and have I spent my life doing that?
21 No. Do I have an opinion on it? Sometimes. Is it
22 the correct opinion? Sometimes.

23 Q But you're not claiming expertise in it, is

1 what I'm saying?

2 A No. And I thought I made that clear.

3 Q You did.

4 A Very clear.

5 Q But I want to tie it down and make --

6 A I'll make it clear again. I'm an analytical
7 chemist and I'm part of a team that does environmental
8 impacts and things of that sort or I can be.

9 Q What I want to know and there is no secret
10 I'll tell you what I'm doing, I want to know and I
11 think I do know but I want it to come out of your
12 mouth in case something changes and I can come up to
13 the trial and say, look right here what you told me,
14 that's all I'm doing, and Mr. Peck knows what I'm
15 doing.

16 You're not in a position in this lawsuit nor
17 do you have the expertise to dispute the opinions of
18 toxicologists or remediation experts who have opined
19 that -- whatever they've opined, that the PCBs are
20 toxic here and that PCBs should be removed here, true
21 or false?

22 A True, as long as the information that
23 they've used is correct. If I see that the

1 information is incorrect, then I could probably point
2 out that their opinion might be faulty.

3 Q Great. Now let's talk about that. Have you
4 reviewed the analytical steps that any expert in this
5 case has taken?

6 A No.

7 Q Are you prepared to give testimony about
8 that?

9 A At this point in time, no.

10 Q Has anyone indicated that they are going to
11 ask you to do that?

12 A At this point in time, no.

13 MR. GRAMMAS: Let's go off the record a
14 second.

15 (Discussion held off the record.)

16 Q Are you aware of any opinions that you plan
17 to give in this lawsuit that for some reason or
18 another I have not covered today?

19 A I'm sorry?

20 Q I don't think there are, there might be.

21 A Am I aware of any opinions that I may be
22 asked to give that you haven't covered?

23 Q Right.

1 MR. PECK: He's asking have you
2 generally covered the scope of the area of testimony
3 you are planning to testify about.

4 MR. GRAMMAS: No, that's not what I'm
5 asking.

6 THE WITNESS: No. He's asking me if
7 there are any areas that I potentially could talk
8 about if I were asked to that he hasn't mentioned.
9 And I can't answer that question.

10 MR. PECK: I object to the form of the
11 question.

12 Q Why can't you answer that question?

13 A Because you haven't defined the question.

14 MR. PECK: He doesn't know what's going
15 to be asked of him.

16 A I can't predict the future, very frankly.

17 MR. PECK: I doubt you've asked a
18 single question I would ask, so, you know, his answers
19 are going to be in the area -- I'm not trying to hide
20 the ball here. His answers are going to be in the
21 area he's discussed. He may answer things differently
22 because you don't ask questions the way I do. And you
23 wouldn't expect -- I wouldn't be allowed to ask them

1 the way you do if I were on direct of this man.

2 MR. GRAMMAS: I understand that.

3 That's not what I'm trying to say.

4 What I want to know is are there any
5 opinions that you are prepared to give that you have
6 discussed with Mr. Peck that we have not talked about?

7 A At this point in time, no.

8 Q Okay. That's all I want to know. And that
9 may change, I understand that may change, but if it
10 does change --

11 A And I need to qualify that because it's
12 another one of those about absolute routines, in the
13 areas that we talked about, there may be things that
14 you don't consider in those areas that are in those
15 areas because I don't know that you are that
16 knowledgeable about the whole thing that analytical
17 chemistry could cover.

18 Q Let me tell you, what you've just said is
19 more true than anything you've said today. I promise
20 you that.

21 A Accurate would be the word I would choose.

22 Q Are you aware of any sites that Monsanto has
23 gone to and cleaned up PCBs off of the facility, off

1 their own facility, rivers, streams, things like that?

2 A That Monsanto themselves have cleaned up or
3 that Monsanto has hired a contractor to clean up?

4 Q Yes.

5 A You know, I've never been involved in either
6 one of those.

7 Q So sitting here today you're not aware of
8 any, that's not to say they don't exist, you're just
9 not aware of any?

10 A That's correct.

11 Q Why do you feel, sir, that your testimony is
12 relevant to -- tell me this, why do I need to know the
13 analytical equipment used to detect and measure trace
14 quantities of PCBs back in the '60s to know that PCBs
15 are there today?

16 MR. PECK: Object to the form of the
17 question.

18 A Why do you need to know that?

19 Q Yes. Why is it important, what is relevant
20 about what you did back in the '60s at Monsanto in
21 developing technologies to test for PCBs in
22 determining whether they are there in the rivers and
23 the lake today?

1 MR. PECK: Object to the form of the
2 question.

3 A Because unless you were there, you don't
4 know how things developed. The knowledge that the
5 person on the street has today relative to the
6 environment is infinitely better than any of us,
7 including the people on the street, had in the late
8 '60s. So too often people look at the information
9 that's available today and the knowledge that's
10 available today and considered commonplace and they
11 don't understand that back in 1969 nobody knew any of
12 this.

13 Q Nobody knew any of what? When you say
14 "this", what are you talking about?

15 A Any of the way -- the things that we use as
16 products can get about in the environment and the
17 potential impact that they might have.

18 Q You're saying, I just want to make sure
19 we've got this right. You're saying that in 1969
20 Monsanto was totally unaware of the fact that its
21 facility in Anniston was causing PCBs to enter the
22 environment via Snow Creek and Choccolocco Creek?

23 MR. PECK: Object to the form of the

1 question.

2 A No, I didn't say that.

3 Q All right. And you didn't need any mass
4 spectrometry or gas spectrometry or any of these other
5 things you developed for Monsanto to know that PCBs it
6 was manufacturing were in fact escaping its facilities
7 and getting into Snow Creek and Choccolocco Creek
8 during the entire period of time they manufactured it?

9 MR. PECK: Object to the form of the
10 question.

11 A I can't answer that question.

12 Q Well, Monsanto knew it was there before you
13 developed this technology, didn't they?

14 MR. PECK: Object to the form of the
15 question.

16 A Monsanto knew what?

17 Q PCBs were leaving its plant and getting into
18 Snow Creek and Choccolocco Creek long before you
19 developed your technology to test for these trace
20 amounts of PCBs?

21 MR. PECK: Object to the form of the
22 question.

23 A I don't know what they knew.

1 Q You don't know that?

2 A No. The point is that I'm quite certain
3 that at that point in time nobody really knew that
4 PCBs were in Choccolocco or Logan or Lake Michigan or
5 any of those kinds of things. They might have known
6 as you tried to point out that the possibility exists
7 they were in the drainage ditch attached to the plant
8 or in a settling basin that was used or something of
9 that sort. If that's your idea of the environment,
10 then, you know, just phrase your question that way and
11 I will be happy to answer it.

12 Q That's what I was talking about. That's
13 exactly what I was talking about.

14 A Phrase your question that way so I can
15 answer you.

16 Q Well, I said, don't you know that Monsanto
17 knew during the entire time it was manufacturing PCBs
18 that they were escaping the facility, they were
19 getting into this drainage ditch that you talked
20 about, into Snow Creek and into Choccolocco Creek and
21 wherever Choccolocco Creek was flowing they were going
22 there, too?

23 A No, they did not know that.

1 Q They didn't?

2 A No, they did not know that.

3 Q Okay. Fair enough. And when is it, sir,
4 that they first became aware of that?

5 A When they began to do the real analysis
6 using gas chromatography, electron capture and GC mass
7 spec, that's when everybody became really aware of the
8 fact that PCBs were really being distributed in the
9 environment through the normal use of the everyday
10 products that we manufactured.

11 Q And before that time then no one knew --

12 A That's correct.

13 Q Is that when you're testifying?

14 A That's correct.

15 Q And certainly the folks that lived around
16 there didn't know it?

17 A That's correct.

18 Q Now, when did Monsanto, what time period was
19 this, 1970, 1971 or later?

20 A The time period that we've been talking
21 about, the earliest date that you mentioned is 1955,
22 and I'm not prepared to address that. As we discussed
23 I was sixteen years old at that time.

1 The earliest date that we talked about is
2 1968 or so when it first became available to the
3 scientific community that somebody was seeing
4 something in environmental samples that might be PCBs.

5 Q What you're saying then is unless someone
6 actually has one of these types of equipment you're
7 talking about, a gas spectrometer or whatever they're
8 called, there's really no way for them to know that
9 PCBs are present?

10 A That's correct.

11 Q And that would be true even today?

12 A That's correct.

13 Q So you wouldn't expect like the people
14 around Snow Creek, Choccolocco Creek and Lake Logan
15 Martin to know that PCBs were in that river unless
16 they owned a gas spectrometer or hired someone to do
17 it for them or was told by Monsanto?

18 MR. PECK: Object to the form of the
19 question. They could be told by anybody.

20 A Yeah. What I would say is is that people
21 could think they might be there but they wouldn't know
22 it until they've done the analysis properly and proven
23 it beyond a shadow of a doubt that they were truly

1 there.

2 Q Right.

3 A That's why we do that.

4 Q Now, you said you have written reports that
5 biodegradation or PCBs biodegrade. Tell me about
6 that. How do they do that?

7 A The way they do that is that, at least the
8 reports that we were involved in and the work we were
9 involved in, is that bacteria in sewage treatment
10 facilities are capable of oxidizing polychlorinated
11 biphenyls to -- all the way to carbon dioxide and
12 mineral salts.

13 Q Do they biodegrade in a river or a lake?

14 A Yes.

15 Q How do they do that?

16 A Same way, bacteria.

17 Q But not in a sewage treatment facility?

18 A Oh, yeah, they do in a sewage treatment.

19 Q I'm saying there is no way they would get
20 into a sewage treatment facility in that state, is
21 there?

22 A PCBs?

23 Q Yes.

1 A Sure.

2 Q How?

3 A Anybody using it who didn't understand how
4 they were supposed to be handling the materials or who
5 thought it was okay to throw them in a sewage
6 discharge or around the sink might have thrown them in
7 there and they've gotten to a sewage treatment plant
8 that way.

9 Q I understand that. What's I'm saying is,
10 the PCBs that are in Snow Creek, Choccolocco Creek and
11 Lake Logan Martin aren't going to go into a sewage
12 treatment facility, right?

13 A I don't know that to be a fact. I mean I
14 don't think anybody is going to run out and run Logan
15 Martin through a sewage treatment facility. Is that
16 what you're asking?

17 Q Right.

18 A If you had asked me if the bacteria that are
19 in Logan Martin are possibly the same kind that could
20 be in a sewage treatment facility, sure.

21 Q No. What I'm asking you, you told me two
22 ways of which you're aware PCBs biodegrade, through
23 bacteria and through sewage treatment facilities.

1 A Bacteria are the degrading factor in a
2 sewage treatment facility. That is what does the work
3 in a sewage treatment facility.

4 Q I understand. But they are in a lot
5 different concentration in a sewage treatment facility
6 than they are in the lake.

7 A Okay. The --

8 Q Wait a minute, now. I've been nice and I've
9 been letting you finish. What I'm trying to do is get
10 a question out before you answer it.

11 A Good.

12 Q Okay. So work with me here.

13 A Yes, sir.

14 Q There are two ways you said bacteria and
15 sewage treatment facilities -- bacteria in a lake are
16 in a much different concentration than the bacteria in
17 the sewage treatment facility. Would you agree with
18 that?

19 A Yes.

20 Q And I understand that it may be the same
21 bacteria but I'm getting to a point here, the sewage
22 treatment route that you're talking about as a
23 potential way to biodegrade PCBs would not really come

1 into affect for the PCBs that are in Snow Creek,
2 Choccolocco Creek and Lake Logan Martin, correct?

3 A Correct.

4 Q So, therefore, the only way you would expect
5 them to biodegrade in that facility is through
6 whatever bacteria are in the environment naturally.

7 A Correct.

8 Q Would you expect the biodegradation period
9 to be longer in a natural river or stream versus a
10 sewage treatment plant?

11 A In some instances, yes.

12 Q All right. Now, tell me how long of a
13 period of time does it take for PCBs like we're
14 finding in Snow Creek, Choccolocco Creek and Lake
15 Logan Martin to biodegrade?

16 A Are you talking about monochlorobiphenyls,
17 dichlorobiphenyls, tetrachlorobiphenyls, which of the
18 isomers are you talking about?

19 Q All of them. All of the ones that were
20 manufactured by Monsanto at its Anniston facility. I
21 will limit it to that.

22 A Of course, some of these PCBs that are
23 manufactured by Monsanto may never see bacteria.

1 Q In other words, they may not ever
2 biodegrade?

3 A Well, you can't biodegrade unless you see
4 something is going to biodegrade them.

5 Q What I'm getting at is, you would expect the
6 PCBs that we're finding there, some of them won't ever
7 biodegrade, they'll stay in there forever?

8 A They'll stay there a long time and there are
9 half life estimates for them. And some of them are
10 very long.

11 Q What are they?

12 A You know, I don't know. Some of them -- for
13 some of the lighter chlorinated materials, very quick.
14 For some of the more highly chlorinated materials, I
15 think they are quite long.

16 Q Tell me how long.

17 A I don't know without looking. A long time.

18 Q Give me an estimate. A hundred years, a
19 thousand years, ten years, I want to know just --

20 A I think if you're talking about -- okay. I
21 think you're trying to simplify something that
22 wouldn't -- it's not fair to let you simplify it that
23 way for yourself so that you understand it. And that

1 is if you've got pure Aroclor laying somewhere, the
2 only portion that's really going to probably degrade
3 fairly rapidly is that which is petitioned into the
4 water which is very little and it's very slowly, to
5 where it can be then approached by the bacteria and
6 that kind of thing, so that which is in the water will
7 probably disappear quite quickly if the original
8 source is not there.

9 So the stuff just laying there is going to
10 be there a long time. It's like putting something in
11 a bottle and never exposing it to anything and ask how
12 long it's going to stay there, a long time. It
13 doesn't matter what you're talking about.

14 The PCBs that you're talking about have --
15 are long lived in the environment, just like DDT is
16 long lived in the environment.

17 Q The PCBs that are in Snow Creek, Choccolocco
18 Creek and Lake Logan Martin that I believe came from
19 Monsanto's facility, and I know you may or may not
20 dispute that, are long lived in the environment?

21 A Correct.

22 Q Now --

23 A A case in point, if I may, is Lake

1 Michigan. Early on Lake Michigan was discovered to
2 have high levels of PCBs and especially in the lower
3 third of Lake Michigan because that's where the
4 industrial places are that used PCBs and that kind of
5 thing, that's how they got there and they
6 bioaccumulate, as you pointed out, in the fish.

7 As the years have gone by, and believe me a
8 long number of years have gone by, the levels of PCBs
9 in the Lake Michigan fish have gone down, so -- and
10 that includes all PCBs, not just the lighter
11 chlorinated ones or the heavier chlorinated ones or
12 anything of the sort, they have all gone down.

13 That has to be attributed to biodegradation
14 or chemical or physical degradation in the materials.
15 That's just the way it is.

16 So they have a long life in the environment,
17 if that's your point, point well taken that some PCBs
18 have a long life in the environment. Some have a very
19 short life in the environment, in a matter of days as
20 a matter of fact.

21 Q Are you going to give any testimony that
22 would explain why PCB levels in this river system are
23 -- let me rephrase that.

1 Are you aware, sir, that a fish advisory
2 posted on this river system has become more widespread
3 as the years go by since 1993?

4 A On that specific river system that they've
5 become more widespread? No, I can't verify that.

6 Q Are you going to give any testimony or offer
7 any opinions about why that may be?

8 A I have not been asked to, no.

9 Q Now, how do the PCBs leave the sediment, if
10 you know, and get into the fish? First of all, they
11 necessarily must travel through the water to do that;
12 would you agree with that?

13 A No.

14 Q How do they do that then?

15 A I'm sure the fish ingest sediment.

16 MR. PECK: Pete, I mean I have to let
17 you continue asking these questions but we're not
18 offering him as an expert in the transport for the
19 PCBs, we're not offering him as an expert in the way
20 the fish, you know, take up PCBs and we have folks
21 designated on that.

22 MR. GRAMMAS: I understand that. But
23 I'm reading in the --

1 MR. PECK: And we're not going to --
2 and I'll tell you that nobody is going to be asking
3 him those questions.

4 MR. GRAMMAS: That's fair enough. But,
5 Adam, I'm reading paragraph four of his report.

6 MR. PECK: If you want to --

7 MR. GRAMMAS: It says the environmental
8 fate of chemicals.

9 MR. PECK: As I said, Pete, I was just
10 trying to shortcut it. If you want to ask him, I'm
11 not going to stop you. I'm just telling you we have
12 no intention, we haven't even given him any, I mean,
13 it would be unfair for us to ask him those questions
14 because we haven't given him any information about
15 what PCBs are today being found in your sampling or
16 our experts sample in those aquatic systems.

17 MR. GRAMMAS: I understand. But, see,
18 here is my problem. I --

19 MR. PECK: And I think given everything
20 I just said, there ain't no way I'm going to ask those
21 questions.

22 MR. GRAMMAS: Oh, I understand that.
23 I'm not going to ask those questions, Adam, you could

1 have said that earlier.

2 I sent a deposition notice and asked
3 for him to bring everything he relied on and he didn't
4 bring anything.

5 MR. PECK: First of all, I asked Buddy
6 if you sent a deposition notice and he said he didn't
7 think so. So I can't agree with that statement. I've
8 not seen one. I'm not saying you didn't, but I asked
9 Buddy and he said he didn't think you did.

10 Secondly, he's told you that, you know, his
11 file on this, on the Dyer case is minuscule or
12 whatever he said about it. I'm not trying to hide the
13 ball here. I'm just trying to --

14 MR. GRAMMAS: I know you're not.

15 MR. PECK: I think we're almost done
16 and I would like to move to the done stage.

17 MR. GRAMMAS: We're almost done. And
18 this witness said he doesn't have any documents. Now
19 you said you didn't provide him any information, now
20 I'm concerned, did you provide him anything that I
21 haven't seen. And what we can do if you have, he has
22 got his file here, I can look at it and we're done.

23 MR. PECK: I think he has seen, in

1 all fairness, I think -- first of all, he's gotten
2 stuff --

3 MR. GRAMMAS: Could you just bring to
4 me what he's reviewed and I'll look at it and we're
5 done?

6 MR. PECK: What have you got? You've
7 got some of our experts reports, maybe John Rogers.

8 (Discussion held off the record.)

9 Q All right. Do you recall looking at
10 anything particular that stands out in your mind in
11 preparing you for your testimony?

12 A The documents that you seem to be talking
13 about were not the documents that we reviewed
14 yesterday in any way, shape or form.

15 Q Who's got those documents that you reviewed
16 yesterday?

17 A I have a copy of those documents.

18 Q That's what I want to see.

19 MR. PECK: He doesn't have those.

20 A I don't have them with me. I wasn't asked
21 to bring them.

22 Q How could you review documents yesterday
23 that weren't here yesterday?

1 A I didn't review them yesterday and I clearly
2 said that, so I don't know where you understood that.

3 Q I misunderstood you obviously.

4 A I reviewed documents yesterday but the
5 experts reports and things that you were talking about
6 were not those documents -- that was not the documents
7 I reviewed.

8 Q Right. What I'm asking you is, I want to
9 see the documents that you reviewed yesterday and look
10 at them real quick and we're gone.

11 A I don't have those.

12 MR. PECK: I don't have them segregated
13 in that way and I don't think you're entitled to see
14 them. I don't have to show you what I showed to a
15 fact witness in preparing him for his deposition.

16 MR. GRAMMAS: Well, the problem you've
17 got here, an inherent problem is he's a fact witness
18 that's being paid for his testimony.

19 MR. PECK: We've been through that,
20 he's not, he's not charging a time as he sits here
21 right now.

22 The problem you seem to be
23 misunderstanding or intentionally refusing to

1 understand, I don't know which, is that he is a fact
2 witness and that is what he's been testifying about
3 here, that's what we prepared him on. He has
4 analytical capabilities. For the most part, we're not
5 employing him in this case. He's been designated as
6 an expert out of an abundance of caution because he
7 has specialized knowledge.

8 MR. GRAMMAS: I'm done.

9
10 (End of deposition.)
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C E R T I F I C A T E

STATE OF ALABAMA)

JEFFERSON COUNTY)

I hereby certify that the above and foregoing deposition was taken down by me in stenotype, and the questions and answers thereto were reduced to computer print under my supervision, and that the foregoing represents a true and correct transcript of the deposition given by said witness upon said hearing.

I further certify that I am neither of counsel nor of kin to the parties to the action, nor am I in anywise interested in the result of said cause.

Jill B. Sanders, Commissioner

SIGNATURE OF WITNESS

I, _____, do hereby
certify that on this _____ day of
_____ 1999, I have read the foregoing
transcript and to the best of my knowledge it
constitutes a true and accurate transcript of my
testimony taken by oral deposition on December 30,
1998.

WITNESS

Subscribed and sworn to
before me this _____
day of _____,
1999.

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1 E R R A T A S H E E T

2 PAGE LINE CORRECTION REASON

Tucker, E. Scott (deft's analyt chem expert) in DYER

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