SUPERIOR COURT
FOR THE STATE OF CALIFORNIA
FOR THE COUNTY OF LOS ANGELES

TRANSWESTERN PIPELINE COMPANY,	)	
PLAINTIFF,	)	
VS.	)	NO. BC 026959
MONSANTO COMPANY AND DOES 1 THROUGH 200 INCLUSIVE,	)	
DEFENDANTS.	)	

Deposition of Paul Benignus
October 14, 1992

GORE REPORTING COMPANY
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TRANSWESTERN PIPELINE COMPANY,	)	
Plaintiff,	)	
vs.	)	NO. BC 026959
MONSANTO COMPANY AND DOES 1 THROUGH 200 INCLUSIVE,	)	
Defendants.	)	

Deposition of PAUL BENIGNUS, taken on behalf of the Plaintiff at the offices of Bryan Cave, One Metropolitan Square, in the City of St. Louis, State of Missouri, on October 14, 1992 before Marsha Birenbaum, Registered Professional Reporter and Notary Public.

HARTOLDMON0024508

APPEARANCES OF COUNSEL:

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PAUL BENIGNUS,

of lawful age, having been first duly sworn to testify the truth, the whole truth, and nothing but the truth in the case aforesaid, deposes and says in reply to oral interrogatories propounded as follows, to-wit:

EXAMINATION

QUESTIONS BY MS. GRADY:

Q. Mr. Benignus, would you please state and spell your name for the record?

A. Paul, B, as in boy, B-e-n-i-g-n-u-s.

Q. And what is your current address?

A. 47 Metcalf, M-e-t-c-a-l-f, Drive. Belleville, Illinois. 62223.

Q. Have you ever been deposed before?

A. Yes.

Q. How many times have you been deposed?

A. Oh, I would say perhaps four.

Q. What was the first time you were deposed?

A. The first period of time how many years ago?

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Q. When was the first deposition taken of you?

A. Well, I would say that goes back six years, something like that. It wasn't recent.

Q. And what was the nature of the litigation?

A. I don't know if this is in order. I'm trying to think of it. There was a case that involved Westinghouse workers. There was a case that involved a transformer in San Francisco. There was a case that involved an insurance company. I guess that's about it.

Q. Do you remember what the fourth deposition involved? I have got Westinghouse workers, a transformer in San Francisco, and an insurance company.

A. I don't really know.

Q. Okay. Can we go off the record for just a second?

(Discussion off the Record)

Q. Back on the record. Mr. Benignus, what was the subject matter of your testimony in the case involving

HARTOLDMON0024513

Westinghouse workers?

A. The subject matter was PCBs.

Q. And what was the allegation in that litigation?

A. The allegation in this litigation was that the workers were exposed to PCBs.

Q. And had the workers allegedly suffered physical effects because of their exposure to PCBs?

A. That seemed to be the idea.

Q. And what subject matters did you testify about?

A. I'm a technical person, and it was in connection with technical questions.

Q. Technical questions concerning the manufacturing of PCBs?

A. No.

Q. Technical questions concerning what subject?

A. The use of PCB. I would like to expand on that.

Q. Please do.

A. The presentation of the physical constance which describe PCBs; presentation of their electrical characteristics;

HARTOLDMON0024514

presentation of their thermal stability.

Q. Was your testimony basically concerning the chemical and physical properties of PCBs?

A. Correct.

Q. Did you provide any testimony in that Westinghouse case concerning the environmental aspects of PCBs?

A. No.

Q. Did you testify at trial in that case?

A. No.

Q. What was the resolution of the case, if you know?

MR. PREUSS: You may answer that but don't answer it if any information that you have on that could have been received from Monsanto lawyers.

A. I don't know.

Q. In your deposition concerning a transformer in San Francisco, what was the allegation in that litigation?

A. A transformer failed. One Plaza -- some address downtown, One Plaza something. In the event of such a failure,

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gas is emitted; hydrogen chloride gas. This gas was blown out through grills onto the sidewalk. Some people outside of the building were exposed to this.

Q. Did your testimony in that matter involve in any way exposure to PCBs?

A. No.

Q. Did your testimony involve clean-up of PCBs?

A. This is what it was all about. Somebody cleaned it up. But my testimony didn't contribute to that. I didn't tell them how to clean it up.

Q. Did your testimony concern the physical and chemical properties of PCBs?

A. Not that I recall, no.

Q. So it was primarily involved with the release of these gasses?

A. Yes.

Q. Did you testify in that matter in court?

A. No.

Q. Have you ever testified in court?

A. No.

Q. Let's turn to the third thing you

HARTOLDMON0024516

mentioned, which was the insurance company litigation. What was the allegation in that litigation?

A. May I say something?

Q. Sure.

A. I didn't really document these things. I didn't really fix in my mind these things. I have always testified to whatever anybody wanted wherever, and it gets somewhat confusing. So many law firms are involved here, I get lost in this thing. This isn't my business. And I like to answer your question, but I'm confused. I just don't remember. I haven't fixed that in my mind. It's often insurance companies get involved in these things.

Q. I understand. Do you recall if this third time that you gave a deposition your testimony involved the physical and chemical properties of PCBs?

A. If I were asked to testify about this, this is what I can do, and I would have.

Q. But you don't recall one way or another what the deposition concerned

HARTOLDMON0024517

itself with?

A. No, I don't.

Q. Okay. Mr. Benignus, I'm sure you have had time to consult with Mr. Preuss. Let me provide you with some instructions so that we are both operating off of the same page.

A. Okay.

Q. You understand that although we are in a conference room in an informal setting, that you are under oath, is that correct?

A. That's correct.

Q. It's important that we get your best testimony here today. If you do not understand a question or think that you do not understand a question, will you please let me know?

A. Surely.

Q. You will have a chance to review your testimony that you give here today in the form of a booklet. I'm sure that you have been through that process before.

A. Yes, I have.

Q. And you will have the opportunity

HARTOLDMON0024518

to make whatever corrections you believe are appropriate to make the record accurate. Do you understand that?

A. I understand that.

Q. It's important so that we get a clear record that I try not to speak when you're speaking and if you would do the same, that would be most appreciated.

A. Yes.

Q. Mr. Benignus, could you summarize for me your post high school education?

A. Yes. Post high school. I graduated in 1927. And then in '29 I entered Illinois College and graduated there with a Bachelor degree in 1933. And then I went to graduate school at Washington University and got a Master's degree in organic chemistry. Then I went to work.

Q. What year did you receive your Master's degree?

A. '34.

Q. Where did you take your first job?

A. Monsanto.

Q. And are you retired from Monsanto?

HARTOLDMON0024519

A. Yes.

Q. And what year did you retire?

A. '74.

Q. Between 1934 and 1974 was Monsanto your only employer?

A. Yes.

Q. Did you take any classes during your employment with Monsanto, and I'm talking about university sponsored classes?

A. Yes, there were a few that I went to Washington University at night and did some more classes in the area of organic chemistry.

Q. After your retirement from Monsanto, have you been employed by Monsanto in any way as a consultant?

A. Yes.

Q. And what was the nature of your consultancy?

A. In the area of PCBs, dielectrics, underscore dielectric.

Q. And when you use the term dielectrics, what do you mean by that?

A. A dielectric is a resistance, an insulator, against the electric current.

HARTOLDMON0024520

Now, the insulation we are speaking of here, PCBs, that is liquid insulation as versus solid insulation, which might be cellulosic material, wood and so forth. Now, these liquid dielectrics, we are talking here about PCBs, to boil this down and describe for you their specific use. The two uses were in capacitors and in transformers. Then there was some incidental applications of dielectrics, electromagnets, a few things. But that's their primary use.

Q. As dielectrics?

A. As dielectrics.

Q. Mr. Benignus, did you have as part of your employment with Monsanto any responsibility for lubricating fluids?

A. No.

Q. Did you have any contact in your employment with Monsanto with a company called Texas Eastern Transmission Company?

A. No.

Q. What about a company called Transwestern Pipeline Company?

A. No.

HARTOLDMON0024521

Q. Did you have any contact in your employment with Monsanto, by that I mean any discussion with anyone or any correspondence, about the use of PCBs in natural gas compressors?

A. No.

Q. Are you familiar at all with the mechanics of natural gas compressors?

A. I know what a compressor is. I know what a gas line is.

Q. Do you know what a liquid seal is?

A. I know what a liquid seal is from the chemistry laboratory where I frequently employed various types of liquid seals in our research apparatus. Yes, I know a liquid seal.

Q. What is a liquid seal?

A. A liquid seal is exactly what it's saying. It seals.

Q. By means of a liquid?

A. By means of a liquid.

Q. And how is the seal accomplished?

A. How is the seal accomplished?

Q. How does a liquid seal something in the use of a liquid seal?

HARTOLDMON0024522

A. Now, I'm speaking of laboratory apparatus.

Q. I understand.

A. And as a liquid seal, we might take mercury, that's a liquid. Now, where you have a union, a joint, that are fitted together that are not sealed, say, with a -- you understand what a glass joint seal is? Here, for one reason or another, you seek a different arrangement and it's very convenient to use mercury as a liquid to seal in this vessel so that it is sealed from the atmosphere.

Q. Did you have any familiarity in your work at Monsanto with the use of PCBs as liquid seals?

A. No.

Q. In your work as a consultant for Monsanto after your retirement, have you done any work concerning the environmental effects of PCBs?

A. Not I.

Q. Has your consultancy been limited to the physical and chemical properties of PCBs?

HARTOLDMON0024523

A. Correct.

Q. Is your work -- was your consultancy work related to the development of new products?

A. Yes.

Q. Are you still working as a consultant for Monsanto?

A. No.

Q. How long after you retired did you act as a consultant?

A. I acted as a consultant for Monsanto for six months. I will expand on that. At that point in time people were supposed to be thrown out at 65, period.

Q. And they wanted you for six months after you turned 65 because of your value to the company?

A. Well, you can put it that way.

Q. Were you working on any particular, one particular project during this six month period?

A. It dealt with PCB dielectrics for the electrical industry, strictly. That's what it was.

Q. Was it a part of your -- well,

HARTOLDMON0024524

let's back up. I haven't gotten your job history. I want to go through your job history. Obviously, with a forty year job history, I'm sure that you held a number of positions at Monsanto. So what I would like to do is to go through it or have you go through it job by job with just a brief description of your basic job responsibilities. If we can start in 1934, what was the first job you had with Monsanto?

A. They were all in the technical area. The first, which was standard, all new trainees spent time in the analytical laboratory to get acquainted with materials, the chemicals being manufactured. After spending, say, two years in that area, the trainee, if he's engineering oriented, he goes towards engineering. If he's marketing oriented, he goes that direction. If he is technically oriented, as I was, he goes along the laboratory and research areas.

Now, after two years in the analytical lab, I went into some advanced

HARTOLDMON0024525

analytical laboratory work. And then I went into laboratories called plant laboratories, more directly connected with the manufacture. You want me to put in time?

Q. Yes, that would be good.

A. Well, we are up to 1939. At this point, I was assigned to research development. Excuse me, scratch that. Application research, application research. Then by, I think, 1941 I was in the organic chemical division development department where I had my own laboratory, and toward -- well, I would say 1946, I went into what was called the sales development department in a technical capacity.

Now, in the interests of clarifying this for you, this was all in the organic chemicals division. Now, in October 1947 I was invited to join the inorganic chemicals division. Now, the inorganic chemicals division happens to be the division that manufactured the first PCBs.

Now, we will go to, oh, say, 19 --

HARTOLDMON0024526

the early part of 1951. PCBs are our trade name Aroclor, you're familiar with that. The hierarchy decided to move these organic chemicals -- they are half in organic, half inorganic -- they decided to move these into the organic chemicals division. So from this approximate time 1951 until I retired, I did as I was told, to accompany and go along with the aroclors and go into the organic division. Now we are up to my retirement.

Q. What was your position in the organic division between 1951 and 1974?

A. The same thing. A technical person.

Q. Did you have a title?

A. I had a title.

Q. What was it?

A. Doesn't mean anything.

Q. Tell me anyway.

A. Well, I was connected, even though I was a technical person, realize, I was connected with, now, the marketing people. And I was given, I didn't request this, I was given a card that said my name,

HARTOLDMON0024527

marketing manager. I wish to clarify this. This was given as a nice gesture. It was specifically on dielectrics. I wasn't active anywhere else.

And to expand on this, marketing at that time was a rather sophisticated, dignified way that earlier we just said sales department, sales manager. Now, if someone had given me a card with my name on it as sales manager, I assure you, I would have given it back. It would have made no sense at all. These things happen.

Q. So even though your title was marketing manager, you had no responsibility for sales, is that right?

A. No, I didn't have a responsibility for sales.

Q. Was it your responsibility to provide technical advice concerning the use of PCBs to customers?

MR. PREUSS: Are you talking about PCBs generally or dielectrics?

Q. Dielectrics PCBs.

A. Yes, we are talking about dielectrics. Yes, that's what it was. I

HARTOLDMON0024528

would like to clarify -- I would like to expand on this.

Q. Okay.

A. It wasn't that I advised them. Rather, the other way around. The users invented the use. It was their property. At some periods originally it was patented. No one could use it without approval from the inventor. Now, they came to Monsanto and asked Monsanto to manufacture what they felt they wanted and needed.

Now, in a situation like this, it's the user, if you like the customer, that has to specify what they think they need. And not only this. They also have to present the methodology to be used to make this determination of these various physical, chemical and electrical properties. And this then arrives at an agreement and understanding between the supplier and the owner, the user. But that's not the end of this process.

This thing that gets carried on and in the case of PCB dielectrics, properly

HARTOLDMON0024529

established and documented, principally the American Society For Testing and Materials. Now, I was very active in these technical organizations. I did a lot of that. Not only then in our country, but around the world. I think now you know what I did.

Q. What was it about PCBs that made them good dielectric fluids?

A. There were -- I don't know in what detail you want this. But I will try and answer it as short as possible. The discoverer, I'm going back to 1929, the discoverer and the inventor was the General Electric Company. Mr. Frank Clark was the discoverer.

Now, here is what he saw, expected to see, what interested him in PCB dielectric. I will address the capacitor use because that is more definitive. Prior, mineral oil was a dielectric. It was not of consistent quality. Capacitors can be a very good bomb and explode. The mineral oil was not of consistent quality. In contrast, a chemical manufacturer was

HARTOLDMON0024530

able -- Monsanto, was able to make PCBs to an exceptionally high degree of purity and refinement, and repeat this and reliably do so supply.

Now, obviously, PCBs are one of the very few things known to be fire resistant. And there are certain other fire resistance materials. However, they do not have the electrical integrity and stability as do PCBs. Additionally, from an economic point of view, PCBs have a dielectric constant roughly twice that of the mineral oil. If you wanted the exact numbers --

Q. No, that's okay.

A. This says that when you make a capacitor with mineral oil, you come up with a thing of this size. Now, why does it have to be that size. I'm making a comparison here. Well, you have to get the heat out of it. This generates heat. You can get the heat out through the surface, the metal surface of the can. That's the only place it can transfer the heat out of it. If you don't do this, it will consume

HARTOLDMON0024531

itself. However, with PCBs, instead of making a can this size, this red line here is exact place. That's all you need. You see this goes over. That's half the size.

Q. Mr. Benignus is pointing to a coffee cup here that's on the conference room table. So one advantage of PCBs as used as a dielectric is that they dissipate heat faster than other liquids?

A. No, I didn't say that.

Q. You need less of them than other dielectric fluids?

A. What I said is this. To make a capacitor with mineral oil, the thing has to be twice as large, and that involves heat transfer, as the size of a capacitor that will do the same work with only half the size. This is a tremendous economic advantage. PCBs cost more than mineral oil. But by the time you figure the saving of materials, it's a lot cheaper. When you figure the space saving, especially nowadays with our modern buildings full of computers and what have you, space is very expensive. This is a tremendous space

HARTOLDMON0024532

saver.

Q. What about the chemical stability of PCBs? Does that play a role in their benefits as a dielectric fluid?

A. Yes. They are very stable materials. They are very refractory materials. They are not influenced adversely. I'm speaking as a dielectric, by water. They do not hydrolize. It's not an ester. They are resistant, highly resistant, to corrosive influences, acids, alkali and so forth.

Q. Do you have any familiarity with the benefits of PCBs as opposed to mineral oil when used as a lubricating fluid?

A. No.

Q. So your expertise or knowledge is solely with PCBs as dielectrics?

A. Right.

Q. Was it part of your job in your work with dielectrics to keep abreast of toxicity information concerning PCBs?

A. Oh, I would say yes, but not from the standpoint that I was an industrial hygienist and certainly not a medical

HARTOLDMON0024533

person.

Q. What about your job required you to keep abreast of toxicity information concerning PCBs?

A. Because people using PCB -- now we are talking about toxicology -- needed to be given guidance as to how to go about using them.

Q. And how did that fall under your -- are you talking about basically industrial hygiene considerations, Mr. Benignus?

A. I'm talking about -- well, you could call it that. I'm talking about health considerations, and of course industrial hygiene is this.

Q. Health considerations of people in factories that came in contact with PCBs?

A. Correct.

Q. And how did that fall under your job responsibilities, this concern?

MR. PREUSS: Well, I'm going to object. I think you're mischaracterizing it a bit. He said he did not have responsibility as an industrial hygienist

HARTOLDMON0024534

or as a medical doctor, but that he was generally acquainted with those considerations because he worked with the product.

Q. And I didn't mean to imply anything different. I'm just interested in what part of your job entailed keeping abreast of toxicity information.

A. Just because I was in contact with the users and disseminated the information. And if I would write anything, I took this into account.

Q. And what was your understanding of the toxicity of PCBs, let's say, in the 1940's?

A. In the 1940's, please specify what part of the 1940's.

Q. The early 1940's. All right. Let me strike that. There was some breakthrough in the toxicity, the knowledge of toxicity of PCBs that occurred in the 1940's such that information concerning their toxicity changed greatly during that decade?

A. No, no.

HARTOLDMON0024535

Q. Then back to the question of what was your understanding of the toxicity of PCBs during the early 1940's?

A. All right. Whatever. My first-hand knowledge and experience is right down to earth. I worked with these things. I can best explain it simply, understandably, by saying, as we did say, do not breathe the vapors and the fumes that would be emitted by PCBs at elevated temperatures. If spilled on the skin or the clothing, remove it by ordinary washing with soap and water. That's quite broad.

Q. Were PCBs produced by Monsanto for use in dielectrics labeled with this advice in the 1940's?

A. Yes.

Q. Where did the label appear?

A. The label appeared on the drums. Now, let me --

MR. PREUSS: You have answered the question. She will ask another one.

Q. I will ask another one. What was the advice not to breathe vapors or fumes of PCBs based on, what was the

HARTOLDMON0024536

substantiation for that advice?

A. Well, as I well knew, because I was so exposed, they would irritate the mucous and the eyes. They were irritating. However, this did serve, if you will, they served their own warning. If somebody has any sense and are exposed to harmful amounts, they will know it rather than not know it, they will remove themselves.

Q. Other than irritation, what was your understanding of the harm caused by exposure to PCB fumes?

A. According to my understanding of the medical literature, the PCBs would be harmful to specific organs, the kidney and the liver.

Q. Were you aware of any evidence that tied kidney or liver injury to -- I don't know what the word for this -- if you got it on your skin rather than breathed in the fumes?

MR. PREUSS: Dermal exposure.

Q. Dermal, thank you.

A. Oh, dermal exposure. No --

HARTOLDMON0024537

MR. PREUSS: I don't mind him answering as a lay person, but he's not qualified to deal with medical issues, nor qualified by his job responsibilities.

A. Well, as a lay person, I do not know of cases where exposure to PCBs caused excessive liver and kidney damage. This is not to say that there have been a few isolated instances where such was reported, however. And I did know about that. Now, that gets to be a complex subject. But I was aware of a few such instances. But in general, no.

Q. Were the instances that you were aware of reported in research studies, published research studies?

A. Oh, yes.

Q. What was your familiarity in the 1940's with the substantiation for the advice not to get PCBs on your skin or, if you did, to wash them off?

MR. PREUSS: You mean what was in the literature as opposed to common sense when you felt the irritation?

Q. I don't think that we have had

HARTOLDMON0024538

testimony concerning dermal irritation yet. But let me go back and restate the question. Maybe it was too complicated. You suggested that or you testified that the advice provided in the 1940's was if you spill a PCB containing liquid on your skin or clothing, you should remove it by ordinary washing. What was the scientific substantiation as you understood it at that time for that advice?

A. Nothing more was required than just washing it off the skin. No unusual steps needed to be taken other than simply laundering the clothes in the washing machine, or if you had -- I have often had it on my skin, and you just wash it off.

Q. What was your familiarity with the published research concerning chloracne?

A. Chloracne?

Q. As it relates to PCBs rather than other substances.

A. Right. In my, all my years, chloracne never came up. Never heard of it and never saw any evidence of it. However, you're referring to published literature.

HARTOLDMON0024539

Now, there is published literature that refers to chloracne. And at Swann Chemical, which is in Anniston, Alabama, they first made PCBs. When they first began to make PCBs there was a brief incident at Anniston of chloracne. Many years later I learned about this in a very incidental way. I wasn't concerned with this.

Now, getting back to this incident, what I was told, and I believe this, they never knew really the basis for this because it didn't recur. Now, there is conjecture that's reasonable, they thought it might have been a discrepancy in the benzene. PCBs are chlorinated biphenyl, which is made from benzene. That's a reasonable thing. No one was ever sure. It went away. They didn't quite know why it went away.

What I would like to say about this now, on chloracne, in all the years I was connected with it, that I worked with it, that friend of mine worked much more intimately with it, they worked, open vats

HARTOLDMON0024540

as big as this table, PCB tub full of it. Capacitor sitting in there under the liquid about this far -- this is a liquid seal, incidently, the PCB sealed the impregnating hole through which the PCB entered the capacitor, and that was not to be exposed to such a thing as horrible as this air we are sitting in here. So we have a liquid seal. They were kept under the liquid surface, and then they soldered it shut under the liquid surface. These people did this day in and day out. There was never any toxicity problem. This was not at elevated temperature. This was essentially at ambient temperature.

Q. Was there, in your work at Monsanto in the 1940's, was there a library of published reports concerning PCB toxicity?

A. Yes.

Q. There was a central location where all the research was kept, is that right?

A. On toxicity?

Q. On health effects of PCBs.

A. Monsanto certainly had an

HARTOLDMON0024541

efficient medical department. They would have had these publications, whatever. The work was not done, the medical studies were not done at Monsanto. Monsanto had sponsored medical studies, oh, yes, they looked into these things. The toxicology of PCBs is published. Yes, there is a central file of this.

Q. Did you receive published reports concerning the toxicology of PCBs on some sort of routing list? In other words, when a new published report concerning health effects of PCB came out, did you automatically get it?

A. No, I wasn't in line with the medical and so on and so forth. But I most likely would have run across it, a report by Drinker and others.

Q. Why don't we look at our first exhibit, which is pre-marked as Exhibit 941. I will hand a copy to you, Mr. Benignus, and to Mr. Preuss and I will describe Exhibit 941 as consisting of Bates range of TRAN 016789 through 016791. It purports to be a letter dated December 30,

HARTOLDMON0024542

1947 from Mr. Benignus to Celanese Corporation of America.

What I would like you to do with this exhibit and the others that I will provide to you is to look it over so that you can answer the question whether you have seen the exhibit prior to today.

A. Yes.

Q. Did you draft Exhibit 941?

A. Yes.

Q. And did you draft it as part of your job responsibilities at Monsanto?

A. Yes.

Q. How did you determine what the best possible information about the toxicity of Aroclor vapors was?

MR. PREUSS: Make sure, that's a fairly technical question, if you want to read the whole letter before you answer it.

Q. Absolutely. If at any time you want to read all or any portion of a document, you should feel free to do so.

A. Okay.

Q. And my question is, how did you go about determining what the best available

HARTOLDMON0024543

or published information was about the toxicity of Aroclor or PCBs?

A. The date on this is December 30, 1947. I already told you that I came to the organic division -- excuse me, to the inorganic division in, I think I said, October '47. Two months, I was there two months. I'm surprised I could do such an outstanding job in two months time. Now, I was asked to write this at the discussion -- at the request of Dr. Jenkins. He had been the research or was the research director. This is the inorganic division -- yes, he was research director at Anniston. He didn't think he should do this.

Now, it's signed Development Department. I was working under Paul Logue, whose style was director of development. In two months I was assistant director of development. I was the flunky. Now, when I read through this, I had to be given guidance on such things as the Journal of Industrial Hygiene and Toxicology, which was in a file, and Dr.

HARTOLDMON0024544

Drinker, Warren, Bennett, and whatever. That was in a file in Paul Logue's office, not my office. I'm telling you, I received guidance on this thing. It's well written, isn't it?

Q. Yes, it is.

A. Now, for the rest of this -- well, it gets into skin patch test. Well, this is where it came from. I wasn't conversant with this myself, in two months.

Q. So you believe that you were there only two months, that it was likely this Exhibit 941 was the product of you being directed to where the information could be found?

A. Exactly.

Q. And then you summarizing the information?

A. Yes.

Q. Mr. Benignus, down at the bottom of page one there is a reference that I'm interested in. It's in the last sentence there. I'm talking about the first page of Exhibit 941, where it states, "In general, the more highly chlorinated biphenyls are

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less toxic than the lower chlorinated derivatives, probably due to decreased solubility."

Do you recall in your work at Monsanto discussions or communications or if you had the understanding that the lower chlorinated PCBs were more toxic than the higher chlorinated PCBs?

A. Specifically, no. However, for something to be toxic, it has -- toxic to humans or anything else, it has to be soluable, let's say, in water or body fluid or something. If it's like a rock, it won't come in contact. This is just a basic premise. In an insecticidal thing, it's no good unless it gets into the insect.

Now, as I say here, the less chlorinated ones are more soluable than the higher chlorinated ones, which are resins, solids. The liquids would certainly probably go through the skin more readily than a resin will. That's all.

Q. What advice was provided to customers of Monsanto, and I'm talking

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about dielectric customers, your particular area, concerning disposal of PCBs, and let me focus in this question on the period prior to 1965?

A. On disposal -- I'm trying to think of the date when Monsanto offered to take back PCB, that's what you're asking?

Q. No, not exactly. What I'm interested in is whether any advice was provided to customers about what they should do with used or spent PCBs prior to 1965 or thereabouts?

A. I will begin this by saying no one ever came to me in this regard. I was not at all involved in this regard. So what advice was given, to my knowledge, nobody ever asked for advice. I'm talking about the electrical industry. I can't think of a single instance where anybody asked us, how do you dispose of this, and they certainly didn't ask me. I was on the other side of the fence. I was trying to protect PCBs from environmental -- adverse environmental influences. Now, I wasn't on the other side of the fence. But to answer

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your question, I don't know that anybody ever asked us, up to the time you're saying, '65.

Q. Mid 1960's?

A. Yes. I'm not aware of anyone in the dielectric area.

Q. Was there any discussion at Monsanto that you participated in or heard prior to the mid 1960's about the environmental aspects of PCBs?

MR. PREUSS: I'm going to object to it as vague. What do you mean by environmental aspects of PCB?

Q. Let me clarify that. Was there any discussion or communication that you were aware of or participated in at Monsanto prior to the mid 1960's about whether PCBs posed any kind of threat to the environment because they were a stable chemical?

A. No.

Q. When did you first hear about the research done, the environmental effects of DDTs?

A. Of DDT? I can't give you this as

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a specific answer. However, my estimate would be perhaps around this time you're talking about. I'm not supposed to ask questions. That's my best guess. What I'm saying is, I heard about the objection to DDT long before anybody ever thought of any objection to PCB.

Q. Why don't we take a break. We've been going about an hour.

(Short recess)

Q. Back on the record. The next exhibit I would like to show you, Mr. Benignus, I have marked as Exhibit 942. And I will describe it for the record as consisting of Bates range TRAN 011867 through 011947. It purports to be dated April 27, 1948 and is entitled Final Report On Aroclor Data Book. Mr. Benignus' name appears on the second page of the exhibit as one of the recipients of the document. Mr. Benignus, my first question is whether you recognize Exhibit 942?

A. Yes.

Q. What is Exhibit 942?

A. Well, it's a report written by R.

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R. Knight, April 27, 1948.

Q. Other than that, can you tell me if this was a -- can you tell me what Exhibit 942 was used for?

A. No.

Q. Doesn't look familiar to you?

A. Well, looking at here, the contents look familiar. I have faint recollection who R. R. Knight was.

Q. Well, let me ask you this. Was there a -- was there a binder, a loose-leaf binder system kept in the research department that compiled information about the various aroclors manufactured by Monsanto?

A. Well, this was in one form or another form kept, surely.

Q. But flipping through Exhibit 942, you don't remember this particular format as a compilation of information about aroclors?

A. No.

Q. Let me direct your attention then to first to the table of contents, which starts on TRAN 011870, which is the number

down at the bottom. Up at the top of the page it says page two. And then if you continue over onto the next page, there is a section called Uses Of Aroclors, followed by a section called Physiological Effects.

A. Yes.

Q. And what I would like you to do is to turn to what's marked at the bottom as page 011938, which is where the uses of aroclors section starts.

MR. PREUSS: 938?

Q. Am I wrong on that? I think that was the first reference I saw up at the top with a Roman numeral three, which corresponds to the uses. But it doesn't really matter, Mr. Benignus, because what I would actually like you to look at, I'm still kind of orienting you to the document. What I would like you to look at is TRAN 011942, which up at the top says soil poison concentrate.

A. 942. Oh, yes, soil poison concentrate.

Q. And your name is up there in the right-hand corner, and on this particular

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page it purports to be dated March 11, 1948. What I'm interested in, and perhaps this page refreshes your recollection, is the use of aroclors as soil poisons.

MR. PREUSS: What's the question?

Q. Whether he has any recollection of such use.

A. They weren't really used for it.

Q. What is a soil poison?

A. Well, you see here is pentachlorophenol. Pentachlorophenol use was as a wood preservative, to protect wood against termites. One way of doing this is to pressure treat, or just dip treat it, atmosphere, the untreated wood, say, a two-by-four, into a solution of pentachlorophenol. Now, the pentachlorophenol protects the wood against the attack by termites and other soil mites. Now, versus this procedure, where the wood is treated.

Another way it can be approached, if for some reason you don't want to treat the wood, you don't have facilities for doing that, if you dig a hole and you just

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pour this into the hole, then it approaches it from that way as a protection against termites. And that's what this thing is, is a soil poison.

Now, the other things are just as carriers for the pentachlorophenol. Aroclor is not biologically active. It's not an insecticide or miticide, fungicide, so on and so forth. Pentachlorophenol, that would be the active ingredient in this thing. The rest are convenient carriers for this, whoever got this thing up. This was written, incidentally, at Anniston, not by us in St. Louis.

Q. Do you recall in March -- well, do you recall ever suggesting the use of aroclors as a soil poison in the context that you have described, the use of soil poisons?

A. No. And it was never used that way, to my knowledge.

Q. Could I direct your attention to the last two pages of this exhibit, which are 011946 and 11947.

A. 11946?

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Q. Right. It's headed up at the top Morphological Changes In The Livers Of Rats Resulting From Exposure To Certain Chlorinated Hydrocarbons.

MR. PREUSS: Do you want him to read that?

Q. I don't want you to read the whole thing, no. What I'm interested in, Mr. Benignus, is whether you recall some sort of compilation of -- if this refreshes your recollection concerning whether there was a compilation of toxicity information available to members of the inorganic division concerning aroclors?

MR. PREUSS: Well, just for the record, on the top it says that it's from a Journal Of Industrial Hygiene and Toxicology, volume 20, number two, February 1938. So I object to the form of the question as assuming facts not in evidence, no foundation.

A. Is there a question open?

Q. Yes. I will ask it again, though. Does seeing this document refresh your recollection, cause you to remember,

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whether or not there was some sort of compilation of documentation concerning toxicity of PCBs available to members of the inorganic division?

A. I would have to say yes, sure.

Q. And was the information kept in notebooks?

A. I don't know. Published reports would be published report. I don't know what you mean by a notebook.

Q. When I ask whether there was a compilation, I guess what I'm asking is, do you recall there being a handbook or one source document in the inorganic division that had all the information about aroclors that staff members might need?

A. Not in that form, not to my knowledge. I didn't. In fact, I don't recall this thing.

Q. How were new uses of aroclors approved in the inorganic division, do you have knowledge of that?

A. Please say it again?

Q. Sure. How were new uses of aroclors approved in the inorganic

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division, if you know?

A. In the inorganic division?

Q. In the '40's you were still in the inorganic division?

A. Right. How were new uses approved. I suppose whoever wanted to use these materials for their given purpose or use, they would make that judgment, and if we heard about it, we would be interested, obviously. And the best thing I know of, to answer your question, really goes before my time, where somebody wanted to use PCBs as a plasticizer in bubble gum. Well, we didn't think that was a use that we would approve of, and knowing the intention of that use, we brought it to the attention of these people and said no, we don't think that that is a thing that we approve of. In fact, we made it to the point, we are not going to sell it to you for this.

Q. Do you recall during World War II aroclors being used in the production of cable by the Navy?

A. Certainly.

Q. And were there a number of

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chloracne cases that were reported with such use?

A. Yes. Would you repeat your question?

Q. Sure. I'm referring you to whether you recalled production of cable by the Navy during World War II where they used aroclors in the production of the cable.

A. Aroclor was a component.

Q. And do you recall -- then the second question that you have already answered, I guess, was that you recalled that there were reports of chloracne?

A. Yes.

Q. In the fabrication of the cable?

A. Yes.

Q. Did Monsanto ever determine what the cause of the chloracne was?

A. Monsanto did not determine this per se. This was done by medical people in the state of New York. And you asked was aroclor used, was that it? Aroclor was a component, and I actually don't think or recall that this was PCB. I'm pretty sure

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it was in that term PCT, chlorinated turf phenol, which is a resin, versus the liquid aroclors. They were used in combination with Halowax, chlorinated naphthalene.

Now, the medical investigation brought out that the two things the aroclor, and I think it was what we call sanowax aroclor, this was before my time, but that would be the resinous, not the turf phenol base. That, in combination with the chlorinated naphthalene, had a synergistic effect that they spoke of and it was worse than either one alone.

Now, the result of this, I do recall from being told, was that chlorinated naphthalene, Halowax, was removed and not used. They continued, however, to use the aroclors. And as I told you, I think that was a turf phenol Aroclor.

Q. Let me show you the next exhibit, which I have pre-marked as Exhibit 946, which I will describe for the record as consisting of Bates range TRAN 054092 through 054094, which purports to be a

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memorandum dated June 29, 1953 from Mr. Benignus. Subject, Aroclor, extreme pressure lubricating additive for greases and gear oils. And if you could look over Exhibit 946 so that you can tell me if you drafted it, Mr. Benignus, that would be the first inquiry.

A. Whether my name is signed -- yes, my name is signed on here. Yes, I remember this.

Q. You drafted Exhibit 946?

A. Yes, I drafted this.

Q. And Exhibit 946 relates to possible sale of aroclors for use as -- in conjunction with oils and greases used in machinery to create animal feed, is that right?

A. I'm reading this. I didn't listen to your question. Let's get back to it.

MR. PREUSS: You're going to have to read it to answer that question.

Q. That's okay, go ahead and read it.

A. Okay.

Q. Mr. Benignus, do you recall

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Monsanto marketing aroclors for use with greases or oils in farm machinery?

A. No.

Q. No recollection of the events that reflected in exhibit --

A. This "X"-disease in cattle, I remember when that thing came up, and I do recall that part of it. But that we sold or that any was used in this, no. But the Halowax was used and the cattle got this -- well, like acne of the lips, and as I said, they found that Aroclor doesn't do this.

Q. All right. Next document, exhibit I have marked as Exhibit 948. I don't want you to read the whole thing.

A. No, I know everything that's in here. I will make it simple for you.

Q. This exhibit consist of Bates TRAN 017052 through 017036, and it purports to be something called The Proper Handling Of Aroclors And Their Mixtures In The Electrical Industry. And it is dated 12-1-54, and it shows Mr. Benignus on the first page of -- or the cover sheet, I guess it is, which is 017054. And my

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question is if you recall Exhibit 948?

A. Yes.

Q. And what is it?

A. This is a typewritten compilation of information specifically on the subject of askarel dielectrics. And this --

Q. Mr. Benignus is referring to Exhibit 946.

A. All right. This -- and it's also headed phosphate division. That was the inorganic division. I think I told you I transferred to the organic division, what did I say, in '52, was it?

Q. I will check my notes. You said 1947.

A. That's when I went to the inorganic division.

Q. Sorry. You indicated early 1951 is when you went back to the organic.

A. Cross that out and let's make that -- what's the date of this thing?

Q. This purports to have a date of December 1954 on it.

A. This is 1954? Maybe that is reprint, however. 1954, December. Well,

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you see here, I was in the organic division. So maybe that 1951 was a little earlier than it should have been, if you want to make that correction.

Q. Okay. What is Exhibit 948, which is the thick one there in front of you?

A. This is dated December 1954. What occasioned this was General Electric, who invented PCB dielectrics in 1929 or '30, by this time 1954 their use patents had expired. Because of this and since GE is the owner and the people who license others to use it and since their patent expired, they made a change. They said, why should we bother with arranging for our licensees to get shipments of Aroclor, PCBs. When actually they can go to Monsanto without bothering us. In essence, GE turned over to Monsanto the commercial handling and distribution and billing of PCB dielectrics, so people who formerly were so served by General Electric.

Now, here at Monsanto in the organic division there is a so-called sales department and people are called salesmen,

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and they go around to call on these users who had bought in the past from GE. Well, there is nothing quite as sad as a salesman who is a bit nervous coming in with something that he really never heard about, knows nothing about. And the intent here was to provide these people, salesmen, with something to go in with when they would call. And you see it's written up in the typewriter, it was never put into print. I visualized this thing as something that maybe they would have need for, oh, maybe 25 copies. I was appalled at how many of these things were printed. Who in the world has need for this? It's very specific. It's PCB dielectrics. But a lot more went out than I ever realized. We had to retype this thing.

And to further describe it, it presents in great detail the methodology posted at A.S.T.M. Now, if you're going to talk about something in the dielectric area, you better be thorough. That's a very critical application. People have asked, why do you go into all of this

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detail. Well, I'm not about to sign my name to something that gives a half-baked discussion of it.

So these are essentially procedures used in our laboratory, confirmed with GE, used at GE, posted officially at A.S.T.M. for everybody. That's essentially what this is. So if someone wants to use it, instead of having to get the A.S.T.M. book and so forth, well, here it is.

Q. The next exhibit I would like to show you is exhibit -- I'm going to hand you two of them at the same time, Exhibit 939 and Exhibit 940. Exhibit 939, for the record, is a one page document bearing Bates number TRAN 053668. Purports to be dated 3-16-55. Mr. Benignus is shown as the submitter. It's a form that's labeled at the top Agricultural Fungicide Screening Report. Exhibit 940 is a single page document bearing Bates number TRAN 053669. It's a form at the top labeled Agricultural Fungicide Screening Report. It purports to be dated 3-16-55 and Mr. Benignus is shown as the submitter.

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And my question, Mr. Benignus is, is this your handwriting at the bottom of Exhibit 939?

A. No.

Q. And 940?

A. No.

Q. Do you have any recollection of these exhibits?

A. Actually, not. Chemcal. If you were to ask me what is Chemcal, I would say I never heard of it. But here it says it's chlorinated biphenyl 60 percent chlorine.

MR. PREUSS: I think it's chemical.

A. Oh, the word chemical, okay. Excuse me. No, I have --

Q. Do you have any recollection of proposing the use of aroclor products or products that contain aroclors for use as fungicides?

A. No. It's not a fungicide to begin with.

Q. All right. Let me show you the next exhibit, which is Exhibit 949, which is a one page document bearing Bates number

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TRAN 053676. It purports to be dated June 30, 1955. It's labeled at the top Technical Sales Report. And Mr. Benignus' name appears up at the top as a Monsanto representative. It's a long list of cc's over on the right side. Mr. Benignus, do you recall Exhibit 949, seeing it prior to today?

A. My name is on it, so I should be able to recall it.

Q. Did you visit the Department of Agriculture in Beltsville, which is just outside of Washington?

A. No.

Q. Did you have any involvement in the use of aroclors as insecticides?

A. No. In fact, I just told you it's not an insecticide.

Q. Do you recall Aroclor being used in insecticides to extend the life of the active ingredients?

A. Yes, there was an article published to this effect. Now, again, aroclor here, this is a turf phenol aroclor, a solid. It's not a liquid; it's

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a solid. And the idea here is sort of like Advil; that's aspirin coated with something that when it goes into the stomach it dissolves more slowly. Do I have this right?

Q. No.

A. Something else, whatever. And here the idea, as I understood it, would be that this resinous material would act as a sticker around the Lindane, I think it was, on Lindane, and that that would cause the Lindane to be released more slowly. It was not an enhancement of the potency of the Lindane by any means. It was just a thought of as something that would cause it to be released more slowly. I don't recall of anyone ever going commercial with this. But someone obviously was investigating this sort of thing. It came to my attention. I just passed it along. That's all. Mr. W. M. Sullivan.

Q. Do you recall any meetings with the Department of Agriculture during your employment at Monsanto?

A. No.

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Q. Do you recall having any responsibility for any aspect of the marketing of products that contained aroclors for agricultural uses?

A. No.

Q. This Lindane situation, where the proposed use was to somehow use aroclors in conjunction with Lindane as an insecticide --

MR. PREUSS: Well --

Q. That is a preamble. I don't mean to misstate. I'm just directing his attention back to his testimony. I realize that is at best a paraphrase. With regard to the proposed Lindane product, do you recall any discussions concerning toxicity of aroclors?

A. On my part?

Q. Let me make myself more clear. In this product proposed where aroclors would be used with Lindane, do you recall any discussions that you participated in or heard with Monsanto employees concerning the toxicity of aroclors?

A. No.

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Q. All right. The next exhibit is 952, which is a one page document bearing Bates number TRAN 054924, purportedly dated August 18, 1959. Subject, California requirement for Monsanto labels on pyranol and inerteen. Author, Robert Sido, S-i-d-o. Mr. Benignus is shown as a cc.

A. I remember this.

Q. So you recall Exhibit 952, is that correct?

A. Correct.

Q. And you recall that there was an issue concerning a California labeling law that required certain information to be provided on containers of pyranol and inerteen, is that correct?

A. Correct.

Q. Did you have responsibility for labeling of products that contained aroclors?

A. No.

Q. Do you recall being asked to approve the caution label for pyranol and inerteen products?

A. I wasn't asked, no.

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Q. There is a reference in this Exhibit 952 to Paul Benignus has agreed that pyranol and inerteen containers shall carry the caution statement, and then there is text that has a cautionary statement concerning the use of the product and includes the language "contains chlorinated hydrocarbons." Do you have any recollection of being asked to agree to the use of this particular caution label that's shown in Exhibit 952 on pyranol and inerteen?

A. Certainly it needed to be on the drums.

Q. So it's your recollection that it was on the drums prior to 1959?

A. We used it in the past, yes.

Q. So do you have any recollection of what the issue was in 1959 with regard to the California labeling law?

A. No, this is the first I heard of it by this memo.

Q. There is a reference in this memorandum to the stenciling of pyranol and inerteen containers. Was it the practice

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at Monsanto with regard to at least dielectric products that contained aroclors to stencil product information on the drums?

A. I really don't know. You see -- and this is now the organic division versus the inorganic division, and I really can't answer your question. I don't know. And I didn't go out in the plant to look at any drums. And most of the people I was dealing with in dielectrics -- however, this did mention the company. Most of that I dealt with dealt in tank cars. But this does -- oh, Gerald Hopkins. They did use drums. Well, it says they used drums. That's where this thing came up. Most of the dielectric users used tank cars, not drums. But here is a case where somebody used drums and that label was supposed to be on there. That's what I'm saying.

Q. How do you know that this label was on drums of dielectric aroclors prior to 1959?

A. Because that was -- well, prior to 1959? Let me answer it in general. In the

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inorganic division we were religious about this.

Q. About what?

A. About having the label on the drum.

Q. So it was your understanding that prior to 1959 --

A. It was.

Q. This label was on the drums?

A. Yes.

Q. Okay. The next exhibit is 953, which is a one page document bearing Bates numbers 054922. Purports to be a memorandum from Robert Sido, dated August 19, 1959. Mr. Benignus is shown as a cc and the subject is labeling aroclors, pyranols, inerteens. Ask you to take a look at Exhibit 953 and tell me if you recall seeing it prior to today.

A. Well, I got a copy of this. I understand what it says. It talks about the same label that we are talking about there. And it's dated August 19. This other one was dated August 18. So it got attention.

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Q. Do you recall approving the use of a warning that included the term "contains chlorinated hydrocarbons" for all aroclor products sometime in 1959?

A. Repeat that question, please?

Q. Sure. Do you recall sometime in 1959 agreeing to or approving the use of a caution label that includes the terms "contains chlorinated hydrocarbons" for all aroclor products?

A. I didn't approve it, but I wasn't in the labeling department. You're saying chlorinated hydrocarbons?

Q. Right. That's the text shown on Exhibit 953, "caution, contains chlorinated hydrocarbons," followed by some additional --

A. Well, the labeling people had a reason for calling it chlorinated hydrocarbons. Now, what went through their minds on that, I don't know.

MR. PREUSS: The question was whether you recall agreeing to this particular label for all aroclor products. I think it says all aroclors, pyranol and

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inerteen containers, is what it says here.

A. Well, I have no record that I formally disagreed with it. But I can see this would be a broader connotation than if one said chlorinated biphenyl and then you had a separate label for chlorinated turf phenol. Now, I don't ever recall having separate labels to that extent. Chlorinated hydrocarbons, incidentally, can, under that heading, include things that aren't PCBs to begin with. So it's a matter of semantics that I wasn't called in and asked about.

Q. What's a chlorinated hydrocarbon that doesn't constitute a PCB?

A. Well --

MR. PREUSS: Or a PCT as he just testified to?

A. Or a PCT.

Q. Well, I guess a PCT would be one. A hydrochlorinated hydrocarbon that was not a PCB.

A. That's correct.

Q. Can you give me another example that would be a chlorinated hydrocarbon

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that would not be a --

A. Trichlorobenzyl. Chlorinated benzene is a chlorinated hydrocarbon. Those are in the aromatic family than in the oliphatic. Then in the aromatic, you can have a whole variety of them; hydrotetrachloride, a lot of things. That's a rather broad connotation that I don't object to now and I didn't object then. But someone in labeling selected that. And the only thought I can give you is that, and I'm not sure this is what went through their minds --

MR. PREUSS: Well, don't speculate on what might be in their minds.

Q. Yes, you don't need to speculate.

A. I think I answered your question.

Q. You did, thanks very much. Let me show you the next exhibit, which is Exhibit 955. Before I have you look at this, Mr. Benignus, can you explain for me how an askarel, the term askarel, differs from the term aroclor?

A. Yes. That's an important thing. Askarel is a generic name used officially

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and so documented at the American Society For Testing and Materials. Now, to qualify as an askarel, the dielectric, we are talking dielectrics, must be approved and conform with what the Fire Insurance Underwriters require to be allowed to use this name askarel. Now, all PCBs are not askarels.

Now, how does askarel differ from aroclor, that was the question? Aroclor is Monsanto's trade name, which is comparable to General Electric's trade name of pyranol. Westinghouse used inerteen. Allis Chalmers used Chlorextol. Wagner used Norforpamol. People pick their own trade names.

Now, those were askarels approved by the Fire Underwriter Laboratories tests. And that input from the Fire Underwriters Laboratories was put into the A.S.T.M. requirements. So if something was called an askarel, you could be sure it meant the Fire Underwriters requirements as a dielectric.

Q. Thank you. Let me describe

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Exhibit 955 for the record. It's a multi page document bearing Bates range TRAN 054852 through TRAN 054862. I would actually like you to look at this document. It's headed Review Of Transformer Askarel, dated July 1962 and the initial PGB -- actually, the name P. G. Benignus appears on page nine of the document and the initials PGB on page ten of the document, which is TRAN 054861 and 054862 respectively.

MR. PREUSS: So you would like him to read it?

Q. No, sir, I don't want you to read the whole document. I just want you to look at enough of it so you can tell me if you drafted Exhibit 955.

A. Yes, I did.

Q. You did write Exhibit 955, is that correct?

A. Sure.

Q. And did you do that as part of your responsibilities as a marketing manager for Monsanto, as you have explained the use of that term?

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A. Yes.

Q. I could direct your attention to page -- the page that's labeled number two up at the top of Exhibit 955 because I just want to ask you about a couple of things in this document. You have got a list of paragraphs here that have numbers next to them. And number two is, however, all transformer makers prefer to manufacture mineral oil or dry type units rather than askarel. What was your understanding of why that was so?

A. Well, they were more familiar -- mineral oil was a standard in the industry. Bear in mind, askarel transformer is a specialty. It's not the prevelant thing. It is a specialty at a higher cost that was selected when a judgement was made that a fire resistant fluid shall be used instead of a flammable fluid. That judgment was made by someone. And they were willing to pay more. It costs more. And it gave more freedom as to where this transformer could be located. You can't put a mineral oil transformer in

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this building, you know. Askarel in a wall in this building is all right. Now, our competition here was a dry type. The other thing you may want to consider instead of askarel is a dry type transformer. It has no fluid.

Now, when you do this, however, you have to think, where are you going to put it. You do not have the freedom you have in selecting an askarel. To give an example, in marine climates, where you people are, and in the coast of Florida, near the ocean, wherever there can be water flooding, wherever there is excess dust or dirt like in a flour mill or a steel mill, those are not good places for a dry type transformer. One would select the askarel. But that is economically the competitor here against askarel is the dry type.

Now, to some it was probably a little more convenient to make a dry type than to have to handle a fluid. I said all -- I say all transformer makers prefer to manufacture mineral oil the dry type

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rather than askarel. I would say in general that's right. It's not a great statement.

Q. Could you read paragraph three, please, the one that starts, "also, there is a tendency on the part of transformer users to avoid a liquid."

A. That's what I was alluding to just now.

Q. What I'm interested in is the statement that you have made here about the tendency on the part of transformer users to avoid a liquid when the liquid involves a toxicology of askarel. There is fear about its maintenance and handling. What was that statement based on in your experience?

A. On the toxicology of askarel versus the toxicology of petroleum oil.

Q. And what were you referring to in terms of the toxicology?

A. That the vapors are toxic, and if you get it on the skin, it can be absorbed by the skin and it's toxic. You get too much in your system, it will affect the

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kidney and the liver. And I'm referring to the toxicology of the published literature, which Monsanto has, we went through that, which GE sure has, they have their medical department, industrial; so with Westinghouse. They have this information, just as we did.

Q. Okay. The next document I would like to show you -- before I do that. I want to go forward now to the mid '60's. These last documents we have been looking at were earlier than that -- the mid to later part of the '60's. When did you first learn about Swedish research concerning possible environmental contamination by PCBs?

A. In retrospect, I know that this came out in 1966. Now, I can't tell you exactly when. I do recall in 1966 I was in places like Australia, India, South Africa. Now, that information about what you refer to was sent to Monsanto from a person that I was close with in our operations in England. That's where he picked it up. This was sent to St. Louis,

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and I would have received a copy somewhere along the line, not that I was expected to do anything. That's the best answer I can give you. When I heard that in '66 or a little bit later.

Q. How did you first hear about the research that had been done in Sweden concerning PCBs as an environmental, possible environmental contaminant?

A. From this, what I just now referred to, this document, this memorandum that came in.

Q. And what do you recall was the first information you received about the research, the Swedish research?

A. I actually didn't receive that. And you say the research on this. I wasn't interested in that, from the standpoint of what was going on there, the environment. Nobody understood that. However, I was interested from another reason.

Q. What was that?

A. Well, a good friend of mine who I worked with at Monsanto, Dr. Munch, he happens to be the one who invented and

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developed to some degree, useful degree, at least, vapor phase chromatography. Without this development at Monsanto, I assure you they would not have been finding these extremely small amounts of PCBs that they were talking about -- probably in parts per million, was it? Monsanto invented the methodology, which has been enchanced through the years. It started in Munch's laboratory, he invented it. He should have patented it. And without that, we probably wouldn't be here. Now, that was my --

Q. Your recollection is that your interest in the work of the researchers done in Sweden was because one of your colleagues had actually invented the techniques used to find the PCBs, is that right?

A. That's right.

Q. Let me now show you Exhibit 957, which is a memorandum with attachment bearing Bates range TRAN 085947 through TRAN 085953. Purports to be a memorandum to G. R. Buchanan from D. Wood, dated January 26, 1967, and Mr. Benignus is shown

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as a cc, and the subject is Sweden, Aroclor. Mr. Benignus, do you recognize Exhibit 957?

A. Yes.

Q. And did you receive it sometime in or around January 1967?

A. This would have been the first time I was appraised of this or saw it, and it was -- I didn't mention his name, it was David Wood, and this is it. And the date is something in 1967 -- I can't tell. It was a 26 day. I don't see the month.

Q. I think it's says 1-26.

A. Oh, yes, over here, January -- all right. That's the first I heard and it was from David. He was over there, over there, calling on the customer in Sweden, and he and I called there together many times in the past and I was aware that they used PCBs there.

Q. What discussions did you have with Mr. Wood, if any, about the research done in Sweden concerning PCBs showing up in the environment?

A. None.

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Q. Did you have discussions with anyone employed by Monsanto about the work of the researchers whose names were Jensen and Vidmark?

A. No.

Q. How about your friend, Dr. Munch? Did you have any discussions with him about the use of his invention to discover PCBs in the environment?

A. No, and I'm embarrassed.

Q. You didn't congratulate him?

A. No.

Q. What did you think when you heard that these researchers in Sweden had reported that they had found PCBs in eagles and human hair and other specimens from the environment?

A. Well, I thought what most everybody else thought.

Q. What was that?

A. We don't understand this.

Q. Why didn't you understand it or what about it didn't you understand?

A. Well, maybe the best answer I can give you, at that point in time that you're

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talking about, I didn't know about Munch's vapor phase chromatography being used in this thing. After it came to my attention that this is how they determined these minute amounts, I began to understand how this was done. In the absence of that, it was preposperous to think that they would find it in hair and I don't know where else -- birds, was it?

Q. So let me see if I understand. Your thought when you first heard about this research was you didn't understand how they had found PCBs in parts per million?

A. At first, yes, because I wasn't aware that it was Ralph's vapor phase chromatography that had been developed to that point, that it was actually in use. I wasn't connected with this.

Q. So you were just provided this by way of information?

A. That is all.

Q. And when you just testified that you thought the same thing that everyone else thought, did you have discussions with other people about what they thought about

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the research?

A. No.

Q. There is a reference in this document to research being done at Monks Wood Experimental Station in England concerning the survival and reproduction of Bengalese finches. Do you have any familiarity with work done at Monks Wood on PCBs in the environment?

A. No.

Q. Other than the work of Jensen and Vidmark, do you have familiarity with work, research done concerning finding PCBs in the environment?

A. No.

Q. Do you recall in the -- let me direct your attention to the press release which is an attachment to the memorandum, this LKB press release. Did you see that, Mr. Benignus?

A. You mean on this page? I see LKB, is that what you're referring to?

Q. It's headed Poison - LKB Helps To Make A Safer World.

Q. I will count the pages. It's the

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fourth page -- that's it.

A. Oh, no.

Q. You don't recall seeing this press release?

A. No.

Q. Do you recall any discussion concerning the linkage, if any, between finding DDT in the environment and finding PCBs in the environment around the time early 1967?

A. Yes. Again, this had to do with methodology rather than the environmental ones. What was encountered here, DDT was widely distributed through the environment everywhere. And what had come up was PCBs as an interference in the spectroscopic analysis. What is this? It's an interference here, they were looking for DDT. Well, that was later, as I understand it, defined as being an interference on the graph from PCBs.

Q. Other than that connection that they found, the PCBs when they were actually looking for DDT, do you recall any discussions or communications within

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Monsanto about the link, if any, between DDT and PCBs?

A. No, I don't recall any, other than that it was an interference here.

Q. Okay. The next exhibit I would like to show you is 958, which is a two page document bearing TRAN 002548 and 002549. Purports to be a memorandum dated 4-16-1968. Subject, Texas Eastern Transmission, from W. E. Gordon, and Mr. Benignus is shown as a cc. And my question is, whether you recall ever seeing any correspondence -- well, I will ask the particular first, if you recall seeing Exhibit 958 prior to today?

A. Well, did I receive this? Yes, I'm down here as having received it.

Q. What about your job responsibilities would have you receiving correspondence about alleged short weights on shipments of Turbinol to Texas Eastern?

A. I don't think I even read the thing. I wasn't in that area. Short weights -- come on.

Q. That's what the allegation is.

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Why did you get this kind of correspondence?

A. All right. The only explanation I can give -- now, I wasn't in this area, as we know. I was strictly on dielectrics. I'm trying to orient at least something here. These people were not my associates, except possibly one. You will see it says P. G. Benignus, slash, C. M. Williams. And then my mailing thing. They got this to Charlie Williams because he was a clerk and had to do with shipping, and if it does weights and invoices, Charlie would do this, not only for the non-dielectric but also in the dielectric area. He was a common clerk shipping expeditor and so forth. And to reach Charlie, somebody, whoever this was, took me, slash, Charlie Williams because that's how Charlie would have gotten it. Why they did that, why they didn't send it to Charlie and leave me off of it, I have no idea.

Q. Did Mr. Williams work for you?

A. No.

Q. All right. The next exhibit is

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Exhibit 959, which is a two page document bearing Bates range TRAN 058172 through TRAN 058173. Looks like an excerpt from another document because up at the top it's labeled pages 15 and 16. It bears a date of 7-68. And Mr. Benignus' name appears on the second page of the exhibit next to the heading Sponsor. Ready?

A. Yes.

Q. Do you recognize Exhibit 959, Mr. Benignus?

A. I think I have seen this. Certainly Dr. Munch and myself we were copied in.

Q. Is it a budget document?

A. Yes. At the end here it does get into costs of Calandra Labs and Metabolic Study.

Q. Do you recall the form of this document?

A. No, I don't.

Q. Did you draft this piece of a larger document that deals with electrical fluids, air and water pollution control?

A. No.

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Q. Do you recall if in July 1968 you believed the research findings concerning PCBs identificaton of PCBs in the environment to still be tentative?

A. I didn't have a fix on this. I was still amazed in the very, very small amounts that were being discussed, and the reliability, the reproduceability of this.

Q. Between 19 -- the beginning of 1967 and July of 1968, what was your involvement, if any, with Monsanto's efforts concerning PCBs as an environmental contaminant?

A. I wasn't directly concerned with this.

Q. This document indicates that you were -- that you have a responsibility to determine present disposal methods for aroclors. I'm looking in the middle of the second page of the exhibit, with a target date of 3-69. Do you recall being assigned responsibility to determine what the disposal methods for aroclors were?

MR. PREUSS: Just so the record is clear, I think you're referring to the

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initials P. B. --

Q. I should have made that clear.

MR. PREUSS: There are also two other individuals.

Q. The initials are P. B., slash J. B., slash P. H.

A. I can identify J. B., that's Jim Bryant. P. H. slips me.

Q. Paul Hodges, perhaps?

A. No. I wouldn't say so.

Q. Do you understand the P. B. to be referring to you?

A. Yes, that refers to me. Whoever wrote it didn't know my middle initial. Well, this was put here. I don't know. This whole thing was in a state of flux at this time. What I wish to say, just because it was listed here, it was indicated that would be an oncoming responsibility. Now, Bryant was a technical sales representative who would call on customers in the field, where he could get some idea from the customers as to how they are presently disposing aroclors. And P. H., whoever that was, I

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would have to say is likewise. Those were people out in the field. And the date is 3-69. That would fit in with this time frame when things were beginning to get rolling and get going. This thing didn't happen overnight. We heard of this thing in '66, was it? Well, here we are in '69. This is the way the world goes. You don't --

MR. PREUSS: It's '68.

A. Here it says 3-69?

MR. PREUSS: No, for a target date.

A. For the target date it says here 3-69. So this was in the process, in the mill, towards seeing what Monsanto can do.

Q. Mr. Benignus, do you have any specific recollection about having any responsibility for determining disposal methods for aroclors?

A. No.

Q. Was that ever part of your job responsibilities?

A. No.

Q. Did you ever acquire any

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information about how Monsanto's customers were disposing of aroclors?

A. No.

Q. Let's go off the record for a second.

(Discussion off the Record)

Q. On the record. Tell me what you recall about the Kusho incident in Japan involving contamination of oil with aroclors?

MR. PREUSS: Yushow, you mean?

Q. Yushow, sorry.

A. Well, Yushow was heating, cooking oil that was used to cook fish. The PCB fluid was used as an indirect heat transfer media, so that the aroclor would take the fire, transmit it to the cooking oil to avoid overheating the cooking oil. Now, the Japanese eat a lot of fish over there, and Kanacafuchi in Japan had this plant to manufacture, a Japanese company, PCBs. And leakage occurred in the system, the heat exchanger. I never got into this thing in detail. At times I wish I had. But I don't think Monsanto went over there and

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investigated it in detail.

The thing is, they made a number of people sick. And to ingest this amount of PCB to make people sick, it's hard to believe. You would think, well, don't they taste this stuff? But, anyhow, as I recall, not just one or two people; a number of people got sick. Well, the Emperor Hirohito, this is enough. And they shut the whole thing down and when the Emperor speaks, it's shut down. So that put them out of business.

I was active in Japan. When Mitsubishi would build a plant, I was sent over there to move the production, primarily the electrical industry, and we never got off the ground because of this Yushow incident, which I think was sometime in 1968, I believe.

Q. You had mentioned earlier that in early 1967 you were traveling a lot to Australia, you mentioned. What part of your job responsibilities required you to do this kind of world travel?

A. By this time, General Electric

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Company had invented and were marketing a product called pyranol two for capacitors. This was our super pure aroclor, to which was added an epoxide scavenger or getter. By this I mean this in a way is a stabilizing agent. It will acquire to itself the epoxide free chloride ion and so forth.

Now, they offered this to Monsanto. Our attitude was, we don't want it. We make this super pure stuff and we are not going to add something as reactive as an epoxide. That reacts with anything. We told GE, thanks but no thanks. If you want to add epoxide, we will sell you the pure stuff and do what you want to do. Well, they licensed some people and they went to this.

Now, this technology we didn't buy at Monsanto. It was rather expensive. We had no use for it. That put me into this position. I really at this particular time had no business going into our customers trying to fish around to learn something about this technology they had on a

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licensed basis with GE. What I'm saying to you is this. The research lab doors at GE, which has been wide open to me, people ask, do I work for GE, and I guess it did. Now, this suddenly and abruptly terminated as they started developing this pyranol two. Now, that caused me to direct my attention other than in the States.

Bear in mind, in the States, we were the only supplier. Anybody wanting it couldn't get it anywhere else. They had to get it from us. There was nobody else. That's called a monopoly. Not that we wanted a monopoly. Anybody was welcome. Nobody chose to get into it. I'm talking about the electrical end particularly. That's the business it had to get into. So I directed at this point in time my interests around the world.

Now, there the French manufactured it and I got to be a good friends with Dr. Kokillian and Pierget, their organization, and we were competitors around the world, very friendly. We were very close. Also in Germany, you had Behr Laverkusen, with

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Dr. Knust was the head of the technical thing. And, of course, there was our manufacturer in South Wales England. And my attentions were directed at going to all these countries, whether it's Brazil, Argentina -- Mexico they shipped out of here mainly. Australia, what have you. Scandinavia. Lilly Holmans where this thing started in Sweden. I traveled around there.

Plus, another important part of all of this was to get agreement between ourselves and Protalok, the French company, and Behr, to agree on consensus of the test procedures and the specifications in order to standardize this, which was standardized in our country at A.S.T.M. and these organizations, but now I got active and with representatives from GE and so forth internationally in the international electrical technical commission where governments would invite us to meet, and one happened to be Iran. And we would go there and in order to standardize on the specifications and the methods used in

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this, I keep saying critical, it was, handling of PCBs, particularly for capacitor dielectrics. So I was gone when some of these things you probably bringing up were here. I tried to explain how come.

Q. Well, you have done that. Let me show you Exhibit 961, which is a two page document bearing Bates range TRAN 057681 through 057682, purportedly dated December 9, 1968. Subject, Defense Of Aroclor, where W. R. Richard is shown as the author, and Mr. Benignus is shown as one of the recipients, or actually one of the addressees of this memo. And I would like to ask you, Mr. -- I'm sorry, I don't have a -- there is some handwriting up in the upper right-hand corner but I can't read it either. Have you seen this document prior to today?

A. I would say yes.

Q. Do you recall a time at Monsanto in 1968 when the company's defense of an aroclor product was being mounted?

A. Excuse me?

Q. Do you recall a time in 1968 when

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the defense of aroclor by Monsanto was being mounted?

MR. PREUSS: I'm going to object as argumentative.

A. You want me to answer this?

Q. Yes.

A. I don't understand what you just got through saying.

Q. Sure.

A. I do and I don't.

Q. Let me reask it then. So that you were sure you understand what I'm saying. Do you recall discussions or communications at Monsanto about how to defend the future use of aroclors in the face of allegations concerning environmental contamination?

A. Well, you're using a word that I think is rather improper, this defense thing. You can very easily interpret this in an altogether different way than I would interpret it, this word defense. I'm surprised that word bothers me. It wasn't -- yes, I can understand what he was saying, and I take it in stride.

Q. You're referring to Mr. Richard?

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A. To Dr. Richard. And it indicates things that were in the mill or were going to be. Here comes this Callandra. Now I know what that is. Those were feeding studies that were going on. Earlier in our discussion I couldn't recall Callandra, I didn't ever remember hearing them. So there was chicken work going on.

Q. Well, before we get into the specifics, let me focus your attention back to the first question, which is, do you recall a time at Monsanto when information was being marshalled to defend the continued use of aroclors in the face of allegations concerning environmental contamination?

A. I accept your statement.

Q. You do recall such a period?

A. This period.

MR. PREUSS: No, I object as -- I'm going to object to the form of the question as argumentative and a mischaracterization of what his response was.

Q. Okay. I don't understand your

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response then. Let me try it again. Here is the question. Do you recall in your employment at Monsanto that there came a time when within Monsanto information was marshalled to defend the continued use of aroclors in the face of allegations concerning PCBs being an environmental contamination?

MR. PREUSS: Object to the form as argumentative and assuming facts not in evidence. Subject to that, you can go ahead and answer.

A. Well, in simple terms, yes.

Q. Okay. That's an answer. Did you participate in the effort to -- in an effort to gather information to present for purposes of continuing to sell PCBs in the face of allegations concerning environmental contamination by PCBs?

A. No.

Q. What role, if any, did you play in defending the continued use of PCBs in the late '60's?

A. In the late '60's. You wanted to start getting into these things now?

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Q. No. I just want to know in general what you recall, what role you played, if any, in activities defending the continued use of PCBs.

A. A passive role. Tried to keep informed as to what is this all and what is going on and what do they want to do.

Q. Did you play any role in deciding whether PCBs should be continued to be sold by Monsanto?

MR. PREUSS: Are you talking generally and not with respect to dielectrics specifically?

Q. Generally.

A. Generally? No.

Q. Did you play any role in making any decisions concerning whether PCBs should be continued to be sold by Monsanto for dielectric use?

A. I was on the receiving end.

Q. Of recommendations?

A. Phone call request.

Q. I guess I don't understand. Customers requested that Monsanto continue to sell PCBs, is that what you're saying?

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A. Exactly.

Q. Did you provide any recommendations to Monsanto management about whether Monsanto should continue to produce PCBs for dielectric use?

A. No, no.

Q. Did you ever participate in making a presentation to something called the corporate management committee?

A. I was aware of this, but I wasn't a part of that. I know what you're referring to.

Q. Let's look at this document before lunch. What's an enzyme inducer, do you know?

A. I really don't know.

Q. Okay. Item four in Exhibit 961 discusses or states clean up stream and air pollution from our aroclor plants, our customers' plants, our customers' products, restrict sales from specific uses. Mr. Benignus, did you play any part in any Monsanto efforts to clean up stream and air pollution from Monsanto manufacturing plants?

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A. No.

Q. What about from Monsanto's customers' plants?

A. No.

Q. The same question with respect to Monsanto's customers' products?

A. No.

Q. Did you play any role in making decisions or recommendations concerning restricting sales of PCBs from specific uses?

A. No.

Q. Did you play any role in seeing if a capacitor plant could be improved to minimize exposure to PCBs?

A. No.

Q. Did you play any role in figuring out whether transformer plants could be improved to minimize exposure to PCBs?

A. No.

Q. What role, if any, did you play in various toxicological studies that were done at Biotest Laboratories?

A. None.

Q. Were you kept informed of the

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results of such studies?

A. Not specifically, no, no.

Q. Why don't we break for lunch.

(Lunch recess)

Q. Ready?

MR. PREUSS: Yes.

Q. On the record. Mr. Benignus, are you familiar with the terms open system versus closed system used in relation to PCBs?

A. Yes.

Q. What's your understanding of the definition of the closed system?

A. In terms of PCB closed, a closed system would be a capacitor that is hermetically sealed. It's vacuumed impregnated with a fluid and then it's hermetically sealed, completely closed. Now, a transformer can be completely closed. Usually it is. One system would be where the transformer is welded shut. Another closed transformer system would be where the transformer is gasketed and bolted shut. And a third system, we come back to your question about what is a

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liquid seal, is where the transformer on top would have what they called a conservator that would be a tank containing fluid, and, in effect, that serves as its seal. So you can consider that a closed system.

Q. What was your understanding or what is your understanding of the term open system as used in relation to PCBs?

A. There isn't, not dielectrics.

Q. So all of the uses of PCBs for dielectrics were closed systems?

A. Yes.

Q. Were you familiar in your work at Monsanto in the late '60's with reports concerning Aroclor 1242 and toxicity to fish?

A. No. Although I had heard of this, obviously, I wasn't concerned with that.

Q. Where had you heard of it?

A. I suppose heard people mention it. Maybe saw it in the news media, was great for stories. Just in general.

Q. You don't have a specific recollection of how you --

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A. No one came specifically to me.

Q. Let me show you Exhibit 967, which I will describe for the record as a three page document bearing Bates range TRAN 024974 through 024976, which purports to be a trip report dated four -- excuse me -- September 10, 1969, to Great Lakes Steel, Detroit, Michigan. Mr. Benignus is one of the cc's on this trip report. Do you recall seeing Exhibit 967 prior to today?

A. No.

Q. Does Exhibit 967 refresh your recollection in any way about learning about Aroclor 1242 and toxicity to fish?

A. No.

MR. PREUSS: Just for the record, I believe -- I see, it does reference 1242 but it does talk about 1248 as well. I think there is a -- the only reference I see to 1242 with a quick look is the Pydraul 312 and Aroclor 1242.

Q. And the indication on this, the Pydraul 312 was shown to be toxic to fish. Do you recall any discussions with any of your colleagues at Monsanto about toxicity,

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PCB toxicity testing with regard to fish?

A. No.

Q. Are you familiar with any information concerning PCB toxicity to shrimp down in Florida?

A. No.

Q. The next document I would like to -- let me ask you a few questions before I put this on the table. Was General Electric the largest customer for dielectric fluids that contained PCBs?

A. By far.

Q. And was Westinghouse also a large customer?

A. Number two.

Q. What was the smallest customer for dielectric fluids?

A. I can't answer that categorically. I will answer it in a general way. There were some relatively small impregnators of capacitors. One was in Brooklyn, New York, that I can think of. And then there would be some small maker of an askarel transformer.

Q. Do you recall GE coming to

HARTOLDMON0024610

Monsanto in St. Louis in 1970 for a presentation about what was known by Monsanto concerning the environmental effects of PCBs?

A. Sure do.

Q. Did you set up that meeting?

A. Yes, ma'am.

Q. And what was GE's interest in that subject?

MR. PREUSS: As he understood it to be?

Q. Right, as they told you, exactly.

A. GE, as ourselves, were interested in reviewing what is known about this situation. They were just as interested as we. And it was this mutual interest and it was a review of what was known to pass information. And that was the purpose of the meeting.

Q. GE had had their own environmental people, is that correct?

A. Oh, they had environmental people, surely.

Q. And GE was also studying PCBs, is that correct?

HARTOLDMON0024611

A. What?

Q. GE was also studying PCBs, is that correct?

A. They were using and studying, yes, sure.

Q. Let me show you our next exhibit, which has been marked as Exhibit 969. It's a three page exhibit, bearing Bates range TRAN 022953 through 022955. It purports to be a memorandum from Mr. Benignus dated January 7, 1970 concerning the polychlorinated biphenyl environmental problem, General Electric Company. And it's to a long list of recipients. Mr. Benignus, did you draft Exhibit 969?

A. Yes.

Q. And what is Exhibit 969?

A. It introduces our people who may not have known Ed Raab, who Ed Raab, where he is located, what his responsibilities are, and that he will visit Monsanto, gives the dates, and I'm sure it goes on to discuss the topics, what he seeks. I didn't read this but this is what it is.

Q. If I could direct your attention

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to the first paragraph under what GE seeks, down at the bottom of the first page of Exhibit 969, and ask you to read that.

A. GE seeks to learn Monsanto's corporate stance regards PCB problem at this time.

Q. Do you recall having an understanding that Monsanto had some sort of corporate stance regarding PCBs in the beginning of 1970?

A. I will have to say yes.

Q. What was your understanding of Monsanto's corporate stance at the beginning of 1970 with regard to PCBs?

A. That, in general, they had taken a position of going out of supplying PCBs.

Q. And what was your understanding of why Monsanto was going out of supplying PCBs?

A. Because of what you have been talking about.

Q. The environmental information concerning PCBs?

A. Right. I wish to expand on that right here.

HARTOLDMON0024613

Q. Right here, okay.

A. Right here. The indictment against PCBs in the environment was its persistence in the environment. It wasn't carcinogenic and all these things that by 1970 were being talked about in the news media. I just want to say that.

Q. So when you say the indictment was the persistence of PCBs --

A. The persistence --

Q. The indictment by whom?

A. By the environmentalists. That's what they objected to. It persists in the environment.

Q. Okay.

A. We all know it's refractory, it persists.

Q. So as far as you were concerned, there was no dispute that it persists in the environment?

A. That is correct.

Q. Did General Electric come to St. Louis to visit with you and other Monsanto employees to discuss --

A. Certainly.

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Q. And was the issue of Monsanto's corporate stance with regard to PCBs discussed?

A. Yes.

Q. And do you recall who, if anyone, at Monsanto led that discussion?

MR. PREUSS: You mean one specific person?

Q. If one specific person led it or whatever you can recall, Mr. Benignus, about the discussion.

A. Well, I don't know if it was exactly at this point in time. But at some point in time all of our people were called on. Myself to the extent of introducing people, and then our people in the bio lab, studying biodegradability, and down the line.

Q. Let me --

A. I haven't read this. I don't know if that was at this time or it was later.

Q. I will show you another document that goes to the presentation. That is Exhibit 972, which is a multi-page document bearing -- or consisting of Bates range

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TRAN 023509 through 023518. Headed on the first page, the PCB pollution problem. January 21 and 22, 1970, St. Louis Meeting With General Electric Company.

A. Yes. You're up now to what I was thinking about.

Q. Do you recognize Exhibit 972?

A. Yes.

Q. And is this by way of a summary of what went on during the meeting with General Electric in January 1970?

A. This date, yes.

Q. Do you recall Mr. Wheeler presenting a representative from GE with a booklet containing information about studies concerning PCBs?

MR. PREUSS: Well, if you're going to ask him questions that are based on information in this memo, perhaps he ought to have an opportunity to read this.

Q. I'm just asking it --

A. About Mr. Wheeler.

Q. I'm not attempting to refresh your recollection at this point. I'm just asking him a question.

HARTOLDMON0024616

A. However, I don't get whether you are thinking Wheeler was with GE or with Monsanto.

Q. With Monsanto.

A. Wheeler was with Monsanto, right.

Q. Do you recall at the meeting you had with General Electric in January 1970 Mr. Wheeler presenting a representative of GE, Mr. Rain --

A. Raab.

Q. -- Raab, a booklet of studies and other information about PCBs?

A. I didn't specifically see this. This is part of the intention.

Q. To present General Electric with the information you had about PCBs?

A. Whatever was available, everything.

Q. Do you recall if similar two day presentations were made with other customers of the dielectric group?

A. Yes.

Q. Who else was brought to St. Louis?

A. Westinghouse.

Q. Can you think of other customers

HARTOLDMON0024617

that Monsanto made a presentation to concerning the PCB pollution problem?

A. This emanated -- what could be logically done. You can't call on everybody and their dog, you know. And to the best of our ability, we disseminated -- there is nothing secret about this. The idea is to disseminate it. I can't answer your question in more detail. There were discussions with others than GE and Westinghouse. But we didn't call every single customer in to St. Louis. It's not practical. We had no objection to anybody that wants to come. Be happy to have them.

Q. All right. The next exhibit I would like to show you has been marked in a previous deposition as Exhibit 866. And for the record, it purports to be a memorandum from D. A. Olson to W. Papageorge, dated April 20, 1970; Subject, Aroclor Labeling. And Mr. Benignus is shown as a cc on this document. And I would like to ask you, Mr. Benignus, if you recall seeing this document prior to

HARTOLDMON0024618

today.

MR. PREUSS: Off the record a minute.

(Discussion off the Record)

Q. Back on the record. Mr. Benignus, have you seen Exhibit 866 prior to today?

A. I would have to say probably, yes.

Q. Because you're shown --

A. Because I'm shown on there.

Q. Do you have any familiarity with a group of products called Pydrauls?

A. I knew they existed, yes, of course.

Q. Did your work involve anything to do with the Pydraul line of products?

A. No.

Q. Do you have any knowledge about the timing of the reformulation of the Pydraul products to remove PCBs?

A. No.

Q. The next exhibit I would like to show you I'm marking today as 976. It's a one page document bearing Bates number TRAN 008623. It purports to be a memorandum from Paul Benignus to D. A. Olson, dated

HARTOLDMON0024619

June 11, 1970; Subject, Capacitor Aroclor 1242. Could you look at this, Mr. Benignus, and tell me if you have seen it prior to today.

A. I wrote it.

Q. You wrote it. That's your signature there?

A. That's my signature.

Q. Aroclor 1242 was reformulated at a certain point to remove the higher chlorinated elements in it, is that correct?

A. Correct.

Q. And why was that done?

A. The reason for reformulating Aroclor 1242 which resulted in Aroclor 1016 and we eliminated the B, didn't want to mislead anybody, this was an effort, to the best of our ability, at great expense and time, these things took a lot of time, to satisfy environmentalists' objection to the persistence of PCBs in the environment.

Now, through the years that PCBs were used and got into the environment, samples were taken from the environment to

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see, well, what is there in the environment. I'm comparing this to saying, well, let's see what the biodegradability is. You can't just all of a sudden take this stuff and put it in the backyard and see what the biodegradability rate of this stuff is. But in the environment samples were taken. I don't know from where.

The point is this. What was recovered from the environment was out of gear with what had been made in the factory. It was out of gear in this respect. What was in the environment was disproportionately high in the higher chlorinated biphenyl content, which means that some of the lower chlorinated stuff evidently disproportionately dissipated, biodegraded or what have you. Now, this now implies that it's the higher chlorinated biphenyls that persist more than the lower ones. 1016 is this effort to reach in -- now, Aroclor 1242, as you know, that's a very complex mixture of materials. It's not a single compound by a long shot. If we had them all here

HARTOLDMON0024621

isolated, you would have solids. It's a liquid because of mixed melting point. Okay. They reached in as far as they could go to pull out the more highly chlorinated compounds to satisfy, try to satisfy, objection from the environmentalists. That's the premise for 1016.

Q. So let me see if I understand you. Aroclor 1242 prior to being reformulated was a mixture of lower chlorinated biphenyls and higher chlorinated biphenyls, whereas MCS 1016 took the higher chlorinated biphenyls out of the mixture, is that right?

A. Yes. But I want to clarify this. It was not a man-prepared mixture by any means. What this results from is when you chlorinated biphenyl, you chlorinated 1242, that's essentially 42 percent by weight of chlorine. Now, that mathematically corresponds to three chlorines in the biphenyl nucleus. It's not exactly that. This is a very complex mixture, not prepared mixture, but this is what comes from the reaction. And you can have

HARTOLDMON0024622

dichloryl, maybe even some monochloric in there. Predominantly trichlor. That's what we want. There will be some setrachlor, four, penta, probably some six chlorines. That's the way the thing comes out. It's a complex blend of mixtures that comes out of the chlorination reaction.

Q. Did you have discussions with your colleagues at Monsanto in 1970 or thereabouts about the effect of PCBs on birds?

A. No.

Q. Let me show you a document that has been -- that I have marked as Exhibit 978, which I will describe for the record as a three page document consisting of Bates range TRAN 062408 through 062410, dated July 8, 1970. Purports to be a letter to Mr. F. G. Jenkins from W. B. Papageorge, and Mr. Benignus is shown as a blind cc.

MR. PREUSS: You want him to read it?

Q. No, I don't want you to read the whole letter, Mr. Benignus. I'm interested

HARTOLDMON0024623

if you recall seeing it and I'm going to direct your attention to, after you answer that question, to the paragraph at the bottom of the first page of this exhibit, headed toxicity.

Let me back up and ask you a new question, Mr. Benignus. Are you familiar with Sprague Electric Company?

A. Sprague, yes, they were one of our customers; capacitors.

Q. Do you recall Mr. Papageorge going out to see some of the customers of the dielectrics group?

A. Papageorge had been plant manager at Anniston in 1970. I think maybe as early as January, I don't know, he was called up to a period before in 1970 to coordinate all of this stuff and that's how he would get into this. Now, there must have been some request for him either from Sprague or through our salesman, Randy Graham, that Papageorge go out there and visit, and this is what was done. And Papageorge, that's all he did now, was coordinate what is known and what is

HARTOLDMON0024624

available, and this is what this discusses.

Q. Did reading that bottom paragraph labeled toxicity on the first page of Exhibit 978 refresh your recollection in any way on whether you ever had any discussions with anyone at Monsanto about the toxicity of PCBs to birds?

A. No.

Q. Okay. The next exhibit I mark as Exhibit 980. It's Bates range TRAN 039367 through 039368. It purports to be a letter from W. B. Papageorge to Mr. F. R. Viland, V-i-l-a-n-d, of Westinghouse Corporation, dated October 1, 1970, and Mr. Benignus is shown as a blind cc. Do you recall seeing Exhibit 980, Mr. Benignus?

A. I suppose I saw it. I got a copy. If I had had time, I would have looked at it.

Q. But you don't have any specific recollection?

A. I have no specific knowledge of -- whatever Papageorge was doing was right with me.

Q. Do you recall any discussion of

HARTOLDMON0024625

any tests done in Florida concerning how long Aroclor 1242 stayed in its -- strike that.

Here is what I'm interested in. It's on the second page and it's a description of a study done in Florida, purportedly where they put Aroclor 1242 in a hole and then came back about thirty years later and saw how far it had migrated. Do you know anything about that study?

A. The 1242 was put in a hole in Florida?

Q. Yes, in 1938, apparently.

A. Yes. And we already talked about this. This is an example where it would have been, say, a soil sterilant against the bad Florida termite. This is what this would be. And I know the guy that dug the hole, and it was a follow up on that. Now, this was '38 to 1970. That's quite a while, isn't it?

Q. That's a long time.

A. Thirty some odd years. But somebody had a record of how they were --

HARTOLDMON0024626

how they ever found this, I don't know.

Q. Other than you recall how this hole happened to be dug in Florida and Aroclor 1242 put in it, do you recall anything about what was found when the aroclors were taken out in 1969?

A. No.

Q. Do you recall any discussions concerning the biodegradation of aroclors with respect to this hole in the ground in Florida?

A. No. And as we already said, to my knowledge it wasn't used as a soil sterilant.

Q. The next exhibit is Exhibit 982. It's a two page document consisting of Bates range TRAN 036330 through 036331. Purports to be a memorandum from W. B. Papageorge to Mr. Benignus dated November 11, 1970. And it's the same question, Mr. Benignus, whether you recall seeing this document? I guess I should further describe it for the record. The subject matter is letter dated October 27, 1970; R. F. Casey, Ohio Edison, to P. G.

HARTOLDMON0024627

Benignus.

A. I don't remember Casey's letter. Now, this was written by Papageorge to me.

MR. PREUSS: Again, do you want him to read that?

Q. No. Just either you remember this document --

A. I don't remember what's in here.

Q. Okay. The next exhibit I would like to show you is Exhibit 986, which bears Bates number TRAN 004413. Purports to be a letter from R. E. Hatton to Mr. J. S. Galbraith at the Tennessee Valley Authority, dated May 10, 1971. Mr. Benignus is shown as a cc. You might as well go ahead and read this. It's pretty short.

A. Oh, I had nothing to do -- I was copied in merely as a formality of some sort. I had nothing to do with this.

Q. You have no recollection of --

A. No, I would have paid no attention to this. I know, of course, who Hatton is.

Q. But seeing Exhibit 986, which references Turbinol 153 and the Pydraul

HARTOLDMON0024628

fluids, doesn't refresh your recollection in any way about any contact you might have had with that product?

A. No.

MR. PREUSS: Did you say that problem?

Q. No, that product.

Mr. Benignus, do you recall a meeting with Westinghouse to describe Monsanto's -- the information Monsanto had about PCBs sometime in 1971?

A. I'm sure I would have. I don't at the moment pin it down to any date.

Q. Let me see if I can refresh your recollection. This is Exhibit 992, which purports to be a memorandum from Mr. Benignus to W. R. Richard dated December 3, 1971; subject, meeting with Westinghouse at St. Louis, Thursday, December 16. And is that your signature at the bottom?

A. Right.

Q. Does this refresh your recollection about a meeting with Westinghouse in 1971 to discuss at least in part PCBs?

HARTOLDMON0024629

A. Yes.

Q. What do you recall about that meeting?

A. These were Westinghouse people from Bloomington, Indiana, although I see -- yes, Wilburn from south Boston was a transformer plant. Bloomington was a capacitor plant. Oh, Tom Dakin, they were the research organization of Westinghouse. Churchill Borough, that's Pittsburgh, and then Munson, biochemist college Baltimore, I had no contact or knowledge of him prior. But he was there. Neither did I know Kelly. But they were there. Then these others. Several of these people I knew very well; some I didn't know. And, again, this was a meeting to discuss with Westinghouse what we knew at this time in 1971. That was the purpose of the meeting.

Q. Do you recall what was discussed with Westinghouse concerning what was known about PCBs as an environmental contaminant?

A. Only in general terms. I'm sure that subject was discussed to what

HARTOLDMON0024630

knowledge was available.

Q. And do you recall any specifics of that discussion?

A. I don't recall specifics.

Q. That's all the questions I have at this time. Thank you very much, Mr. Benignus.

A. You're welcome.

Q. Off the record.

(Discussion off the Record)

HARTOLDMON0024631

COMES NOW THE WITNESS, PAUL BENIGNUS, and having read the foregoing transcript of the deposition taken on the 14th day of October, 1992, acknowledges by signature hereto that it is a true and accurate transcript of the testimony given on the date hereinabove mentioned.

_____

PAUL BENIGNUS

Subscribed and sworn to me before this _____ day of _____, 1992.

My Commission expires: _____

_____

Notary Public

mb

Transwestern vs. Monsanto

State of Missouri)
) SS.
City of St. Louis)

I, Marsha Birenbaum, a Notary Public in and for the State of Missouri, duly commissioned, qualified and authorized to administer oaths and to certify to depositions, do hereby certify that pursuant to Agreement in the civil cause now pending and undetermined in the Superior Court for the County of Los Angeles, State of California, to be used in the trial of said cause in said court, I was attended at the offices of Bryan Cave, One Metropolitan Square, in the City of St. Louis, State of Missouri, by the aforesaid witness; and by the aforesaid attorneys; on October 14, 1992.

The said witness, being of sound mind and being by me first carefully examined and duly cautioned and sworn to testify the truth, the whole truth, and nothing but the truth in the case aforesaid, thereupon testified as is shown in the foregoing transcript, said testimony being by me

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reported in shorthand and caused to be transcribed into typewriting, and that the foregoing pages correctly set forth the testimony of the aforementioned witness, together with the questions propounded by counsel and remarks and objections of counsel thereto, and is in all respects a full, true, correct and complete transcript of the questions propounded to and the answers given by said witness; that signature of the deponent was not waived by agreement of counsel.

I further certify that I am not of counsel or attorney for either of the parties to said suit, not related to nor interested in any of the parties or their attorneys.

Witness my hand and notarial seal at St. Louis, Missouri, this 3 day of November, 1992.

My Commission expires November 5, 1993.

Marsha Buenbaum

Notary Public-State of Missouri

HARTOLDMON0024634

DEPOSITION CORRECTION SHEET

In Re:

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

Page	Line	Should read:
8	24	Constantin

Reason assigned for change: spelling

Page	Line	Should read:
52	1, ter not turf; line 10	biphenyl not turf phenol
52	19	terphenyl not turf phenol

Reason assigned for change: corrections

Page	Line	Should read:
52	8	SANTOWAX

Reason assigned for change: Spelling

Page	Line	Should read:
60	24	terphenyl not turf phenol S.F.

Reason assigned for change:

65	14	Girard not Gerald
68	6	terphenyl not turf phenol

S.F.

Reason assigned for change:

68	21	polychlorinated not hydrochlorinated
69	5	aliphatic not aliphatic

Correction

Reason assigned for change: S.F.

Page	Line	Should read:
69	7	Chlorinated hydrocarbons not hydro---
69	2	Trichlorobenzene not Trichlorethyl

Reason assigned for change: Correction

Page	Line	Should read:
70	15	Noflamol

Reason assigned for change: S.F.

Page	Line	Should read:
73	1	Vault not Wall

Reason assigned for change: correction

Paul H. Benjamin

Deponent

HARTOLDMON0024635

DEPOSITION CORRECTION SHEET

In Re:

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

Page 83 Line 21 Should read: DDT not PCBs
Reason assigned for change: correction

Page 92 Line 22 Should read: Coquillon and Pierre Jay
Reason assigned for change: Sp.

Page 92 Line 25 Should read: Bayer; Leverkussen
Reason assigned for change: Sp.

Page 93 Line 8 Should read: Lilfelholmens
Reason assigned for change: Sp.

Page 93 Line 13 Should read: Prodelec
Reason assigned for change: Sp.

Page 93 Line 14 Should read: Bayer
Reason assigned for change: Sp.

Page 117 Line 1 Should read: dichloro; monochloro
Reason assigned for change: Sp.

Page 117 Line 3 Should read: heptachloro
Reason assigned for change: Sp.

Page Line Should read:

Reason assigned for change:

Paul G. Benignus
Deponent

DEPOSITION CORRECTION SHEET

In Re:

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

Page	Line	Should read:
21	1	1957 not A 1951

Reason assigned for change:

Page	Line	Should read:
91	4	delete the word of pride

Reason assigned for change: the typist got this a bit out of order; she really did quite well.

Page	Line	Should read:
124	14	Danner a Keith Kelly

Reason assigned for change: libelous connection

Page	Line	Should read:

Reason assigned for change:

Page	Line	Should read:

Reason assigned for change:

Page	Line	Should read:

Reason assigned for change:

Page	Line	Should read:

Reason assigned for change:

Page	Line	Should read:

Reason assigned for change:

Page	Line	Should read:

Reason assigned for change:

Paul H. Benignus

Deponent

COMES NOW THE WITNESS, PAUL BENIGNUS, and having read the foregoing transcript of the deposition taken on the 14th day of October, 1992, acknowledges by signature hereto that it is a true and accurate transcript of the testimony given on the date hereinabove mentioned.

Paul H. Benignus

PAUL BENIGNUS

Subscribed and sworn to me before this 23rd day of November, 1992.

My Commission expires: 4.2.95

Debra A. Jetter

Notary Public

"OFFICIAL SEAL"
DEBRA A. JETTER
Notary Public, State of Illinois
My Commission Expires April 2, 1995

mb

Transwestern vs. Monsanto

ORIGINAL

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