IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW HAMPSHIRE

Bethlehem Mink Farm, et al	:	
v.	:	Civil Nos. 3456, 72-148
Jurgielewicz Duck Trucking, et al	:	72-273

TESTIMONY OF WILLIAM B. PAPAGEORGE

VOLUME I

(October 22, 1974)

COPY

GERARD J. NOLIN, *Official Court Reporter*
U.S. DISTRICT COURT
CONCORD, NEW HAMPSHIRE 03301

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FOR THE DISTRICT OF NEW HAMPSHIRE

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BETHLEHEM MINK FARM, et al.

v.

JURGIELEWICZ DUCK TRUCKING, et al.

Civil No. 3456,
Civil No. 72-148, and
Civil No. 72-273

- - -

Concord, New Hampshire

October 22, 1974

Tuesday

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TESTIMONY OF WILLIAM B. PAPAGEORGE

- - -

BEFORE: The Honorable Hugh H. Bownes, U.S. District Judge, and a jury

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APPEARANCES:

STANLEY M. BROWN, ESQ.,
JAMES R. MUIRHEAD, ESQ., and
DAVID B. SULLIVAN, ESQ.
Counsel for Plaintiffs Bethlehem Mink Farm

RONALD SNOW, ESQ., and
NEIL F. CASTALDO, ESQ.,
Counsel for Plaintiffs Poole/Petterssen

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APPEARANCES (Continued):

LAWRENCE E. SPELLMAN, ESQ., and
EDWARD M. KAPLAN, ESQ.,
Counsel for Defendant Jurgielewicz Duck Trucking

PHILIP G. PETERS, ESQ., and
ROBERT L. CHIESA, ESQ.,
Counsel for Defendant Monsanto Company

N. MICHAEL PLAUT, ESQ., and
STILLMAN D. ROGERS, ESQ.,
Counsel for Defendant Agway

THOMAS H. RICHARDS, ESQ.,
Counsel for Defendant Rozansky

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... WILLIAM B. PAPAGEORGE, having been duly sworn as a witness, was examined and testified as follows ...

DIRECT EXAMINATION

BY MR. BROWN:

Q. What is your name?

A. William B. Papageorge.

Q. Where do you live, sir?

A. St. Louis, Missouri.

Q. And by whom are you employed?

A. Monsanto Company.

Q. If I told the jury in my opening yesterday at the beginning of 1970 they picked a man by the name of Papageorge and put him in charge of the developing problems concerning PCB, is that correct?

A. That is correct.

Q. And before you took on that assignment, Mr. Papageorge, what generally had you been doing for the company?

A. Well, immediately before I took on that assignment, I was the plant manager at one of Monsanto's plants.

Q. That was at Anniston?

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A. Anniston, Alabama.

Prior to that, I had a variety of assignments within the company. Primarily in manufacturing, some of it in maintenance. And the early years I was primarily involved in engineering-type work.

MR. PLAUT: I don't know if it's Mr. Papageorge's fault or my hearing, but I have difficulty hearing back here.

THE COURT: We will put a microphone around your neck.

I forgot to tell the jury there is a pitcher of tapwater there any time the jurors want a drink. Let the foreman say that is for one of his jurors.

THE WITNESS: Can you hear me now?

MR. PLAUT: Yes, sir. Thank you.

BY MR. BROWN:

Q. While you were at the Alabama plant, that plant was producing, amongst other things, PCB?

A. That is correct.

Q. And was that one of the major products of the plant?

A. Yes.

Q. And you were down there working managing that

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plant for how many years?

A. From mid-1965 until the end of 1969.

Q. Now, Mr. Papageorge, your deposition was taken by a group of these lawyers here going four days in preparation for this case, correct?

A. Correct.

Q. And you have been deposed in more cases than this one?

A. One additional case.

Q. One additional case?

A. Yes, sir.

Q. Have you testified before in court?

A. This is my first experience.

THE COURT: I want to explain to the jury that a deposition is testimony of a witness taken outside of the courtroom at which the interested attorneys are present. It's taken down in shorthand and transcribed later and typed up, and it's a series of questions under oath asked by the various attorneys pertaining to the case.

All right, Mr. Brown.

BY MR. BROWN:

Q. Now, you told us at the time of your deposition that while you were at the Anniston plant, part of

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your job was being sure that leaks and spills of PCB at the plant were properly taken care of, correct?

A. That is correct.

Q. And you experienced leaks of PCB at Anniston not only in the manufacture of the product, but in other implements in the plant where PCBs were used, correct?

A. Yes, sir.

Q. That is one of the problems with PCBs, when they do leak you do have a problem of what happens to the stuff that leaks?

A. This is no different than other individual chemicals, yes, sir.

Q. But other individual chemicals pose a problem when they leak and spill?

A. Yes, sir.

Q. I can spill this water on the floor here, and it will evaporate right off and probably won't cause any problem, except making the Judge mad, right? But you can't do that with PCBs?

A. That's correct.

Q. Mr. Papageorge, I said in opening that Monsanto was a large, well-established, competent chemical manufacturing concern. Is that substantially correct?

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A. That is correct.

Q. And does the company annually put out an annual report indicating the scope of its business, who runs it, where it's located, that type of thing?

A. Yes, sir.

Q. And are those three documents that I place in front of you the annual report of Monsanto for the years '69, '70 and '71? Can you identify them as being Xeroxed copies of the report?

A. They appear to be Xeroxed copies of the report issued by Monsanto annually.

Q. And in those reports, sir, is there a section, a paragraph to the report, indicating what the company's concern was during those particular years with the PCB problem?

A. I would have to look them over, sir. It's been a while since I have seen these.

THE COURT: Can you show him where the section is, Mr. Brown?

MR. BROWN: I don't know as I can find it in the copies or not.

THE COURT: What exhibit are we talking about now, proposed exhibits?

MR. BROWN: These, your Honor, are [illegible]

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B, and C on the original listing.

BY MR. BROWN:

Q. Mr. Papageorge, there are references in all three of them to the PCB problem in those years?

A. I see references in all three documents, references to PCBs, yes.

Q. And so as far as you are aware, sir, the reporting to the stockholders in those reports was substantially accurate?

A. Yes, sir, the 1969-1970 refers specifically to PCBs or by trademark. The 1971 refers to not directly to PCBs or the trademarks related to them, but to--they use the expression "traditional products."

Q. What?

A. Traditional. End uses of traditional products. This is not related definitely and only to PCBs.

Q. The reference includes PCBs, but not specifically?

A. It could include, it could be interpreted as such, yes, sir.

Q. And the jury could get as quick a concept of what Monsanto is from these reports as any examination I might try to engage in with you. Do you agree that is so, the overall company operation?

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A. Well, this is a very brief summary of the very complex organization. They could get an impression. I don't know how much in depth they would get from this.

MR. BROWN: Well, I offer the three annual reports, your Honor, for the dual purpose of indicating the scope and nature of the operation on the one hand, and the specific references to the PCB problems and the problems of that group of chemicals contained in them and the specific references are highlined in the reports.

THE COURT: Mr. Peters?

MR. PETERS: Your Honor, I object to the annual reports as such going in. I have no objection to that section that concerns PCBs.

THE COURT: I am going to allow that section in relative to PCBs and the balance of it can be marked for identification. So that will be Exhibit 1-24, Section of three annual reports relative to PCBs, and at the recess somebody can take them out.

BY MR. BROWN:

Q. Mr. Papageorge--

THE COURT: Now, do you want the other marked for identification, Mr. Brown, and do you

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to make an objection to my ruling?

MR. BROWN: I do want an objection. I thought I had one automatically, having offered them. And before the case goes to the jury, we will extract the three sections that will go to the jury.

THE COURT: All right.

BY MR. BROWN:

Q. I indicated yesterday, Mr. Papageorge, that Monsanto had been manufacturing PCBs for some 4[illegible] years or so. Is that generally correct?

A. Yes. Monsanto or its predecessor company have been manufacturing PCBs since late 1929.

Q. Swan was acquired by Monsanto in '31 and from '31 on it's been Monsanto; correct?

A. I am not sure of the year 1931, sir. Sometime in the early thirties.

Q. All right. Is it also a fact that starting in at least as early as 1966, it came to Monsanto's attention that PCBs were showing up in the environment and in the food chain?

A. Monsanto's representatives were not aware of the presence of PCBs in the environment or in the food chain until sometime in 1967, when English translations of a speech given in Stockholm were made available

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us, and even those translations, as I recall, had mis-identified the material as polychlorinated phenol, which is a--

Q What you are referring to, Mr. Papageorge, is the Jensen report that both fish and fowl around the Baltic Sea were, on his investigation, found to be contaminated with PCBs as it turned out eventually?

A That is the word, yes.

Q And you say there was a year's delay in that information getting to Monsanto and then a translation difficulty that further hindered Monsanto to understand it?

A That's correct.

Q Monsanto, in addition to having a plant supplying the U.S. demand, also has a plant in Wales?

A That is correct.

Q Producing PCBs?

A That is correct.

Q Still operating?

A Yes, sir.

Q And was operating then?

A That is right.

Q So you weren't that far away, Monsanto wasn't

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that far away from Stockholm, so that if Monsanto wanted to find out what Jensen was talking about, it wouldn't take them very long to fly over from Wales to Stockholm to ask him, would it?

A. Well, that is true, sir, but that is not the difficulty.

Q. All right. You also have people in your organization who can speak Swedish, don't you?

A. Yes, sir.

Q. So the translation problem shouldn't have been all that difficult?

A. The people who speak Swedish, sir, are mar[illegible] people who do not attend technical meetings. And a technical meeting could take place without our knowledge.

Q. When I was in Stockholm in 1968 they had telephones there that reached the U.S. Are they still operating?

A. Yes, sir.

Q. No reason why Monsanto couldn't have put in a telephone call, correct, if they were concerned?

A. We did place the telephone call, yes, sir.

Q. Was somebody talking in Swedish so they could talk to Jensen?

A. Well, sir, there is no reason for placing [illegible]

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telephone call when your chemicals aren't involved. This would be an irrational action.

Q. All right. After Jensen, after his works were understood, isn't it the fact that many others began reporting similar indications of PCBs in the environment and in the food chain between '66 and the beginning of the year 1970?

A. That is correct. Many investigations reported the presence of these materials.

Q. And was this developing batch of knowledge, sir, in large part what led to your being asked to head up a group in Monsanto to attempt to cope with what was coming?

A. Yes, sir.

Q. All right. Now, I also told the jury in opening that amongst those reports there were reports of fish-fowl-milk contamination, animals of various types, and human contamination reported. A new event that took place in 1968 in a coho salmon situation out in the Midwest.

Did all of those reports at sometime come to Monsanto's attention?

A. At sometime, yes.

Q. With a lengthy delay such as you have indicate

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was the situation with Jensen?

A. Not lengthy delays, no.

Q. Was I also approximately correct when I said Monsanto's U.S. production was 65 million pounds in '66, 75 million pounds in '67, 83 million pounds in '68, 76 million pounds in '69, and 85 million pounds in '70?

A. They're approximately correct.

Q. All right. Now, when you took over the job that was assigned to you, sir, I think you told us in the deposition that you had not, prior to taking the job on, specifically investigated PCBs in the literature; you weren't a researcher of the literature when you took the job on?

A. That is correct.

Q. So that one of your first problems was to catch up with the literature, so to speak?

A. Catch up with that part of the literature which was then being generated, yes, sir.

Q. At the time you took the job on, Monsanto was already halfway along or better in a study of its own with regard to animal toxicity?

A. That is correct.

Q. That had been implemented and was under way

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before you were picked out of the hat for the top job in trying to put this stuff together?

A. That is correct.

Q. Now, is it also the fact, Mr. Papageorge, that the corporate decision to withdraw this product from a lot of its uses had already been made when you took the job on?

A. That is not true, sir.

Q. Those decisions to withdraw came after you were in the saddle, so to speak?

A. That is correct.

Q. So that you were a participant personally to the corporate decision with regard to withdrawals?

A. That is correct.

Q. I told the jury that this substance had been promoted by Monsanto over the many years it was manufactured into usages in transformers and capacitors, electrical utilization, in the form of dielectric fluids. Now, is that correct?

A. That is correct.

Q. And that particular usage encompasses all of the many important uses that Mr. Peters told the jury of in the first 15 minutes of his opening yesterday; correct?

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A. Yes, sir.

Q. And the substance is still being supplied by Monsanto for those uses right up to today?

A. That is correct.

Q. But the only basis on which you will do it is to have prior information given to Monsanto that the companies that you are supplying are financially capable and you also require a full indemnification of Monsanto, so if anything goes on, Monsanto is protected, then; correct?

A. That is correct.

Q. That is the only basis upon which you are still supplying this for the transformer/capacitor group?

A. That is right.

Q. All right. Now, before I get into the next part of it, Mr. Peters was telling the story the way it is when he said that the basis for having those PCBs in the dielectric fluids is a tradeoff between the dangers of fires and explosion in those areas on the one hand, and such hazard as the PCBs may represent on the other hand; that is the basic premise upon which they are still considered to be extremely useful in spite of whatever use there may be, correct?

A. Yes. And of course the hazards they might

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induce are tempered, if you will, by the type of application which involves hermetically sealed metal containers.

THE COURT: Excuse me. Would you like a glass of water, Mr. Tuttle?

JUROR TUTTLE: No.

BY MR. BROWN:

Q. What you just said, sir, what you want the jury to understand is that as used as a dielectric, it would be virtually impossible for there to be an accidental spill or leak, right?

A. I don't know what you mean by "virtually." The occasions where accidents involving these devices do happen, they're so rare.

Q. Well, somebody might shoot through a transformer and into the container where the PCB is; it's in liquid form.

A. That is correct.

Q. And aside from that type of thing, or somebody hitting the telephone pole, electric pole, knocking it down and somehow cracking the transformer, aside from that type of thing, it's in a completely closed system and the liquid itself does not move?

A. That is correct.

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Q So it's not subject to leakage in piping?
A That is correct.
Q It's not being pumped so there is no pump pressure backing up on stuffing boxes causing leaks there?
A That is correct.
Q It just sits there and performs its very useful function, hopefully in entire safety, so far as everybody else is concerned?
A That is correct.
Q Your problem comes up in this area, only when the transformer or the capacitor or the rest of the apparatus that it's servicing becomes obsolete and then you have a problem, don't you?
A We have a disposal problem.
Q And the problem there is how do you get rid of it safely?
A There are ways to do this without damaging the environment.
Q We will come back to that.
Now, aside from that usage, aside from that usage, going to the other uses, as industrial fluids in hydraulic systems, gas turbines, vacuum pumps, there is no countervailing high demand for safety

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the equipment that today is considered to justify its use in those applications, is there?

A. Well, there is this demand for safety, sir, but there are alternative materials that have been found to work practically as well.

Q. Without posing the hazards that PCBs do?

A. That is correct.

Q. And for that reason, sir, all of the use in the hydraulic fluids, except some limited military uses, have been withdrawn?

A. I am not aware of a limited military use of hydraulic fluid, sir.

Q. So it may be completely gone?

A. To my knowledge, it's completely removed, yes, sir.

Q. Just for a moment on that, I have got a Massey-Ferguson tractor with a hydraulic system to lift things up and back and push things down and back. Hydraulic fluid for farm tractor, is that the type of application PCBs were put into when they were there?

A. No, sir.

Q. It would be heavier equipment?

A. It would be the heavier individual type equipment, primarily related to those situations where fire

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is an imminent hazard. For its handling of hot molten metal or in air compressors that generate a lot of heat in high pressures where ignition could take place if the fuel is a mineral oil that will burn.

Q. Were there any limitations attempted by Monsanto with regard to utilization of PCBs in hydraulics designed to keep them out of food processing plants, animal food or human?

A. Not to my knowledge, sir.

Q. So that if somebody with a front-end loader handling ingredients for animal feed is working inside, handling the foodstuffs, they might very well have hydraulic fluid with PCBs, do you think?

A. Very unlikely, because hydraulic fluids of this type are much more costly and there is no real need to fill a front-end loader with this type of fluid, so it's very unlikely.

Q. Well, if there were reports that Agway, for example, in one of its plants ran into PCBs in hydraulic fluid, that would be the result of somebody putting the wrong fluid in as a practical matter, more expensive than he ought to have had?

A. I don't know as I would use the wrong fluid. It's a decision somebody might have made that he felt

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was justified for the situation.

Q. But there were no instructions limiting efforts by Monsanto with regard to where the hydraulic application might end up being?

A. No, sir.

Q. The same with gas turbines, whether they're in food processing or not was not a matter of concern in those days through 1970 so far as Monsanto is concerned?

A. That's correct.

Q. And similarly, so far as vacuum pumps are concerned?

A. That's correct.

Q. Now, the next grouping that I indicated with a broad utilization was plasticizers. Was there such a usage to Monsanto's knowledge through to 1970?

A. Yes, and the word plasticizers--

Q. Inadequate, perhaps?

A. In a way. It's more apt to be called miscellaneous uses. The reasons we call them plasticizers is because by practice these were marketed by a group we refer to as the Plasticizers Marketing Group.

Q. Within Monsanto?

A. Within Monsanto, yes, sir.

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Q But they were used in adhesives, for example?
A That's correct.
Q And what generally did PCBs do for adhesives depending on which way you want to act?
A Well, I understand they were used in both the so-called hot melt adhesives. These are adhesives that require heat to make them flow. And also they were used in a normal liquid type adhesives that harden when exposed to the air, and it's my understanding that the PCBs gave these adhesives different properties, depending on the different formulations.

In some instances the intent was to have an adhesive that remained tacky, never did dry out. In other instances they needed an adhesive that was waterproofed.

Q That would say waterproofed?
A That's right. PCBs would give them this property. In other instances the PCBs would give the proper flow characteristics such as adhesive could be put in machinery and would flow at the right speeds and right amounts and just perform properly for each individual use.

So there are many, many characteristics that all of the adhesive people were looking at, each of

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probably looking at it in his own way.

Q. But what was it in general, the textile application in this area; are you familiar with that?

A. I have heard references to the textile application. I just personally don't see what it could have offered.

Q. You don't know whether it had something to do with imparting fold or drape to particular fabrics?

A. I am not aware of that use. If it's a use, it's very, very minor.

Q. There were some uses in textile. You are not familiar with what they are?

A. I have heard of some uses. An attempt was made to use PCBs at one time for fireproofing canvas material, tenting material, this type of application.

It never found broad use. Also, an attempt was made in World War II to use this material as a mildew-proofing material, so canvas did not mildew in tropical areas.

Q. Now, was there also a use in thin coatings, paints?

A. There was a use in specialty paints. Again, being a specialty material, it was not found in the normal household paints that you would find, say, in

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your bedroom wall. It found application in those areas where the desire was to have a paint that would be long-lasting and very resisting to acids and alkalis and traffic.

Q And it would tend to end up on the top of every bar that had a wood surface where they wanted to have it impervious to alcohol and still be able to clean well, correct?

A Gee, I don't know about that. I do know that they were used as ingredients in high-resistant varnishes. Whether all bars have this type of varnish, I can't speak for that.

Q You haven't seen them all. But it would be an application you would anticipate a hard finish mutually resistant to everything, that sensibly--

A Relatively resistant to other ingredients, yes.

Q Now, was it also in this area used in sealants?

A Yes, sir. If by sealants we are now talking about such materials as caulking materials. It was a very popular and very desirable ingredient in the high-rise steel and glass buildings that we now see in modern architecture. This gave them, the builders, a sealant which would stay pliable and last the life of the building and would not become brittle and

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to be replaced.

Q. Generally, that use was as you say in large glass installations rather than being in the putty that people put around the glass at home?

A. It would be a very rare case they would use it in homes, primarily, again, because of cost consideration.

Q. It also had a rather broad use in paper and in ink. Now, what were those?

A. The broad use is not to mean that it covered many kinds of applications in paper. It had a large use as a solvent that contained the ink that is coated on a paper referred to as the carbonless copy paper. You may have seen these papers with pressure on one side of the paper creates a copy on the second sheet. This is one of these minute capsules that are present bursts and ink is released, making the copy of the writing on the top sheet. This was a large use of the PCBs.

Q. It turned out in that use that the girls handling the paper got PCBs, got some skin irritation, that type of thing?

A. I haven't heard of skin irritations. The developers of this process I am told conducted very

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extensive tests to see how the people who handled this paper and the machines that handled it would be affected.

Q. Was it also used in other inks that people might use to print, for example, tags on grain bags, that type of thing?

A. It was used in many inks put out by many, many ink manufacturers in this country.

Q. Now, those usages are all in the miscellaneous field generally handled internationally by Monsanto by your Plasticizers Group?

A. Yes, sir, in general, yes.

Q. And am I correct, sir, that PCBs have been withdrawn by Monsanto entirely for such applications?

A. That is correct.

Q. And that was accomplished after you took office during '70-71?

A. This was accomplished and became final in August 1970, yes, sir.

Q. There also was a usage, was there not, as a pesticide?

A. That is the application that got most of the notoriety. It appears it was the smallest use of any of the applications.

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The Department of Agriculture at one time conducted some studies with many materials. One of them was PCBs, and the attempt here is to extend the life of a pesticide such as when it's applied, it remains effective longer rather than evaporating from the surface. The Department of Agriculture attempted to promote this. It apparently never did achieve much favoritism among the pesticide formulators.

I attempted to study this and found for the year 1970, the most that we could account for as being sold to this application was 15,000 pounds, compared to the 85 million that we made--this is not a major use.

Q. But it's been withdrawn from that use?

A. That is correct.

Q. Now, one of the problems using it as an extender for pesticides is that you are now putting it out in the open?

A. No, sir. Let's not confuse this with the type of pesticide sprayed from aircraft or from farm machinery, you know. This application had to do with the painting or spraying of hard surfaces, shelving, such as things for silverfish, crawling insects, primarily indoor.

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Q Vermin?

A Vermin. There was a test made at one time with the elm disease beetle. I am not familiar with the exact name of that insect. But then, again, that was just a trial. Apparently it wasn't successful because it was not used beyond that test period.

Q Well, from what you say, sir, when your Dr. R. Emmett Kelly, Medical Director for Monsanto--

A Yes, sir?

Q --wrote to Dr. Harry Hayes, the Director of Pesticide Regulating Division in the U.S. Department of Agriculture, on April 13, 1970, suggesting that they eliminate PCBs as pesticide extenders, all you were giving up was approximately 15,000 pounds if it worked?

A That is what it actually ended up. When the letter was sent to the Department of Agriculture, all we had was continual indications and rumors and insinuations that this was a wide use and could explain why PCBs were found in so many unusual places.

The reason for this lack of knowledge as to exactly how much PCBs were used in this application is because at that time we were using distributors to sell the product, and these pesticide formulators

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could have purchased the PCBs from distributors and Monsanto would never know what the end use was.

Not knowing the exact magnitude of this, we chose to be extra conservative, extra safe and had this letter sent to the Department of Agriculture. It's after that letter was sent and at the end of the year when I was able to go back to the distributors and see if they could give me any numbers, and that is where my 15,000-pound number came from.

Q. In Dr. Kelly's letter to Dr. Hayes suggesting that that be taken out--incidentally, Dr. Kelly was the head of the Medical Division for Monsanto?

A. He is the top medical man in Monsanto.

Q. Knowledgeable man in regard to Monsanto affairs?

A. That is correct, sir.

Q. He told Dr. Hayes, did he not, as of April '70 that Monsanto was the sole producer of PCBs in the U.S.?

A. That was the state of our knowledge at that point in time. Following this, we had additional information.

Q. Well, you were asked, Mr. Papageorge, on your deposition, whether or not Monsanto was the sole and only supplier of PCB in the U.S., supplying the U.S.,

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and you sent back to us in answer to that a list of a number of foreign concerns and two other concerns in the U.S. Do you remember that?

A. Yes, sir.

Q. Now, one of those concerns was Anna Labs down here in North Haven, Connecticut, correct?

A. Correct.

Q. Now, you know as a matter of fact that Anna Labs doesn't sell at all commercially for any industrial use, and all they do is to produce materials to use in testing; you know that?

A. That's right, yes.

Q. So that no PCBs from Anna Labs would explain what we are talking about in this case, would it?

A. That is correct.

Q. They haven't produced enough to make two gallons total, have they?

A. I don't know that. I don't know it.

Q. And the other concern that you mentioned was Geneva Industries of Houston, Texas?

A. That is correct.

Q. And they didn't produce anything until 1971; isn't that correct?

A. Well, I don't know that, sir. All I heard is

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that they had produced on occasion polychlorinated biphenyls. How much and when, I never was able to establish.

Q And you got that information when in point of time, '74?

A No, sir. I am trying to recall. It was either '72 or '73 when that information was passed on to me.

THE COURT: Mr. Papageorge, excuse me. May I make a suggestion? You have got your head turned and the microphone is down and sometimes your voice tails off a little. It's difficult, I know, and I think you are going to be on the witness stand for a length of time--and I am not criticizing you at all, but try and talk over the microphone, if you can.

I don't think you have to hold it up.

THE WITNESS: All right.

BY MR. BROWN:

Q You got that information actually after Pilot Chemical picked up the acids of Geneva after Geneva went bust down in Texas, didn't you?

A I am not aware of that information, sir.

Q Well, you got it on rumor from somebody?

A My information came from our salesmen out in the field who were trying to sell alternative materials

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to customers.

Q. For what?

A. For heat transfer systems.

Q. Alternate materials for heat transfer. That means it has to be after 1970, doesn't it, because you were supplying your market until you withdrew heat transfer fluid at the end of 1970?

A. Yes, sir, but my information says, he told me that this company made this material prior to the time we withdrew from the market, and was very active at that time when I heard the information filling a void that we had made when we withdrew.

Q. Filling a void that you had made when you withdrew?

A. That is correct.

Q. And you withdrew from heat transfer when, actually? Not when you planned to, but actually when did you cut them off?

A. We cut off every heat transfer application December 1971.

Q. December of '71?

A. That is right, sir.

Q. So that anything that Geneva put into the stream has to be after that?

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A. I don't know that, sir.

Q. Well, if they're filling the void that you made, sir, you didn't make your void until then?

A. I think there is some confusion here.

Q. Let me back up. Let me ask it another way. Until August 1, 1970, until then?

A. Yes.

Q. You were still filling every order that came in for your heat transfer fluids and glad to get the orders, right?

A. That is right.

Q. So there would have been no void, there would have been no market being opened up prior, because of your withdrawal, prior to that time?

A. Yes, but you are trying to imply that others who had heat transfer systems could not have found PCBs elsewhere. I don't know that.

Q. Well, I am--your people, Mr. Papageorge, is I think--and we have got a lot of exhibits and they're going to repeatedly say Monsanto was the sole supplier of PCBs in the U.S.

Now, so far as I have been able to find, the first time that Monsanto had backed off of that answer now trying to say maybe somebody else did is when we

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started this litigation, because I haven't found it anywhere else, you see.

Anna Labs you listed as one supplier. Now, actually that concern never supplied the commercial market at all, right?

A. Sir, the question as best I remember at the time, I was asked--

THE COURT: Now wait a minute. I know it's a little difficult, Mr. Papageorge, and you have been deposed extensively in this case. The only thing you can do here is answer the question that is being asked of you now. And after you answer that question, if you want to explain your answer, you can.

Do you understand?

THE WITNESS: I understand.

THE COURT: All right. Now, do you want to have the question repeated?

THE WITNESS: I would appreciate it.

(Whereupon the last question was read back by the Reporter.)

THE COURT: That was a long question. What do you wantto ask him about Anna Labs?

MR. BROWN: Strike the question out.

WATER_PCB-SD0000058176

BY MR. BROWN:

Q Anna Labs as a matter of fact sells some of its laboratory pure PCBs to Monsanto; that is how you knew about it, isn't that right?

A No, sir.

Q Well, from what you know about Anna Labs, would you agree that probably their total production and sale would probably not be in total more than one pound from what you know about them?

A What I know of Anna Labs, the quantity would be small, but I have no way of knowing whether it would be a pound or ten pounds or whatever. I have no feel whatever. I do not know.

Q So far as Geneva Industries is concerned, all you know about that is you had a rumor one of the men in the field trying to sell and trying to sell down in Alabama, was it?

A No, sir.

Q Down South?

A This was in the offshore facilities producing gas in the Gulf of Mexico is where this first came to our attention.

Q You had a rumor that Geneva was filling the void that you had created and attempting to or supplying

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some heat transfer PCB down in that area for that use?
A. That is correct.
Q. And you never were able to run it down whether it was so or not?
A. That is correct.
Q. Now, you also are aware Geneva went out of business, picked up by another St. Louis concern, Pilot Chemical?
A. I know nothing about that.
Q. Well, anyway, Mr. Papageorge, aside from those two possibilities, from what you gave us back, so far as any manufacturer in the U.S. is concerned, all the rest of the 99.44 percent, like Ivory Soap, was Monsanto?
A. I don't know about that percentage figure. But we were the primary producer.
Q. 99.99 percent?
A. I don't know that, sir.
Q. Don't you know in point of fact that there was no other U.S. producer worthy of spending the time we spent on it, really?
A. No, sir, I don't. I understand--
THE COURT: Let's go on to the next subject, Mr. Brown.

WATER_PCB-SD0000058178

BY MR. BROWN:

Q. If I had some heat transfer PCBs, incidentally, whether you call it Therminol or Aroclor it's actually the same substance, 100 percent PCB, right?

A. That is correct.

Q. And at what weight, what is your number that applies to it?

A. Well, there are several percent chlorine compositions that would fit either of these categories. Aroclor trademark ot Therminol trademark?

Q. Well, let me ask you, I am talking now up to the point where you got your alternates coming on the market, talking through 1970, Therminol, FR-2 and 3, what were they?

A. All right. Let me think a bit. FR-2 was equivalent to a material we call Aroclor 1248. 48 percent chlorine.

Q. And FR-3?

A. FR-3 was equivalent to Aroclor 1254, which is 54 percent chlorine.

Q. So that heat transfer fluids were the equivalent of Aroclor 1248, but you called them Therminol FR-2?

A. Well, yes, the 1248 was FR-2.

Q. And FR-3 would be the equivalent of your

WATER_PCB-SD0000058179

Aroclor 1254?

A. Correct.

Q. So that the jury understands what we are talking about, I don't think that anyone has explained this one to them, this substance is actually you start out with an aromatic hydrocarbon, which you then end up chlorinating?

A. Yes, sir.

Q. And somebody at Monsanto thought a good short name identifying it as a trademark name or trade name would be Aroclor?

A. That is correct.

Q. Indicating a chlorinated aromatic carbon series?

A. Correct.

Q. And your name Aroclor is then followed by the number 12, indicating that it's a chlorinated biphenyl?

A. That's correct.

Q. That is what the 12 means?

A. That's correct.

Q. And the last two letters, whether it's 42, 48, 54, whatever it may be in that series, that represents by weight the percentage of chlorine in the end product?

A. That is correct.

Q. Now, one other thing, sir. That doesn't mean

WATER_PCB-SD0000058180

that every molecule in the mixture has 42 percent or 48 percent chlorine added?

A. That is correct.

Q. You may have everything in there just like dropping a piece of gum in the sand and when you pick it up, there are a number of pieces of sand on it, each time you do it it may be different. All we are talking about is the average by weight?

A. That is correct.

Q. Now, as a result of that, incidentally, are there 210 possible combinations you can make in this process?

A. That is correct.

Q. That is in theory 210?

A. That is right.

Q. And in the commercial manufacture actually you have been up to how high, to 80?

A. Each of these commercial mixtures which go by these trademarks we talked about contain anywhere from 50 to 80 of these 210 different chemicals.

Q. And each one of these different chemicals may act or react in an individual manner, different than the others?.

A. That is possible, yes, sir.

WATER_PCB-SD0000058181

Q And although Monsanto has been manufacturing them for 40 years, nobody today really knows what each of the individual isomers, if you could separate them out and make all that isomers, how would that react in these useful applications?

A We know a few things about them, but not very much.

Q Not very much?

A Not very much, correct.

Q Now, on the heat transfer--

MR. BROWN: Did I mark the Kelly letter? I did not. I would like to offer the Kelly letter.

THE COURT: What number is that?

MR. MUIRHEAD: 5-C, your Honor.

THE COURT: I don't see any objections to that, gentlemen. Is there any objection?

MR. PETERS: No.

THE COURT: 2-5CB. Now, the first was marked 124-B, B being the initial of the party that offers it. That is the Kelly letter.

BY MR. BROWN:

Q Well--

THE COURT: Just a minute, Mr. Brown. You lawyers are very thirsty, so I am going to appoint

WATER_PCB-SD0000058182

the junior lawyer at each table that has a water pitcher to see that the water pitcher is filled, and there is a fountain right outside.

BY MR. BROWN:

Q. Mr. Papageorge, I listed not all, but a group of research papers, the earliest being 1937, going through 1970, 1937 being a Monsanto study, similarly in 1938. One in 1953, '55, '58; one in '62, '63, and the last three, '69, '70, except for the one at the bottom on ducks.

You are familiar with those studies?

A. Yes, sir.

Q. They were published?

A. Yes.

Q. They did come to the attention of Monsanto?

A. Yes.

Q. Including the one about the susceptibility of ducks to virus infections if they get some PCB?

A. Yes.

Q. Now, my brother Peters yesterday said while those studies were all interesting, that they didn't demonstrate that there was anything wrong with PCBs, no difference between PCBs and common salt; do you recall the comment?

WATER_PCB-SD0000058183

A. Yes, sir.

Q. Actually those studies indicate there is a difference if the materials are ingested into animals, humans, guinea pigs, animals, rats, differences that common salt doesn't ordinarily cause, isn't that so?

A. Yes, sir.

Q. You wouldn't recommend using PCBs in crystalline form for salt on your steak, you know, as a practical matter?

A. As a practical matter, yes, sir.

Q. You wouldn't, would you?

A. Can I explain?

THE COURT: Yes, you can explain your answer.

THE WITNESS: The reference to salt is one that is commonly used and it has reference to those studies which are called acute toxicity studies. These are the studies made on various species of animals, birds and fish, to determine at what levels certain percentage, 50 percent of the animals tested would die at certain levels.

So in order to discuss the acute toxicity of the PCBs to people who are not familiar with toxicology, we found it rather convenient and easy to

WATER_PCB-SD0000058184

understand if we say that the acute toxicity of these materials is similar to that which has been noted for table salt, sodium chloride, and I think you will find in the literature, the references to them, and I don't recall offhand the exact numbers, but so many parts per million of these materials in the diet of these animals will kill off half of them in a given period of time.

This is what was meant by the reference to table salt. This does not mean you take PCBs and sprinkle them on the steak, no, sir.

BY MR. BROWN:

Q. The effect noted in those studies, sir, on the liver, skin, kidneys, reproductive apparatuses, and so forth, those were not effects that were beneficial to the animal; they were effects that were bad for the animal?

A. That is right.

Q. To be avoided?

A. And this is a normal kind of testing, sir, that is done.

Q. Yes, I understand.

A. By industry.

Q. I understand.

WATER_PCB-SD0000058185

A. Responsible industry to help them understand the material that they're making and marketing and labeling it. This is normal for industrial chemicals, not unique to PCBs. And this is why our label contains the information about breathing and handling, warnings of--I have forgotten all the details.

Q. Mr. Papageorge, since you just indicated that you're knowledgeable with regard to the half, the 50-percent kill rate--

A. Yes, sir?

Q. --you are also familiar, are you not, with the Wisconsin Animal Research Foundation reports as to the level of contamination by PCB of the duck byproduct that Bethlehem and Poole and Petterssen used for mink food and the extent of contamination of the mink carcasses as shown by the fat; you have reviewed them?

A. I have not reviewed Wisconsin.

Q. The Wharf Lab?

A. The Animal Research Foundation in Wisconsin, yes.

Q. All right.

A. Yes, they are a consulting laboratory.

Q. A good one?

WATER_PCB-SD0000058186

A. Yes.
Q. One that you people recommended if anybody wants to know where to go to get competent independent analyses such as you would have to have to isolate whether you have PCBs?
A. That is correct.
Q. All right. Now, my question, having in mind those reports, you have seen those reports on the mink and on the duck byproducts, haven't you?
A. Yes, sir.
Q. Would you be willing to admit that if those mink had 20 percent of that duck byproduct in their diet, in their ration every day for 100 days or so, the duck byproduct having tested out above 20 parts per million PCBs, that their being on that diet for that length of time probably would cause increased mortality and interfere with reproduction? Would you be willing to admit that?
A. I can only go by what the reports I have read on this say. Reports to Monsanto of studies in Michigan. From those reports I believe that mink are exquisitely sensitive to PCBs and I am told to other things as well. That is all I know about mink.
Q. The answer to my question is, you would admit

WATER_PCB-SD0000058187

that those mink probably would sustain increased mortality and reproductive difficulties on what you know?

A. From what I have read, yes, sir.

Q. Another thing, if that duck byproduct tests out at 20 or more, in that range, 20 and up, parts per million PCB, and that is the duck entrails, probably were the ducks whose entrails were being tested, were the ducks themselves similarly contaminated?

A. That would be speculation, sir, on my part or anyone's part.

Q. Well, I want to know, would it. You are familiar with what happened in Sullivan County, New York, the Campbell Soup incident?

A. I am familiar with some of the things that happened.

MR. PLAUT: Well, I think I am going to object to Sullivan County.

THE COURT: You object to any reference to Sullivan County?

MR. PLAUT: Yes, sir.

THE COURT: All right. I want to talk to counsel very briefly about that at the recess. Your objection is overruled and noted and I will give

WATER_PCB-SD0000058188

you a continuing objection.

MR. PETERS: My objection also.

THE COURT: There are going to be some restrictions relative to Sullivan County that I want counsel to be aware of.

MR. PETERS: My objection.

MR. RICHARDS: My objection.

BY MR. BROWN:

Q Mr. Papageorge, let me shorten it up. If one part of a living being, mink, for instance, if there are PCBs in the vital organs and entrails, which are vital organs, is it your position you can have them there and the rest of these tissues not have any; essentially is that what you are saying?

A No, no.

Q All right.

A No. It's noted that the concentration of PCBs on animals is not only a function of how much they were exposed to, but varies from animal to animal, species to species, and within each animal the concentration varies from organ to organ and tissue to tissue.

In your earlier question of would it be similar, I know nothing about, say, the fat content of duck

WATER_PCB-SD0000058189

visceral material, and I don't know anything about how it concentrates in the carcass of a duck, so I cannot say that it's similar.

Q Mr. Papageorge, did you ever eat a Long Island duck?

A I probably have.

Q Are you a duck hunter?

A No, sir.

Q Do you know anything about duck?

A Very little.

Q You don't know whether duck have fat all around the body?

A I understand that duck do have a heavy layer of fat underneath the skin.

Q And the PCBs tend to show up more heavily in the fat?

A That is correct.

Q Or in the kidneys or the liver which is attempting to clean up materials on their way out through the renal system?

A That is correct.

Q That is where they show up, the PCBs ordinarily?

A Normally.

Q It's going to show up in the fat. If it's going

WATER_PCB-SD0000058190

to show up on the fat, wouldn't you expect it to be on the portion of the duck that is not entrail?

THE COURT: That is not?

BY MR. BROWN:

Q Not entrail. In other words, the other which is edible portion of the duck.

A Probably to a lesser degree.

Q But probably to a degree that would be observable if the entrails are testing up to 20 to 30 percent?

A Percent?

Q Parts per million, I am sorry. I beg your pardon. Parts per million.

A Probably, yes.

Q Probably?

A Yes.

Q One other thing. Would you be willing to admit that if the mink carcasses in the fat show on tests from 5 to 30 parts per million PCB, that probably with that amount of PCBs in the animal that some damage to the kidneys, liver and urinary tract will probably also be present if they have got that amount of contamination?

MR. PETERS: My only objection, your

WATER_PCB-SD0000058191

Honor, I believe Mr. Brown will go along with me, I think the question should have the type of PCBs you say were found.

BY MR. BROWN:

Q. Does it make any difference whether they're 48 percent, 42 percent, 54 percent, as to whether they're going to do damage?

A. Yes, sir, it does.

Q. They're all going to do damage, aren't they?

A. Not necessarily, sir.

Q. You had some tests that show that one does and one doesn't?

A. Up here on your chart you show some rat studies.

Q. Which ones?

A. I believe it's the 1969 to 1970. I think you will find it four from the bottom. I think you will find in those reports that the higher-chlorinated material, that is the 54-percent and the 60-percent material, at the highest exposure levels, show an effect, whereas the 42-percent material did not show an effect at the same levels of feeding.

Q. All right, Mr. Papageorge, forget that one. And I want to ask you this: If on tests the mink carcasses in the fat test out at anything from 5 to 30

WATER_PCB-SD0000058192

parts per million, and some of these tests are a good bit higher than that, as you know, and in addition to that the livers and kidneys being observed by a qualified veterinarian were found to be damaged, and abdominal fluid present, and the feces in the female would be resorbed, those conditions were seen, would you be willing to admit that probably the contamination by the PCBs caused the damage that was observed?

A. No, sir.

Q. You would not admit that?

A. No, sir.

Q. Is there someone else that you know who would be more qualified than you to advise this Court and jury whether, with this amount of PCBs, with the amount of mortality that was sustained, the interference with reproduction that did occur, whether the PCBs were the cause, is there somebody else better qualified than you to say whether the PCBs caused these damages?

A. I personally, sir, only know of people familiar with mink and PCBs, and those articles that I have read.

Q. Dr. Aulerich and Ringer?

A. Dr. Ringer, yes, sir. And as I recall, there

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is another paper or two that addressed themselves to this very subject. I personally do not know of any other individuals who are familiar both with the animal we are talking about and the chemical we are talking about. And it takes the combined knowledge of the two.

Q Unless you have somebody who has that combined knowledge, they probably are not able to give reliable information as to the causal relationship?

A The cause of the uniqueness of the mink, yes, sir.

Q But Aulerich and Ringer have that capability, to your knowledge?

A I just read a paper by them, sir. I don't know about their expertise.

THE COURT: Mr. Brown, whenever you feel it, we will take the morning recess. Is now a convenient time?

MR. BROWN: If the Court inquires, now is the time.

(Luncheon recess at 11:10 a.m.)

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WATER_PCB-SD0000058194

AFTERNOON SESSION

... WILLIAM B. PAPAGEORGE, having been previously sworn as a witness, was resumed and testified further as follows ...

THE COURT: Go ahead, Mr. Brown.

BY MR. BROWN:

Q Mr. Papageorge, you recall at the end of 1970, December, January '71, that you were contacted by Agway and by Rozansky with regard to the problem of Rozansky's wafer meal being contaminated by PCBs or that getting into Agway's feed; remember that?

A Yes, sir.

Q You told us on your deposition one of your vice presidents told you Agway was a very good customer of Monsanto?

A That's correct, sir.

Q Wanted you to give Agway all the help you could?

A Yes, sir.

Q And was that in December, do you recall?

A As best I recall, it was December of 1970, yes, sir.

Q Now, that was in connection with Campbell Soups having found some spent fowl that were

WATER_PCB-SD0000058195

contaminated and being traced back to Agway. Do you recall that?

A Well, I don't know that the request to help Agway was related to that Campbell Soup incident at that time.

Q In any event, Agway made the contact, you were instructed to help Agway?

A That's correct.

Q Now, was that before Mr. Rozansky contacted you or after?

A The Agway people contacted me before Mr. Rozansky called.

Q And about how much later--your best recollection--was it that Mr. Rozansky contacted you?

A About, I don't know, four to six weeks later.

Q Now, going back to Agway, Agway and Monsanto do have a continuing business relationship with regard to animal food?

A Yes, sir. We sell them animal feed additives.

Q And were there three such additives that are regular items between the two companies?

A Well, at that time, it's my understanding that the Agway people purchased two of our products as feed additives.

WATER_PCB-SD0000058196

Q And for what purpose were these things to be added to animal feed generally, what was the function, do you remember?

A The one product as I understand it prevents feed spoilage, and the other is a protein supplement. That is the extent of my knowledge of those products.

Q Neither of these, incidentally, neither of these has anything at all to do with polychlorinated biphenyls?

A No, sir. They're made in different plants even.

Q Were you aware, or were you made aware when this request came in that Agway was a large concern making a million tons or so of feed annually in a large number of grain plants?

A I was aware that they were a concern of some respectable size, but I had no true feel for the total magnitude of their operations.

Q The contact that you had with them as it developed in December and January over the year end '70 to '71, did you come to any knowledge as to the extent to which Agway as a feed manufacturer was equipped by equipment and personnel to test its feeds to guard against accidental contamination by hydrocarbons?

WATER_PCB-SD0000058197

A. Yes, sir. They were well equipped.
Q. What did you understand their equipment to be, generally speaking? Did they have the gas chromatograph equipment and that type of thing?
A. They had the latest analytical tools available to industry at the time.
Q. Did they send one of their chemists down to Monsanto?
A. Yes, they did.
Q. Dr. Rice?
A. Dr. Richard Rice, yes, sir.
Q. Did he appear to be knowledgeable with regard to the methodology necessary to ascertain the presence of PCBs if anybody asked him to do it?
MR. PLAUT: Was this before or after?
BY MR. BROWN:
Q. When did he arrive? When did he arrive?
A. I believe I heard your question correctly, did he appear to be knowledgeable of the presence of PCBs; yes, sir.
Q. Did he appear to be, when he came, did he appear to need any instruction from Monsanto as to how to test for and determine whether or not they were present?

WATER_PCB-SD0000058198

A. Not to test for presence, sir. He needed some assurance on quantity, I think, as I understand it, and he wanted to be assured that his approach was the proper approach.

Q. He already had an approach and methodology?

A. He had an approach. He was able to find PCBs in his samples. His lack of confidence appeared to be in the area of quantifying, how much and what type of PCBs in his sample.

Q. That is what he indicated he wanted to get reassurances for from your people?

A. That was my understanding, yes, sir.

Q. And how long was he down there with you, do you recall?

A. As I recall, at least a week.

Q. And did you also or did Monsanto also supply Agway during this same period with standard PCBs for test purposes to run the standards against the spec sample?

A. Yes, sir. We gave the Agway people the same samples we give many others, along with a copy of our method.

Q. Dr. Rice was down there with you, had come and gone before the middle of January, hadn't he?

WATER_PCB-SD0000058199

A. That is approximately correct, yes, sir.
Q. When he left, and with the samples that Agway had received from Monsanto with regard to the Aroclors that you use for samples, is there any reason so far as you are aware why Agway was not fully equipped, fully knowledgeable as to how to test not only for the presence but also to quantify and find out how much and what kind of PCB might be in any ingredient in their feed or in the feed itself?
A. This is after he had visited us and left?
Q. Yes.
A. I think that Agway was well on its way, capable of conducting good tests.
Q. No reason why, after he got home, if he went directly back to New York, why they couldn't have found them, gotten pretty close to the right number?
A. I don't see why they couldn't have.
Q. On this matter of quantifying, if somebody tests only for Aroclor 1248, and in fact there is some 1248, but there is also some 1242, do they pick up the 1242 if they're only testing for 1248?
A. Well, that situation is a rather challenging one to the analytical chemist. And it takes considerable experience, seeing many, many of these charts

WATER_PCB-SD0000058200

that are printed by the machine. Generally the chemist who is rather new at this will attempt to identify that fingerprint, as we call it, the peaks and valleys, with the standards and identified as the material that most closely resembles. This is why the reports are given in terms such as so much PCBs as Aroclor 1242 or as 1248. It does not mean it's identical to.

Some of the peaks may be missing. Some of the valleys are missing. But that is the closest thing that chemists, in his opinion, can compare it to.

Q Now, if there are two different types, two different levels of chlorination in the samples, in other words, you have got some 1242 and some 1254, what you read as 1242 has to be added to what you read as 1254 to find out the total amount of PCBs present, correct?

A Yes. If the analyst wants to report it as a total. Or he can report it as two parts.

Q Do you recall that you ended up testing some samples of dried bakery products that Agway sent down to you to reassure them as to whether their reading was correct? Do you recall that situation?

A Yes, sir.

Q They sent them down a number of samples

WATER_PCB-SD0000058201

and advised you that they had read these samples to have more than 100 parts per million of PCB?

MR. RICHARDS: Your Honor, I object to any further questioning in regard to samples or bakery samples. I think I know what Mr. Brown is referring to

THE COURT: The basis of your objection h to do with the sample that was used?

MR. RICHARDS: Sample used, whether there was a proper foundation laid as to its reliability.

THE COURT: Your objection is overruled. And, of course, I will want to be informed at sometime as to where the sample came from, and what it was a sample of, and so forth.

But I am going to allow the questions to stand and your objection is noted.

MR. RICHARDS: Will that be a continuing objection, your Honor?

THE COURT: Yes.

MR. BROWN: We expect that Mr. Edick will be the third witness and will testify as he has previously and documentation will show.

THE COURT: All right.

Are you going to introduce another exhibit?

WATER_PCB-SD0000058202

MR. BROWN: Yes.

THE COURT: Before you do, I want to get No. 3 straightened out. Have you got it lined up now?

THE CLERK: Yes.

THE COURT: 3 is your 1-LL. 4 is 1-MM. And I am putting a "B" after them to indicate the party introducing them. 5 is 2-B. That is your 2. And 6 is 3-L. And 7 is 3-V. Does everybody understand? And these are series of articles on PCB.

Have you got it again? 3 is 1-LL. 4 is 1-MM. 5 is 2, your 2. 6 is 3-LL, and 7 is 3-V.

BY MR. BROWN:

Q On Monsanto's retesting, this is a retest of some materials that already had been tested by Agway, is that what they asked you to do?

A That was my understanding, yes, sir.

Q And they had already come up with reports of more than 100 parts per million contamination?

A That is correct.

Q And from Exhibit 20, is this--do you recognize this as being the test report of Monsanto on two samples of that material?

A That is correct.

Q And how many parts per million did Monsanto

WATER_PCB-SD0000058203

find, Sample No. 1?

A. Sample No. 1, in this report is stated here as 757.7--

THE COURT: Excuse me a minute.

Mr. Plaut and Mr. Rogers, you objected to this beforehand. Do you want to object now?

MR. PLAUT: This is still part of the Sullivan County matter.

THE COURT: I am sorry, I didn't hear you object. Maybe I didn't pick it up. What I wanted to do was protect your rights on the record, Mr. Plaut.

MR. PLAUT: I understand. Thank you. I thought I had a continuing objection, your Honor, to everything relating--

THE COURT: You can have, if you wish, to the Sullivan County material and questions, but I didn't know that you made it. I know Mr. Richards did. That is all I am asking.

MR. PLAUT: No objection apart from the continuing objection on this.

THE COURT: Note this on the record, then, so we will be clear.

Mr. Plaut, that is Agway, and Mr.

WATER_PCB-SD0000058204

Richards, Rozansky, have a continuing objection to all questions and all exhibits relative to the so-called Sullivan County incident, and this is part of it. All right.

MR. PETERS: Your Honor, I would like to join in that.

THE COURT: Same for Mr. Peters.

BY MR. BROWN:

Q The test report in parts per million as the two samples tested by Monsanto were what?

A Sample No. 1 is reported as 757.7 parts per million as Aroclor 1248.

Sample No. 2 is reported as 735.7 parts per million as Aroclor 1248.

Q Now, Mr. Papageorge, those are test results showing an extremely high level of contamination, correct?

A I don't know what to compare it to, sir.

Q Didn't you tell us on the deposition that this was the highest level that you had ever found?

A That is right. But I don't know that it's extremely high. It's the highest I have noted.

THE COURT: That is 8-20B.

WATER_PCB-SD0000058205

BY MR. BROWN:

Q You wouldn't have any question, Mr. Papageorge, if my client's mink were eating that stuff straight 20 percent in their rations they wouldn't last very long at that level, would they, from what you know of the situation?

A You are asking me to speculate.

MR. PLAUT: I object to that question, your Honor.

THE COURT: All right, your objection is overruled.

I didn't hear an answer. The answer was, as I understand it, "You are asking me to speculate."

THE WITNESS: You are asking me to speculate. I would expect at those levels, some effect will be noted.

THE COURT: All right, now.

BY MR. BROWN:

Q Rather promptly?

A There again, I don't know promptly whether you mean a week, a month, an hour.

THE COURT: Let me ask counsel this: Does everybody recognize this man as an expert?

MR. BROWN: Your Honor, he has been, as

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he has testified, designated by Monsanto to attempt to collect enough information so he can adequately explain it, and I am accepting it as of that basis.

His qualifications are as a chemist, and I would say he is qualified.

THE COURT: I assume he is an expert. I want to know he is recognized.

MR. PLAUT: Monsanto's expert. When he asks him to speculate about animal feeding habits and so forth, I don't know about that.

MR. RICHARDS: I join.

THECOURT: Your objection is overruled.

MR. SPELLMAN: For the record, Jurgielewicz regards the man as an expert on PCBs, if there is one.

MR. RICHARDS: I regard him in the same fashion, but not as a veterinarian.

THE COURT: You protect yourself in the clinches and, Mr. Peters, you recognize him as an expert in PCBs?

MR. PETERS: Right.

THE COURT: Another higher court might have something to do with the case, and I am trying to keep the record straight.

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BY MR. BROWN:

Q Actually, Mr. Papageorge, your academic training was in chemistry and you hold, what is it, two degrees in chemistry?

A My degrees are in chemical engineering, sir. I have a Bachelor's degree and a Master's of Science degree.

Q And you do not profess to be a veterinarian?

A That's correct.

Q Now, doing this type of test that you did for Agway, retesting something that they had already tested, is that a service that Monsanto does make available for concerns with which it has customer relations if a request is made?

A We have made that not only to concerns that are customers of ours, but also to colleges, academic laboratories, government laboratories.

MR. PLAUT: Is that mike connected, your Honor?

THE COURT: No, it isn't. You and I noticed it at the same time.

THE WITNESS: I am sorry.

THE COURT: It's not your fault. It's mine.

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Go ahead.

BY MR. BROWN:

Q. Feed companies of the size and nature of Agway, in your experience, do you find that they ordinarily do their own testing and only come to you for verifications when they get something that puzzles them or bothers them?

A. That is the normal practice, yes, sir.

Q. Is there any reason, so far as you know, based on your knowledge of the Agway operation, why Agway could not have tested for PCBs specifically at the end of December 1970 or in January 1971?

A. Well, with the caliber of people they had in their organization, and the availability of the equipment, I would say they could have tested for PCBs, yes, sir.

Q. Now, when you finally got around, Mr. Papageorge, to be asked to double-check them on these two samples that we just talked about, you knew by that time, did you not, that the sample was bakery product?

A. Yes, sir.

Q. You also knew independently from Mr. Rozansky's having contacted you that it was bakery product?

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A. I was told it was Mr. Rozansky's product, right.
Q. Well, you told us in the deposition that your having been asked to help Agway when Mr. Rozansky called on what quite obviously was the same problem, you didn't feel free to tell him what Agway had told you, so you had to more or less keep the two situations apart professionally?
A. That is correct, sir.
Q. It also developed a little bit later, did it not, that Agway wasn't telling you everything that was going on?
THE COURT: Was or was not?
BY MR. BROWN:
Q. Was not; that your communication with Agway ceased before the problem appeared to have been solved?
A. Yes, sir. My experience with the Agway dialogue that we had going was different from all the others that I had experienced after Dr. Rice's visit to St. Louis and our exchange of the analytical data, I found Dr. Rice difficult to reach. My telephone messages were not apparently passed on.
I just found the total behavior unique and different from the normal run-of-the-mill requests to help solve a problem related to PCBs.

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Q The bakery product that was being tested we now know, and the evidence will be, was bakery product that Rozansky had delivered to Agway in September of 1970 or within a week or so of the front and back of September; we know that from other people where the sample came from.

Now, everything in mind, Mr. Papageorge, your concern for Monsanto with regard to PCBs getting out into food processing, did it occur to you that Monsanto had any obligations under the circumstances, picking up as high a reading as this on bakery product, although you didn't pick it up until the next spring, did that trigger your mind that perhaps Monsanto should do something about warning in the area where that bakery product was being picked up?

A Sir, keep in mind that as I recall, this was the spring of '71 when we had this particular number.

THE COURT: Now, I want you to answer the question first and then you can explain it. Do you understand the question?

MR. BROWN: I think, your Honor, my question was a poor question. I think he is actually answering it correctly.

WATER_PCB-SD0000058211

BY MR. BROWN:

Q. You didn't get this sample result until the spring of '71?

A. That is correct.

Q. And at that point--

A. At that point in time, Monsanto had already withdrawn from all of the applications that anyone could conceive as being a source of this material.

Q. Well, let me go back now--what you are saying is because of that, it didn't occur to you that you could do anything useful by talking to the sources of the contamination, because presumably it would no longer be contaminated?

A. That was our understanding, my understanding of the total situation.

Q. Is there a Dr. Tucker in Monsanto's Test Group?

A. Yes, sir.

Q. And let me just show you this additional sheet from Exhibit 20. Is that the copy of the covering letter sending that sample down, does it appear to be?

A. It refers to a sample by a number. I don't recall the number on the other document.

(Exhibit handed to the witness by Mr. Brown.)

I have difficulty relating these two samples.

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Q Well, the letter I just handed you is a letter without date.

A I do not see a date.

Q And you are unable to tie the two together just by examining them?

A No, sir.

Q All right.

THE COURT: Well, the answer is you are unable to tie them together. You can't tie them together?

THE WITNESS: I cannot tie the two together, that is right.

MR. BROWN: May the second document be marked for identification, your Honor, and I would like to have it marked so it stays.

THE COURT: Call it 8-20A for identification.

MR. RICHARDS: What was the date of that?

THE COURT: Letter of--what is the date?

THE CLERK: March 9, 1971.

THE COURT: Who is the letter to and from?

THE CLERK: To Dr. Tucker from Mr. Frost.

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THE COURT: To Tucker from Prost.

BY MR. BROWN:

Q Mr. Papageorge, in February of 1970 after you took over this job, warning letters were sent out to your direct customers and to your distribution, warning of environmental hazards?

A Environmental presence.

Q All right. And in April, in addition to Dr. Kelly's having asked the federal people to prohibit insecticide use, you also notified your pasteurizer customer or Pasteurizer Division you were going to withdraw from that market?

A Yes, sir.

Q And in May, you got new labels for your Aroclor and got those out and onto the cans and drums in inventory?

A That is correct.

Q You didn't get new labels for Therminol, however, until August; do you recall that?

A The Therminol labels were modified later, but the initial wording, added to the Aroclor labels, were also applied to small gum stick-on type that was added to the container.

Q In August you actually got a new Therminol

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label with the environmental warning on it?

A. That is correct.

Q. Now, in August you sent out a warning to keep PCBs away from animal feed, remember that?

A. Yes, sir.

Q. And announced in September that you were going to build an incinerator in order to aid people to get rid of this stuff after it was no longer useful?

A. That is correct.

Q. And Monsanto is going to invest how much money on that incinerator?

A. We approached a million dollars on that.

Q. An incinerator gets up to heats of 2700 degrees Fahrenheit?

A. That's correct.

Q. You have to get up to that heat to get rid of this stuff by chemical decomposition safely?

A. Yes, sir. My hesitation--you see, I have to get up there. We prefer getting up there to make certain that the destruction is complete. The theoretical temperature is about 2,000 degrees Fahrenheit, so we extend that.

Q. With the exception of one special listed incinerator down in New Jersey that you told us about,

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there is no other facility existent in the U.S. that can get rid of this stuff, right?

A. I thought I mentioned other units that are available, sir. The company that operates the unit in New Jersey also has units in Houston, Texas, and Baton Rouge, Louisiana, and there is another firm up in Niagara, New York.

Q. So there may be now?

A. Four or five at best commercial incinerators capable of doing this destruction.

Q. And you now advise all customers if they have any to be disposed of, don't let it go down the sewer, don't put it in the dump, send it back and have it adequately taken care of by incineration at these high temperatures?

A. Yes, sir, with one modification. This is with reference to scrap liquid material, not to oily rags and so on.

Q. You are now advising that some of the solid capacitator material, for example, can adequately be handled in a deep landfill?

A. That is correct.

Q. Now, I have gone over everything, except heat transfer.

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Now, on heat transfer in food processing plants, do you recall that a special warning of June 8 was sent out to people who had the liquid PCBs in the form of Therminol we are talking now in heat transfer, was that letter sent?

A Yes, sir.

MR. BROWN: I offer the letter, your Honor.

THE COURT: What number is that?

MR. BROWN: That is from Exhibit 5. It's 5 of the original number.

THE COURT: I don't see any objection to that. It may be marked 9-5FB.

MR. BROWN: If I may, your Honor, I would like to read the exhibit to the jury.

THE COURT: Give us the date of the letter.

MR. BROWN: The letter is on Monsanto stationery under date of June 8, 1970.

THE COURT: All right.

MR. BROWN: Addressed "Dear Sir: On February 9, 1970, we advised you by letter that several newspaper and magazine articles had been published indicating that polychlorinated biphenyls (PCBs) have

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been discovered at some points in some marine, aquatic and wildlife environments. Products such as our Therminol FR series do contain chlorinated biphenyls. These products are: Therminol FR low temp, FR-O, FR-1, FR-2, and FR-3. In view of the fact that PCB has been found in the environment, there is a possibility that the Food and Drug Administration may place a maximum limitation on the quantity of PCB in food.

"With these circumstances, we have reviewed the application in which Therminol FR heat transfer fluids are used. The application of Therminol FR fluids in food processing, such as to heat cooking oils for food preparation, and to heat edible oils in deodorizing processes, does appear to present a potential source for contaminating food products with PCBs.

"Because of the above factors, we feel that it's in your interest as well as ours to use a different heat transfer fluid in your system for those applications related to edible materials Accordingly, we wish to inform you that after July 31, 1970, Monsanto will no longer sell Therminol FR series fluid in applications where the potential for food

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contamination exists. We encourage you to change your heat transfer fluid shortly and to contact your Monsanto representative for assistance. We suggest you change to our Therminol 66 heat transfer fluid. We desire to work with you on this alternative and also on disposal of your used FR fluid.

"In contemplating the change to this fluid or any other, it is also suggested that you contact others for evaluation of any effect this may have on your operation. If we can be of assistance, please call on us.

"Cordially, John R. Foland, Marketing Manager, Heat Transfer Fluids."

BY MR. BROWN:

Q Now, Mr. Papageorge, that notice went to--

MR. PETERS: Mr. Brown, did you add one paragraph there?

THE COURT: Is there something you want to read, Mr. Peters, that hasn't been read?

MR. PETERS: There is a paragraph in there that I would like to have read.

THE COURT: You may read it at this time if you want.

MR. PETERS: Mr. Brown will gladly do

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it, I am sure.

THE COURT: Well, he didn't.

MR. BROWN: Well, if my reading it is not going to cause any problem. I thought I had read everything properly.

May I just advise, show your Honor what is now being suggested I reread?

THE COURT: Reread?

MR. PETERS: I didn't think he read it.

MR. BROWN: They don't follow my reading very well.

THE COURT: I don't think you better read it.

MR. PETERS: I didn't think he read that. Did he read that?

MR. BROWN: Sure I read it.

MR. PETERS: To yourself?

THE COURT: I will talk to you about it at the recess. It's been covered.

MR. PETERS: All right, fine. Thank you.

BY MR. BROWN:

Q On heat transfer, Mr. Papageorge, Monsanto made the sales of the fluids direct to the users rather than through an intermediate distribution?

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A That was our intent, sir, that all Therminol labeled PCBs were sold directly to the user, to the customer.

Q But if somebody was knowledgeable in this field and he got his hands on some of your Aroclor, the right number, through distribution, he could then apply it in a heat transfer system without your knowledge; is that what you are saying?

A That is true.

Q Now, heat exchanges, heat exchanges actually involve a known risk of leaks and spills, correct?

A Yes. All right, yes, correct.

Q As a matter of fact, the primary reason for using PCBs in this application is because it will eliminate the danger of fire and explosion in the event there is a leak or spill, isn't that right?

A That is true, sir.

Q As a matter of fact, in the brochure that Monsanto sent out to the trade to promote the use of PCBs in heat transfer, an example of a leak that actually occurred is related as part of the selling portion of the brochure, right? Do you remember that?

A Not in detail, but...

Q Exhibit 14, I will offer--let me have it and

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see if the witness recognizes it. I don't think he can recognize the Xerox, your Honor.

Do you recognize this brochure which has been marked 14 as being a Monsanto publication promoting the use of Aroclor 1248 for heat transfer purposes?

A. Yes, sir, I do.

Q. And can you tell from the coded numbers on the back that it's a 1958 publication?

A. Sir, I see a July '59 code.

Q. July '59?

A. Yes, sir.

Q. So it's well before the unfortunate events we are concerned with in 1970?

A. That is correct.

MR. BROWN: I offer the pamphlet, your Honor, as an exhibit.

THE COURT: All right. That is 14, did you say?

MR. BROWN: Yes.

THE COURT: 10-14B. That is the Monsanto Aroclor booklet.

BY MR. BROWN:

Q. Now, Mr. Papageorge, this booklet says that this material has been used for these purposes since

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1941, and I am referring to the first page.

A. Yes, sir.

Q. Correct?

A. Yes, sir.

Q. It says that, handled properly in well-designed, forced-circulation heat exchangers which allow localized overheating damage, it gives satisfactory service.

A. That is correct.

Q. And the next paragraph says, "In one installation of record, a ruptured pipe spewed the hot fluid into gas flame and the fluid failed to ignite."

A. That is correct.

Q. And that is the selling point of this substance in this application?

A. That is correct.

Q. And it's saleable because you expect sensibly that there may be ruptured pipes in such a system, localized overheating, which can cause leaks, leakage forced back through a stuffing box at the pumps, this type of system is prone to leaks, isn't it?

A. It's possible for these systems to have these kinds of failures you mentioned.

Q. In your current brochure for the same application, don't you acknowledge that it's virtually impossibl

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to eliminate all leaks in this type of application, do you recall that in the new one after you changed over?

A Yes, sir. I have trouble with the words "virtually impossible." The possibility does exist in some systems.

THE COURT: Have you finished with the booklet? Have you finished with the booklet?

MR. BROWN: No, I just started with the booklet. Does your Honor want one? I think we can supply one.

THE COURT: No, that is all right. Go ahead. Sorry.

BY MR. BROWN:

Q Going over from the bottom of that first page we are talking about, Mr. Papageorge, and this is sales talk, it says it's used successfully in the following types of application and as you turn the page, tell the jury what the six suggested applications, the six in the line, are.

A Six from the top?

Q Yes, please.

A Food processing including potato chip and doughnuts fried in vegetable oils.

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Q Now, that is a fairly precise pointing toward bakeries and food processing, correct?

A That is right.

Q And, to your knowledge, sir, a very large number of the larger bakeries have accepted this and have used this material in bakeries for heat exchanges?

A Many do, sir. I have no idea of what percentage of the total this represents.

Q Well, it's been a significant amount of sales into food processing for this system over the years, hasn't it?

A Yes, sir.

Q Now, going into the brochure just a bit more, on Page 11, on Page 11, sir, in the column to the right, it appears, does it not, that in actual use at Monsanto, it has not been found necessary to replace the fluid after seven years of continuous use, then what does it say?

A There is a semicolon, "...additional fluid is only added as necessary to make up spills or leaks."

Q Spills or leaks. It was spilling and leaking at Monsanto in their own installation?

A In 1959.

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Q. Now, they go on in this same--on this same page, next paragraph, to indicate that, properly used, without any localized heating, that makes it any different, that Aroclor 1248 should be able to serve approximately four years before increased viscosity may interfere with its pumpability when it's cold, right?

A. Yes, sir.

Q. Now, as a practical matter, sir, four years after one of these systems is charged with this, your sales representatives and their engineering departments should be in the market for a refill, right?

A. All right, yes, sir.

Q. Well, you show at Page 13 a graph showing exactly where the maximum operating efficiency, length of time properly where they cross, and it's just sort of four years, isn't that right?

A. Yes, sir.

Q. On the following page, if you overheat this material, second paragraph on the left, a small amount of HCL gas takes off, doesn't it?

A. Yes, sir.

Q. What is HCL gas?

A. It's made up of hydrogen and chlorine, and when

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dissolved in water it's commonly known as muriatic acid.

Q But if this happens on this system, that is supposed to be taken care of through vents without causing any problem?

A The gas will vent.

Q The bottom of the same column. If you operate this liquid up at 650 degrees Fahrenheit, it's only going to last six months to a year?

A Yes, sir.

Q But if you operate at 600 without some other things, it ought to last for about four years; top of the right-hand side.

A That is right.

Q Now, you also have a problem of preventing air pockets to form in the system where moisture might condense, because that might cause corrosion and cause a leak?

A Yes, sir.

Q But generally speaking, properly used, these systems would require resupply in six months to a year or four years, depending upon the temperature at which they're operated, according to what it says here.

A Well, sir, that is true for a well-designed system. Each system is unique unto itself.

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Q Some of them are not well-designed?
A That is possible. There are possibilities of moisture entering that isn't possible in a well-designed system.
There are possibilities of hot spots that a well-designed system should not have.
Q What happens if you have a hot spot? You overheat?
A Well, you get this situation we talked about, where a gas is released and as this gas is released there is a deterioration of the fluid. Now, a little bit of deterioration just darkens it; instead of being water clear, may become yellow color or tan color. However, if this is a drastic deterioration, the other extreme would be the formation of tar and carbon hard deposits inside the system. Eventually the system gets plugged up and must be cleaned out.
Q Or it puts backpressure on the pump and causes a leak at the stuffing boxes in the pump?
A This is a possibility, yes, sir.
Q Or if corrosion occurs, you get a hole and get a leak somewhere in the piping?
A When systems are shut off and on, they breathe, they bring in moist air, moisture is brought in,

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combines with this gas to make this acid and can corrode the equipment, yes, sir.

Q And the other thing that happened under these same circumstances, Mr. Papageorge, is you get the pounding in the lines which is apt to cause some additio leaks in the line?

A A poorly-designed system will have that hammering, yes, sir.

Q And the system, cause of these things, is prone to developing leaks?

A It's possible to have leaks, yes, sir.

Q And its expectable that there will be leaks and the rest of this pamphlet, three or four pages, are instructions as to how to keep the leaks to a minimum, welded joint?

A Yes, sir.

Q Joints with special steel and asbestos windings in the joint?

A Yes.

Q You can't use the metals that most people use. You should go to something better, right?

A Yes, sir.

Q And this is all because the fact of the matter is, Mr. Papageorge, that all organic substances used

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in heat exchange, including Therminol, have an extreme tendency to leak organic substances?

A No, sir, I can't accept the adjective "extreme."

Q Well, others have published that that is so; you are aware of that in the environmental publication where they try to get everything put together about PCBs, that they point out this is the problem, using organic materials for heat transfer?

A I remember the statement, but as I recall, it addressed itself really to a matter of motivation on the part of the operator.

THE COURT: One thing puzzles me, and that is the use of the term "organic." I thought this was purely chemical, as distinguished from organic.

THE WITNESS: Well, your Honor, in chemistry there are two expressions used to try to divide it at least into two broad classifications: One expression is the word "organic chemicals." These are defined as those chemicals that contain carbon in some form.

THE COURT: All right.

THE WITNESS: The "inorganic" are those that do not contain carbon and are usually associated with the other minerals, steel, iron, calcium and the

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like.

THE COURT: All right.

BY MR. BROWN:

Q Mr. Papageorge, on Page 15, second paragraph, column on the left, that accident referred to happened because the operator failed to start the pump when the gas heater went on, right?

A That is right.

Q And if you get the heat on without the pump on, in this instance, you got excessive coil temperatures, the whole thing collapsed, and let the fluid out in this particular instance?

A That is right.

Q And that is one of the dangers and you have to have automatic shutoffs so that the pump stays on after the power is off after an hour or so, you shouldn't be able to get the heat on without the pump to prevent that type of thing?

A Yes, sir. And you will notice this is all over at the furnace.

Q Now, in the system, Figure 8 in the pamphlet, they show, Monsanto shows a system where three users, that is three places where they use the heat, may be the power of a single system, correct?

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A. That is correct.

Q. And I count 15 vents and two relief valves in that system. Do I count them correctly?

A. I have not counted them, sir. But there are many vents shown in the sketch.

Q. One, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen; two relief valves; fifteen vents.

Now, would that be normal for a well-designed system?

A. Yes, sir.

That is--I would like to explain.

Q. Sure, go ahead.

A. These vents are not always open during operation, because you will note many of these vents are in the pipeline itself. The purpose of these vents is that in the event a portion of that pipeline must be worked on, taken to the shop and so on, there has to be a way to drain it and in order to drain it you must vent it to release the pressure and so on.

That is the purpose of many of the vents. Usually in a system of this type all you need really is one designed vent to have the system breathing and

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that vent is normally nearer the furnace, away from the point of use of the heat, and generally rises above the roof of the building in which it's housed.

Q But, as you say, in normal operation, that piping is going to have to be taken apart for a number of reasons, and every time it's taken apart you have the danger not only of the leak that made it necessary to take it apart, but of a spill of the liquid inside as you take it apart?

A With careless handling, this is possible, yes, sir.

Q It's possible even with careful handling?

A Well, I have seen systems like this dismantled and the mechanics have pans, buckets, devices to collect the fluid right at the site or back at the shop where the work is being done.

Q You also, with this system, sir, are supposed to periodically take samples out, test it, at least once or twice a year, right?

A That is recommended, sir.

Q As a matter of fact, Monsanto will test it for you if you are not satisfied you can do it yourself?

A That is correct.

Q Which means again the people are taking material

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out of it?

A. That's correct.

Q. Which is again the situation that may cause a spill?

A. Again, it's possible; not very probable.

Q. Let's talk about something that is real probable. If, until 1970, the viscosity of the liquid became so great the pump could not pump it through without causing so much pressure that they're going to have a refill, what were they doing with the liquid they were replacing?

You didn't have any incinerator then, did you?

A. That's correct.

Q. And that is liquid. Probably, what was happening to it--

A. In 1970, all of our customers had been informed of the environmental presence of PCBs. I personally know of those situations where they drained these systems, they put the fluid in drums, containers, and were seeking advice on how to dispose of this material.

This is about the time that Monsanto was planning on an incinerator. So we were able at that point in time to offer our customers some relief in that they could send us the material, which we would

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put in storage until our unit was ready to be placed in operation for destruction of this fluid.

Q You had, what, 50,000 pounds returned to you during the first six months of that system?

A I believe it's in that order, 50,000. I thought it was more than that, sir.

Q Well--

A It's a big number. We had quite a bit of material on hand.

Q And the probability is, sir, until you are making that service available, which was mid-1970, that that amount was being pumped down the sewer or disposed of in some similar way?

A If you go back far enough, not recognizing this material to be an environmental type problem, the disposal of that fluid was left to the discretion of the user, and these things could have been put in the sewer.

Q What else could have been done with it, seriously? Didn't you have to dump it in some fashion unless you are going to keep it around?

A Sir, I have heard of these individuals who collect oil from service stations and from industry and all, they had gone around and picked up

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fluid of this sort.

Q That got somebody in trouble out West because they used it as an oil to spray something on some growing grain and the cows' milk all got contaminated, right?

A I don't know if that happened out West.

Q Down in Maryland?

A Yes, sir.

THE COURT: That is East.

BY MR. BROWN:

Q That is not a good way to get rid of it?

A Clear thinking and hindsight, it is not a good way to get rid of it.

Q I understand. But, seriously, these systems, I am talking about heat exchange systems, when they got through the useful life, there is nothing you can use the stuff for, you are going to have to throw it away; isn't that right?

A That's correct.

Q And these people were just throwing it away either into the sewer, taking it to the dump or something of that nature, so far as anybody knows?

A So far as we know.

Q If it gets into the sewer, that is the way it

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gets into the river, the lake, and the aquatic line gets filled up with PCBs?

A. Yes.

Q. Let me ask you this: When your people, when the salespeople sold this 600 pounds, and that is Therminol 2, if I recall it correctly, to Ward Food in August, and sold Bond 1800 pounds in September, Bond already having bought 600 pounds in January, was any inquiry made as to why these people were buying it?

Now, this is heat exchange.

A. Yes, sir.

Q. How much is 600 pounds in gallons?

A. 600 pounds is a 55-gallon oil drum.

Q. So why would they be buying? They buy one here. Now it's the same outfit that buys three down here. Should we infer from the fact they re-ordered that they have used up 600 pounds of this material between January and September, nine months in a heat exchange?

A. You can infer that the system that they had required some fluid. Now, whether that total amount was introduced into the system immediately, I do not know. It may have been an intent on their part to

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buy some just in case they needed some.

In other words, have a supply of it. And those patterns that you have on your chart are not unique. It's a very typical pattern for these kinds of systems.

Q To buy a couple of drums--take Philadelphia. Philadelphia. That is an Order No. 170.

A That is probably a combination.

MR. PETERS: Your Honor, I object to Philadelphia only because it was not a supplier of Rozansky.

MR. BROWN: We don't claim it was, Brother Peters, and I hope in what I told the jury in opening and the arrows on here indicate there are three only of the deliveries which were, so far as we know, to Rozansky.

THE COURT: Why are we going to Philadelphia, then?

MR. BROWN: Because the witness has just said the pattern shown here, you can talk--talking to the whole pattern rather than just these three.

THE WITNESS: The pattern, yes, sir.

MR. BROWN: The pattern is not unique or unexpected.

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THE COURT: I understand that. I still don't think we ought to go to Philadelphia.

Take the noontime recess. Come back at ten minutes to 2:00.

(Luncheon Recess at 12:30 p.m.)

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AFTERNOON SESSION
1:50 P.M.

... WILLIAM B. PAPAGEORGE, having been previously sworn as a witness, was resumed and testified further as follows ...

DIRECT EXAMINATION
CONTINUED

BY MR. BROWN:

Q Mr. Papageorge, when we broke for lunch we were talking about Bond Bakery from Brooklyn, New York, having ordered 600 pounds of Therminol in January and then reordering in September and on that occasion getting 1800 pounds.

I think you said that it was actually sort of a pattern of reordering when you have heat exchange installations being serviced.

A That is true.

Q And what is that pattern? To what were you referring when you said there was sort of a pattern?

A In every case where we sold these fluids to heat transfer applications, one can go back to our records and you will note that these kinds of orders are very normal, irrespective of the application,

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whether it be cooking varnish or in the food process. So looking at the record would not indicate that there is anything unusual at all in this kind of order pattern. A drum or two or three or maybe a five-gallon can or so, or 30-gallon drum, whatever the units were available at the time.

Q. Well, Bond Bakery, if we merely assume that they're reordering and being conservative down there at the end, ordering a drum every nine months would not be unusual reordering pattern for a heat exchange installation?

A. Not necessarily, that is true.

Q. Did you run back on Bond to find out how long Bond--I am talking Bond Brooklyn--how long they had been ordering this?

A. At what point in time, sir?

Q. Have you, up to now, checked back on your records to find out when Bond Brooklyn first started ordering?

A. Yes.

Q. And do you have those records here where they had been available to you?

A. I think it's available. I have seen it.

Q. I would like to know when they placed their

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first order for heat transfer fluid and in what amount. Their original order would be to charge the entire system with them?

A. That is correct.

MR. PETERS: I have the records here which I am willing to give to Mr. Papageorge and he can show them to Mr. Brown.

But, for the record, I would like to object at this point for the record to any evidence concerning the shipment of Therminol to the supplies of Rozansky unless the plaintiffs make an offer of proof that they can actually prove there was a leak at any one of the places.

THE COURT: All right. Well, I understand what you are objecting to. Your objection is overruled. But we left Philadelphia down there, and I assume, although I don't--maybe I missed it, but is there an offer of proof, Mr. Brown, to the effect Rozansky purchased from Bond of Brooklyn?

MR. BROWN: Yes, your Honor. That is the reason I went to--left Philadelphia and went to Brooklyn.

MR. PETERS: One of these records, your Honor, and Mr. Brown, is a result of a telephone call

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that actually is my work product, but I have no objection.

MR. BROWN: I don't want your work product. Just give the witness his file and I will work with him. Thus far he's been able to answer questions.

THE COURT: All right, never mind the comments.

MR. PETERS: All right. Maybe he will want this.

THE COURT: Leave it there and if he needs it, he can use it.

MR. PETERS: All right.

THE COURT: Anybody else want any objections to this line of questioning, Bond of Brooklyn?

MR. RICHARDS: I would like to note my objection for the same reasons as Mr. Peters, your Honor.

THE COURT: All right.

BY MR. BROWN:

Q Bond Bakery, Brooklyn, Mr. Papageorge, when did they set the system up as reflected in purchasing fluid?

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A. My records only go back to the year 1968.

Q. All right.

A. I don't keep records any longer than that.

Q. Very good.

A. I have no idea when the unit was first installed in this customer's facility. I don't understand where I go from here.

THE COURT: Start with 1968.

BY MR. BROWN:

Q. As your records show it, starting in 1968, what was the sequence and the amount of purchases of PCBs for heat exchange use by that particular bakery?

A. All right. Bond Bakery located in Brooklyn. They used the fluid we call Therminol FR-2. In 1968 there is no record of any delivery to that plant.

In 1969, they received in June 600 pounds.

In July, 600 pounds.

In September, 600 pounds.

That is all the information I have on Bond in Brooklyn.

Q. Well, you have previously given us the information that in January and September of 1970 they ordered the 600 and the 1800?

A. That is correct.

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Q. Well, there isn't anything about this heat exchange system that required--strike it out.

On that pattern of that amount being ordered, you say it's usual to have June, July, September, that is in the summer, a total of 1800 pounds to one installation?

A. There is nothing unusual about it, sir. There is nothing there that would tell anyone anything other than that the customer ordered the material for reasons known only to him.

Q. Well, do you have any judgment from what information you have about Bond Brooklyn, do you know how much their system required to fill it?

A. I know nothing about the Bond system.

Q. When they ordered in September 1800 pounds, after having ordered 600 pounds in January, you made no inquiry, your people made no inquiry as to why they wanted that amount?

A. No, sir, because with other customers we get that same kind of pattern. There will be a drum or two for a month or two and there will be a period of time an order is placed, then ask for three drums. It's a varied pattern. No fixed amount, no fixed time period.

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Q Well, if 600 pounds in 1970 lasted Bond for nine months, from January through to September, that is about 66 pounds a month.

Now, normal pattern is it that there will be a shrinkage of 66 pounds a month in the use in a heat transfer?

A This is possible.

Q And that would be how many gallons, 66 pounds?

A It's about 12 or so pounds to the gallon; that is about a 5-gallon pail.

Q And that amount would be lost in the normal expectable use of the system?

A Sir, you can see that if this unit was running full-tilt, as high a temperature as they could put in it, running their conveying systems, what-have-you, that is involved, getting top capacity out of it, it could easily drive that amount off the vent.

Q Well, that means, then, that with that amount of PCBs loose in a heat processing plant each month--right?

A Well, it's vented out the stack, out the vent.

Q If that is the vent it goes out through.

A Well, that is the normal way.

Q Well, in your brochure that we marked, the

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brochure indicates vents throughout the system, vent, vent, vent, vent, vent, vent, vents at the area where it's being used, vents in the lines (indicating on exhibit), vents in the return lines, vents outside at the tank, the filler vent.

A. Yes.

Q. Now, why do you say with all the rest of the vents that are in the system that the 66 pounds would go out through somebody's chimney?

A. Well, you will note that many of the vents you refer to are in the pipeline itself, and when the unit is operating, there is fluid, there is oil in that pipeline and it could not function if all of these vents we refer to were open.

Q. I realize that, sir. But, when it's necessary to vent, those are automatic vents?

A. No, sir, they're not.

Q. They're not?

A. No, sir.

Q. They're manual?

A. Yes, sir, except for the safety relief valves here.

Q. All except the two relief valves are manually-operated vents?

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A. That's correct, sir.

Q. And you say that 66 pounds of this material would be what, vaporized out into the atmosphere monthly?

A. It's possible, yes, sir.

Q. And you think that that is the probable explanation of the use in Bond, for example, from the pattern?

A. Yes, sir.

Q. Well, if that is so, Mr. Papageorge, when you sold them--you, when Monsanto sold them 1800 pounds in September of 1970, the month after you said you were going to cut it off because it's dangerous in food processing plants, you were giving them an inventory so they could continue that hazardous practice for another two years and three months, right?

A. Yes, sir, that could be calculated that way, yes, sir.

Q. And you were trying to get this out of food processing plants, were you?

A. We were advising our customers that the use in food plants had this potential for a problem. And it was our hope, by writing them or sending them this letter that you referred to earlier, that they would be alerted to the potential problem.

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You will note, too, that we had a target date at which we were going to terminate the sales.

Q That was August 31, 1970, at the time when you sold them in the following month, in September, as I understand it?

A Well, sir, the August 1970 was the termination of these applications we referred to as plasticizer applications.

Q Your June 8 letter, sir--unless my memory fails me, and I don't think it does in this particular instance--says you were going to cut off heat transfer to the food processers as of 7/31/70.

A July 31, that's correct. That is July.

Q Then why are you still selling it to these people in August and September?

A There is good reason for that.

Q All right. That is what I want to know.

A All right. We had hoped that the six-week period we gave our customers would be adequate. It turns out it was overly optimistic. When our customers went to their management people and design people and fire protection people and their insurance underwriters and all the people that are involved in these systems, they found that considerable redesign had to take place,

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their cost of insurance was going to mount dramatically unless they installed the proper sprinkler systems, fire walls, deluge systems, all of the other things that must be installed when you are using a fluid that burns like mineral oil.

The six-week period of time, it turns out, was just not adequate to even arrive at a decision, let alone buy the equipment, design it and install it, and many of the other things that goes with a change of this nature.

I cannot imply that I am in the shoes of the Bond management people, but it's very conceivable that these people were faced with a very difficult decision. They had to continue in operation. They required their fire-resistant fluid. They knew that Monsanto was going to be very, let's call it hard-nosed, difficult to deal with, as time went on. They placed their orders, they appealed for relief, and they purchased this material.

Q Did they appeal for relief? Do you have any record of Bond Brooklyn getting in touch with Monsanto as to the reason why they should get 1800 pounds in September? Are there any records at all of contact between Bond and Monsanto in 1970 concerning this

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heat exchange fluid?

A. Unless they're just a normal purchase order kind of record, which I doubt we keep for too long a period of time, there is no other document. The order was placed. It was acknowledged that they got the notice, and we know that they're a sophisticated company. They know what they're doing.

Q. Well, the answer to my question is this is surmised on your part, that so far as you have been able to find out, there was no contact other than the placing of an order for 1800 pounds; is that correct?

A. That's correct, that's correct.

Q. Now, as part of your June 8 letter, you also told your customers that if they had any problem with regard to disposal, to let you know, contact your representative that is calling on them, you would be glad to give them a hand on that?

A. Right.

Q. Did Bond, at any time after February of 1970 when these warning letters started, did Bond at any time ever get in touch with you with regard to disposal?

A. I personally do not know.

Q. You don't know whether they came back to

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Monsanto for disposal or not?

A. At this period of time, there were literally thousands of customers sending back material. I do not know of any particular case in detail.

Q. Now, the actual effort you were making was to get Therminol FR-2 and 3 out of heat transfer because of its potential to cause harm by contaminating food in the food processing applications?

A. That is correct, the "potential."

Q. On November 25, you sent out another notice extending that cutoff date to the end of the year?

THE COURT: All right. What is the number, please? Do you know, Mr. Muirhead?

MR. MUIRHEAD: No.

MR. BROWN: 5-K, your Honor.

THE COURT: All right, 5-K.

MR. MUIRHEAD: Your Honor, it's only one letter, 5-K. I believe there are two or three 5-K's. It's the November letter in 5-K.

THE COURT: All right. The November letter in 5-K.

BY MR. BROWN:

Q. Is that a copy of a letter extending the deadline sent out by Monsanto to its heat exchange customers

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who had heat exchangers in food processes?
A. No, sir.
Q. What is it?
A. This is to all of our heat transfer customers who were using Therminol FR-2 and Therminol FR-3, informing them as of December 31, 1970, we would not market the FR-2 and FR-3 types of fluid, but we would offer as a direct replacement the Therminol FR-1 fluid.
Q. This is telling them in November that after December 31, they can't get what you told them they couldn't get after July 31, right?
A. We are talking about two different mailing lists.
Q. Yes, sir, but you had told the people who were using heat exchange, at least in food processing, that you were going to cut them off July 31st?
A. That was our intended date, yes, sir.
Q. And here you are sending another letter, not only to them, but to the rest of the heat exchange people, they would be included?
A. No, the food people were not included in this mailing.
Q. They were not?
A. That is correct.

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Q They were deleted from it?
A That's right.
Q Well, how did it happen? Maybe I just don't understand what you are trying to tell me, Mr. Papageorge. You told them you weren't going to sell them any more after July 31, but we find you selling it to them in August and September just in this small number of food processing plants we inquired about specifically.
A That is correct.
Q Did you continue to sell into food processing plants the balance of the year?
A No. September was the last month of delivery.
Q September was?
A That is right, sir.
Q And then this letter is to take it out of all the rest of the heat exchange and replace it with your new product?
A No, sir, that is to take out two of the PCB-type fluids and limit it to only the one.
Q Well, you also had FR low?
A Yes, sir.
Q That you weren't merchandising at all in '70?
A No, sir.

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Q When you removed FR-2 and FR-3, weren't you actually removing all of your heat exchange fluids that you were actively selling in '70?

A No, sir. FR-1 became the principal heat transfe fluid which was fire-resistant.

Q But this is the replacement one, FR-1, isn't it?

A It was replacement in the sense that it replaced the FR-2 and FR-3.

Q And is FR-1 also a polychlorinated byphenyl?

A That's correct, sir.

Q And this would replace the two higher-chlorinated ones with a lower-chlorinated one for this application, but not in food processing?

A That is correct.

THE COURT: You want that marked. 11-5KB, that is the November letter, November 25 letter.

BY MR. BROWN:

Q And, Mr. Papageorge, you were explaining why the delays and cutoff and this type of thing from the customers' point of view.

Monsanto also, with regard to this withdrawal, staged the withdrawal in a fashion to enable Monsanto to move its existing inventory and also to prepare

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itself to come up with substitutes after withdrawing the substance that was considered should be withdrawn; correct?

A. No, sir.

Q. Isn't that what you told us when your deposition was taken?

A. We are talking, I believe, about heat transfer fluids?

Q. I am talking at this point solely about heat transfer fluids.

A. Heat transfer fluids?

Q. Yes.

A. Well, this reference to depletion of inventory is not correct, because the inventory on hand could be used in the dielectric application, which is still an active market. So there was no problem about what do you do with the inventory.

Now, the question as it relates to heat transfer fluids is in terms of we needed more time to get replacements. This is not correct, because we had the replacement. The big disadvantage, however, was it was not fire-resistant.

Q. Well, is it your testimony here today that there was not a phased withdrawal to accommodate disposition

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of inventory and the development of replacement products? Is that your testimony here today?

A. For heat transfer fluids, yes, sir.

Q. That was the approach in other aspects of the withdrawal, but not with regard to heat transfer?

A. That's correct, sir.

Q. Bond Brooklyn was getting Therminol FR-2, correct?

A. That is correct.

Q. That is what your records show?

A. That is correct.

Q. FR-2?

A. Yes.

Q. FR-2 converted into an Aroclor number is 1248?

A. That is correct.

Q. So that talking Bond specifically, if some of this 66 pounds per month or the 600 pounds that they got in January, which they were replacing or reordering for in September, if some of that leaked or spilled, rather than being a regular 66 pounds per month going up a chimney, that would--if it contaminated something, that would show a 1248 profile on the gas chromatograph?

A. Yes, if the material is taken from the point of

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spillage, as you say, without undergoing any kind of change in nature, it will have this fingerprint, peaks and valleys that represent, that are typical of Aroclor 1248, yes.

Q Now, when Monsanto tested what was represented to Monsanto to be a couple of samples of Rozansky's bakery product, meal, you came up with 1248 fingerprints, right, both samples, do you recall?

A The analyst recorded it as equivalent to 1248, correct.

Q Now, you recall when you were talking to Mr. Rozansky that he told you that there was some paper containers, this type of thing, that was in his meal as he prepared it?

A Yes, sir. Yes, I was personally shocked, but that is what I heard.

Q I am sure some of my other brothers will be asking you more about that situation. I am not going into it largely because I think I had been taking too much time. But in any of the paper applications, the carbonless carbon paper being recycled or the other miscellaneous applications got into the plastic containers, cardboard, that type of thing, if those were the source of the contamination, what level of

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chlorination did Monsanto use for those? Would those be 1242, 1248, 1254, or what?

A Well, it could be any of those. The carbonless copy paper used Aroclor 1242.

Q 42?

A That is right. Inks and adhesives could be any one of the three, 1242, 1248, or the 1254.

Q If the paper and the foreign matter, so to speak, were impregnated with pieces of paper if it came in with PCBs, came into the bakery, it could be 1248 or it could be any of the others; is that it?

A That is true.

Q Let me ask you just one other question about this situation as between the paper and a spill or a leak in the heat exchange as to which would be more probably the source of the contamination in a bakery, in Bond Bakery, any of these bakeries.

How much--Rozansky delivered this stuff in 20-ton loads, 40,000 pounds, roughly. How much of the PCBs would it require to contaminate 40,000 pounds to the level of your tests? Your tests are 700-some-odd parts per million. They're both above 700. Take even 700 parts per million. How much of this PCB material would have to be in the mix to contaminate 40,000

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pounds at that level?

A At that level I will have to do mental arithmetic here.

700 parts per million means if I had a million pounds of this meal, 700 pounds of that would be the PCB.

Q If the figure were 1,000 rather than 700?

A That would be a thousand pounds for every million pounds.

Q That would mean--

A It's 500 pounds for every 500,000 pounds.

Q 50 pounds for--

A For every 50,000.

Q So are we talking in the range of 30 or 40 pounds being required to contaminate one of his truckloads up to the level of 700 parts per million?

A Yes, up to that level, and we are assuming a uniform mixture at that level.

Q Yes, I understand.

A All right.

Q But it would take something in that range to do it?

A One bucketfull.

THE COURT: What is that, a 10-quart

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pail?

THE WITNESS: I am thinking here of-- that is close. A five-gallon pail.

THE COURT: All right.

BY MR. BROWN:

Q And this is liquid that has no odor particularly

A A very faint odor when heated. Normally there is no detectable odor.

Q At certain temperatures at least it looks like water, acts like water?

A When it's fresh and clean, it's water white.

Q So that if somebody took that bucket and just dumped it over some stale bread, nobody would know it was there except that it might be a little damp?

A It would be simply oily like a clear mineral oil appearance.

Q It would be oily to the touch?

A Yes, sir.

Q Viscosity is there?

A Yes, there is some viscosity, yes, sir.

Q But if this includes some bakery products that were fried in oil, heated by your heat exchanger, you are going to have some grease in there anyway, aren't you?

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A Normally, yes, yes.

Q So this would be just adding some more oily liquid to the mix?

A That is correct.

Q Now, if Mr. Rozansky in preparing his dried bakery product tries to dry it out--there will be some testimony there is a certain level of moisture content he is supposed to maintain. If it's more than that, he dries it; if it's less than that, he does something to get more moisture in it.

If he tries to dry it and somebody's thrown this bucket, five gallons or so, it's in there some-place, if he tries to dry it, will it dry, vaporize being heated?

A This depends upon the temperature of his operation. If he is just carrying the temperature to a point where water moisture is driven off, he may not succeed in getting all of this oiliness out.

Q If there is water moisture in there at the same time, the water moisture will be driven off first, leaving the PCB moisture still there?

A That is most apt to happen, yes, sir.

Q If he gets up to 150 degrees in his drying operation, will it cause the PCBs to vaporize?

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A No, sir, hardly.
Q How high do you judge the temperature would have to be if it's merely contaminated so dry materials that people are trying to bring out, bakery material--
A Drive it all off?
Q Drive any of it off.
A Well, you start--I believe you'd start vaporizing some of it off as you approach, say, 200 degrees. All right, 200 degrees, and you might succeed as you approached 350, 400 degrees.
Q 200 degrees. What does water boil at?
A 212.
Q So that some of this will be driven off if you get the heat up to the heat that would boil water?
A Fairly close to that. You will get some of the lower-chlorinated members of this mixture volatilizing.
Q Now, if that happened, if in this drying process he dries some of it out, it's going to be vaporized in his operation when it gets away from the heat, what is it going to do?
A Wherever his stack takes the gases.
Q Well, it's always nice to assume everything goes up a stack. Let's assume his drying operation isn't

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vented directly to a stack. He is putting ambient air through it on a drying process, you know, they used to smooth out wood, we had a tumbling barrel--do you know what I am talking about?

A I think I do, yes, sir.

Q If he is drying in a tumbling barrel of some kind and he drives this stuff out, when it gets away from the source of heat, what is going to happen? It's not out in the atmosphere; it's in his plant. What's going to happen. Is it going to condense again in a liquid form or not?

A It could. And the chances are it will deposit itself on the surfaces.

Q On whatever is below it?

A Or above it, ceiling, walls, desks, platforms.

Q These heat exchange units, they're actually set up so there is one line going from the heat source to where you want to use it and then a return, the same as most forced hot water or steam systems that people are familiar with in their homes?

A That is correct.

Q In the illustrations which are a part of the pamphlet (Exhibit shown to the jury), Mr. Papageorge, it appears in all of these photographs, except the

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ones that have the units without the piping, that some of the piping appears to be up overhead. Would that be normal that you might have the lines going in the ceiling and going down to where you want to use th rather than going under the floor?

A It can go either way, sir, and it has nothing to do with the functioning of the facility.

Q Yes, sir, I understand that. But conventionall as these things are set up, if you know, isn't it the fact that they have the unit that is being used on a floor and the piping going up overhead from the unit as is shown in these?

A I have seen both.

Q Both ways?

A Yes, sir.

Q And you wouldn't know which way they'd probably be using it in a bakery?

A No, I don't.

Q But if he had the overhead piping, and there were any leaks in the piping, you would still have the possibility there of a steady drip onto any food-stuffs that might be below?

A Possibility, yes.

Q Well, you told us that the actual impetus o

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getting the June 8, 1970, letter out telling people you are getting this out of food processes was the Yusho incident that occurred in Japan in 1968, correct?

A That was a consideration, yes.

Q Let me correct any misapprehension I may have created in my opening statement. I don't know whether I did or not. My lawyer tells me I may have.

The polychlorinated biphenyls involved in that instance were manufactured in Japan, not by the concern with which Monsanto was associated, but it was by a competing concern; correct?

A That is correct.

Q So it wasn't Monsanto's product?

A That is correct.

Q But it was reported to have been polychlorinated biphenyls, PCBs?

A That is correct.

Q Now, briefly, Mr. Papageorge, after it turned out--the garbled reports out of the way, what apparently was the fact that happened in 1968 that caused the problem in Japan?

A As I understand it, in Japan, rice bran, which is removed from the rice--

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MR. PETERS: I would like to voice my objection for the record on this episode on the ground it did not involve Monsanto or any Monsanto product or product similar to Monsanto's. Anything concerning that happening there, to my knowledge, is hearsay.

THE COURT: Well, you had knowledge of the problem that occurred in Japan in 1968?

THE WITNESS: We had heard garbled reports, your Honor, in 1968.

THE COURT: All right. Objection is overruled, Mr. Peters.

BY MR. BROWN:

Q What happened to the rice meal?

THE COURT: Let me caution the jury this evidence is being admitted on the question of knowledge that Monsanto might have had. You have to determine whether or not they did have knowledge. That is one of the issues in the case, but it does not prove that what he heard was actually what happened in Japan.

It's kind of a fine distinction, but that is the way it's going in.

THE WITNESS: Shall I relate my understanding of this as of 1970 or currently?

MR. BROWN: Currently.

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THE COURT: As of--

MR. BROWN: I am concerned first with the event, your Honor, the event itself.

THE COURT: Well, I think you better--I am going to rule you tell us first what you learned in 1970 and then if that doesn't satisfy Mr. Brown, I will let you ask the next question.

BY MR. BROWN:

Q Well, as of the time that you put out your June 8 letter, 1970--

A Very good, sir.

Q --what did you understand had happened in Japan?

A We understood that an oil, which is extracted from the bran that comes from rice, was being refined in a system in which PCBs were used to supply the heat in the distillation step for refining. We understood also at that time that the levels of--I am sorry, that somehow the PCBs got into this oil intended for human beings. We did not know how much, we did not know how many people were affected, but we heard reports that this oil was contaminated, that human beings had consumed it, and that there were some symptoms noted, a sickness among these people, and we

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had much difficulty getting any further clarification of the incident.

But the very fact that PCBs were mentioned and that human food was involved led us in a large manner to put out this letter that was referred to earlier as a precautionary manner to our customers in the food processing industry. We had no evidence of similar problems in this country or anywhere else in the world.

Q Do you recall participating in the hearing before the task force, so-called, that resulted in this big book and a lot of other books about PCBs?

A Is that the report, sir, the task force report on PCBs?

Q Yes.

A Well, my participation with the task force occurred after the issuance of that document.

Q Well, you are familiar with what the document is?

A That is right, sir.

MR. PETERS: What is the date, please?

THE COURT: The date of the document that you are referring to.

MR. BROWN: The publication date of the

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document, your Honor, is sometime in May of 1972, the publication of it.

MR. PETERS: My objection, for the record--

THE COURT: All right.

MR. PETERS: --is because of the timing.

THE COURT: Because of the date, all right.

I am not ruling anything yet, because there may be something in here that goes back prior to 1972. If it has anything to do with 1972, I will probably exclude it.

Go ahead, we will see where we are going.

BY MR. BROWN:

Q I am just going to ask you--

THE COURT: Mr. Peters, you can come up and look at it if you want to.

BY MR. BROWN:

Q I am going to ask you, Mr. Papageorge, if you will review to yourself the last two paragraphs on Page 114 of the report. After you have reviewed it, I want to ask you a few more questions about what the 1968 supposed knowledge was with regard to that situation.

THE COURT: Now, is this still on the

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Japanese problem?

MR. BROWN: Yes, your Honor.

(Witness reading document to himself.)

THE COURT: Is that 3-P?

MR. BROWN: Yes.

BY MR. BROWN:

Q Have you had a chance to read those two paragraphs?

A Yes, sir.

Q Does that refresh your recollection a little bit as to the scope of the problem in Japan that occurred in 1968 and whether or not it was a result of a leak in a heat exchanger?

MR. PETERS: Could I have a standing objection to that, your Honor, so-called Yusho episode?

THE COURT: This is the Japanese episode?

MR. PETERS: Yes.

THE COURT: All right, Mr. Peters' objection is overruled, but he has a continuing objection to the so-called Japanese episode.

Do you have the question or do you want it read back?

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THE WITNESS: I would appreciate it if he would read it back.

THE COURT: All right.

(Whereupon the Court Reporter then read back the pending question.)

THE WITNESS: It does refresh my memory and it does define the scope of the problem, yes, sir.

BY MR. BROWN:

Q And was it apparently as reported, neither you nor I having been there, it was the Kanechlor 400 heat exchange fluid that was reported?

A Yes, that is the trademark of the material manufactured by the competitor company in Japan.

Q And that had the equivalent of chlorination of your 1248 in your series?

A That is true.

Q More than 600 people were affected?

A Yes, sir.

Q Now, you told me earlier on in your examination that you had been deposed in one other case, and that, sir, was the case involving Holly Farm down in North Carolina?

A Holly Farms was one of the places, yes.

Q Now, I am not concerned with any litigation with

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any litigation with regard to it. I am not asking about that. But, as you recall, when did the occurrence take place that resulted in the problem? When did it happen, do you recall? Was it in the-- in 1970 or 1971?

A 1971.

Q In the spring?

A Yes, sir.

MR. PETERS: Your Honor, I would like for the record to object to any North Carolina episode, again on two grounds. One I would like to--

THE COURT: Okay, when is the date?

MR. PETERS: He didn't give a date.

MR. BROWN: Your Honor, I have the date as in the spring and I have the date in the spring as being in the spring of 1970 and in the spring of 1971. Obviously it can't be both.

THE COURT: Well, Mr. Peters may have a valid objection if it's the spring of 1971.

MR. BROWN: I don't think so, your Honor. But I understand that that conceivably might be--may I point this out, your Honor. Whether heat exchangers do leak and in food processing plants where they do contaminate food when they do leak is

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one issue. There is another issue as to the extent to which Monsanto or anybody else had knowledge that they might leak.

But the fact they do leak is also one of the issues. And I have the situation here, I think at worst, that about the time that Mr. Pappageorge was worrying about Mr. Rozansky's feed that this came in.

THE COURT: I am going to make a ruling now. I am not going to allow you to question him about the so-called Holly Farms problem if it occurred in the spring of 1971 and your objection to the ruling is noted.

MR. BROWN: My objection--I would like an objection to that ruling also, your Honor.

THE COURT: All right.

MR. PLAUT: I think I will join in the objection, your Honor.

MR. SPELLMAN: And I also, your Honor.

THE COURT: All right.

Did you get that, Mr. Nolin? Petterssen, Poole, Agway and Jurgielewicz also join in the objection to my ruling relative to Holly Farms.

BY MR. BROWN:

Q If you recall, Mr. Pappageorge, in what months,

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as you understand it, what months during whichever year it was, was the problem going on before it was caught and corrected?

A It was in the spring of 1971 I first heard of it, Monsanto first heard of it in June of '71. It appears that the problem--

MR. PETERS: Your Honor--

THE COURT: That is all.

MR. BROWN: Your Honor, when they heard about it, this may be another Jensen. Took them a year and a half to hear about something.

THE COURT: I am sorry, that is my ruling. There will be no questions about Holly Farms at this time.

MR. BROWN: It will come back to haunt us.

THE COURT: All right, we will have some hobgoblins ready.

MR. BROWN: It's about that time.

BY MR. BROWN:

Q I asked you this morning as to how much pile-up of old stuff came back to you while you were waiting for your incinerator. You told me you thought my figure was low. Would 500,000 pounds be more right?

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A That is more in the order of magnitude, yes, sir.

Q You have done the reading with regard to these problems. Has it been concluded by competent researchers that reproduction systems are one of the most vulnerable functions in PCB poisoning, that this is true in mammals as well as in other life forms, including both fish and birds?

A Yes.

MR. BROWN: Thank you very much, Mr. Papageorge.

THE COURT: Mr. Snow?

CROSS-EXAMINATION

BY MR. SNOW:

Q Mr. Papageorge, this morning during the examination there was discussion about Dr. Rice coming to Monsanto around the 11th of January, 1971, as I caught it, to be given some standards and some quantitative material with respect to analysis of PCBs.

Do you remember that discussion?

A I recall a discussion, sir, but the standards were mailed to him about a week before he arrived.

Q All right. In any event, after discussing this this morning on direct examination, I believe

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you said that your experience after Dr. Rice left and went back to Agway was unique in that it was difficult to reach him by phone, and things of this nature.

Do you remember that?

A Yes, sir. But I didn't know that I restricted it to after his visit.

Q All right. Would you explain to me a little further what it is you meant by that?

A I will try. I have been involved up to that point in time with many pleas for help in understanding PCBs and how to cope with what the color would be, a problem to him. So I began after a while to get a certain sense or feel for how these things affect people and how they react, the kind of questions they ask, the way they ask them, the activities they pursue after they have had discussions in the followup conversations that take place.

In this instance, I sensed--

MR. PLAUT: May it please the Court, I think I am going to object to this as being his mental state concerning characterization of phone calls and so forth. I think this is just an opinion that goes to his state of mind.

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THE COURT: All right. Well, I think I will overrule the objection.

THE WITNESS: In this instance, the very fact that a Vice President of Monsanto was the first person contacted was unique. I have yet to this day, after five years in this PCB business, to have another chap like that. A Monsanto Vice President called me to his office and told me that the Agway people needed some help on PCBs, could I help them. And, of course, I said yes, sir.

Subsequent to that, the kinds of questions that were asked of me over the telephone were worded in a different fashion, as though--and this is--I know I can't prove it. I had a vivid feeling that an attorney was seated next to the man, talking to him.

THE COURT: All right, now. That is stricken and the jury is instructed to disregard him.

You can testify as to what Dr. Rice told you, questions that he didn't answer, but you certainly can't hypothecate as to whether or not he had an attorney sitting next to him.

THE WITNESS: Yes, sir.

Following Dr. Rice's visit, we were, for

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a few instances, able to talk to Dr. Rice over the telephone and compare our result with his. So there was, for a brief spell, some free exchange. It wasn't too long after that Dr. Rice was not available to us and no one would tell us what his new phone number was or where he might be located.

I don't remember just where, but somehow, by accident, I found out he had been relocated to another city as part of the Agway system. At one point in time, I was taken to task over the telephone by an Agway representative in very harsh language because I didn't relay the information in writing.

And I told him, look, we are busy people. We think we have tried to be cooperative. If in truth you had a problem with the information we gave you over the phone not to be enough to guide you in what activity you wish to undertake, what purpose would a written document serve? Those are the points that remain with me.

BY MR. SNOW:

Q At the request of counsel earlier in this case, I believe you produced a summary sheet of 1970-71 monthly PCB sales to Rozansky suppliers, which is received in evidence as No. 9. Is that a copy of that

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document?

A Yes, sir.

MR. SNOW: I would like to have the original marked.

THE COURT: There doesn't seem to be any objection to that.

MR. PETERS: I object to that, your Honor.

THE COURT: All right. The objection is overruled.

MR. PETERS: That shows, your Honor, or it includes the terminal of Philadelphia, and that was not a supplier of Rozansky's.

THE COURT: Well, are you going to have evidence to that effect?

MR. PETERS: Yes, we will have evidence to that effect.

THE COURT: I mean if it's accepted by all counsel, we will just fix the document so it's correct.

I don't know what the document is, and it would appear to me there is a conflict in evidence and the document is admissible, but, Mr. Snow, do you agree with what Mr. Peters says, or don't you know, or

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what is the status as far as that is concerned?

MR. SNOW: I have no evidence one way or another. I merely know this was produced by discovery and I would like it marked.

THE COURT: We will mark it and, Mr. Peters, you can go into it when the time comes.

MR. PETERS: I have my objection, please?

THE COURT: Yes, your objection is noted.

12-9P, Rozansky sale list--or purchase list.. Go ahead.

BY MR. SNOW:

Q Mr. Papageorge, with respect to your discussion earlier with Mr. Brown about sales to the Bond Brooklyn Bakery, using the file that was produced during your examination and the exhibit which has just been marked, I believe a summary of it was that your records indicated there were no deliveries of Therminol in 1968, a total of 1800 pounds in 1969, and a total of 2400 pounds from your records in 1970; is that correct?

A That is correct.

Q So assuming for a moment--and I ask you to assume this--that there was a Bond Brooklyn Bakery using your material in a heat exchanger in 1968, there

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is no pattern of regular delivery based on regular need shown by the records that we have before us in question, correct?

A This is a matter of perspective, sir. I don't know what you mean by "regular." You mean a given amount, given period of time repeated many times?

Q Right.

A No.

Q You agree with my conclusion?

A Under that definition, yes, sir.

Q So that, as far as we can tell from these records, and again assuming the same facts as to the previous question, it's just as consistent that in 1969 and 1970 that the Bond Bakery in Brooklyn was buying PCBs to replace lost product through leaks or changes or any other possibilities that have been discussed as that it was a regular system use based on a normal function; is that correct?

MR. PETERS: I note my objection, please, again, your Honor, on the grounds that repeatedly they refer to leaks in Bond Baking Company, and there is no such evidence, and I understand there will be no such evidence during the course of this trial.

THE COURT: You made your point.

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Objection is overruled.

I will agree with you, to date there is no evidence there was a leak in this particular bakery factory.

MR. RICHARDS: I would like an objection also.

THE COURT: All right. Mr. Richards' objection is noted.

Do you understand the question?

THE WITNESS: I don't think so. I would like to have it repeated or reworded.

MR. SNOW: I will restate it, probably to save time.

BY MR. SNOW:

Q Assuming that there was a heat exchanger in operation in the Brooklyn Bond Bakery in 1968, assuming it was using your product--

A All right.

Q --based on the evidence that we have from your files and from what you have produced previously in discovery, it's just as possible that the purchases during '69 and '70 were to replace losses through leaks in the system as to replace normal, regular usage, correct?

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MR. PETERS: My objection.

THE COURT: Objection of Monsanto and Rozansky Brothers is noted.

MR. PETERS: Your Honor, I object to the possibility which is not included in the other question.

THE COURT: All right.

THE WITNESS: All right. It's possible, yes.

BY MR. SNOW:

Q And in the exhibit that you discussed at great length with Mr. Brown this morning which was marked as 10-14B, little red booklet you had before you, for a substantial period of time, you agree that your own people were saying as part of the public relations advertising in this manual that there were leaks in these kinds of systems and that was the reason that you wanted to use this product, so you wouldn't have a fire; isn't that correct?

A I agree, but you will note, sir, I agreed because--and I also mentioned the fact that this is in 1959. In the intervening years we became more knowledgeable, the designers of equipment became smarter, if you will, so the frequency of the leaks

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that you might read in here diminished.

This is the first brochure that I am aware of that addressed itself to the use of these fluids in this application. It even predates the use of the trademark Therminol when it became a very active, goir business with more sophistication than is pictured in this pamphlet.

THE COURT: Mr. Papageorge, you said something that confused me á little bit. I--well, I don't really think I am confused, but I would like to clarify it.

Monsanto did not design and manufacture the so-called heat exchange systems, did it?

THE WITNESS: No, sir, we only supplied the liquid.

THE COURT: Oh, all right. Okay.

BY MR. SNOW:

Q Mr. Papageorge, you also said this morning that in your own heat exchanger pilot model at your plant you had leaks of this product Therminol, correct?

A In the early years?

Q Yes.

A Yes, sir.

Q Yesterday, in opening statement, Mr. Peters

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said there would be evidence that Monsanto in 1970 knew more than the U.S. Government, more than the Federal Drug Administration, and more than the Environmental Protection Agency about the problems of PCB in the environment.

Do you agree with that statement?

A. Yes, sir.

Q. And I take it that you, as the designated representative of Monsanto, were the focal point of all of this technical knowledge; is that a fair statement?

A. That is correct.

Q. And in fact when the government was beginning to study the problems in the environment, problems in animals and so forth, I take it it's your position that your company knew more than they did, at least in the early stages and in the early 1970's?

A. That is correct.

Q. And you have testified today that the reason you began to voluntarily pull this stuff off the market in 1970 was that you had received sufficient information to convince your company that there were risks to animals, potentially to the environment and potentially to human beings, from ingestion or exposure

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to PCBs; is that correct?

A To a point, sir.

Q All right.

A The only point I would like to clarify, you mentioned risks to animals. In every instance, at the point of time we are discussing, it was obvious that presence in environment was well established. There was some speculation and implications that harm was being done, but nothing concrete. But, nevertheless, we took action.

Q Well, the concern of your company, Mr. Papageorg was certainly severe enough to want to have you voluntarily pull back about 50 percent of your total annual production from the market; isn't that correct?

A That is correct.

Q And this was without federal regulations requiring you to?

A That is correct.

Q So you were really concerned about this as a corporation in 1970?

A Very much so, yes, sir.

Q All right. Your concern was in part from reports you had had from Japan about possible damage to human beings?

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A. Part of it.

Q. Now, then, keeping in mind this high degree of knowledge as compared to the rest of the Federal Government and its agencies and the public in 1970, Mr. Papageorge, did at any time in 1970 Monsanto, through you or some of your staff, advise the Federal Government, whether it be the Environmental Protection Agency or any of the federal agencies involved with this task force that we have been discussing, to alert the general public about the possible contaminations of PCB?

A. If I understand your question, did we specifically discuss this subject with representatives of the government to alert the general public?

Q. Yes, sir.

A. I am trying to recall the many meetings we had. No, we did not tell any agency to publicize this.

Q. Okay. Now, you testified earlier today that, at least insofar as your own customers were concerned, like Bond Bakery, for example, you were sending out letters in 1970 saying, look, where this may come in contact with food or food processing, it could be a problem. We are going to stop selling it to you at some point. We suggest a substitute product, and so

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forth; correct?

A. Correct.

Q. Were you, during that same period, saying to those same customers, gentlemen, please contact your customers, if it's in the food business, that this could be a problem?

A. No, sir. I am not aware of a case where this would happen; but we did not, no, sir.

Q. Now, we have talked about the fact that except for dielectrics, I believe you said, you had withdrawn by the end of 1970 or early '71 substantially all of the PCB types of products that you sold to the general public; is that correct?

A. The dates are December '71.

Q. December 1971?

A. Yes.

Q. I don't believe anybody defined at this point what a dielectric is. Would you, for the jury's education, tell us what a dielectric is, or dielectric use?

A. I will try. In transformers, which are devices which are used to either increase or decrease the voltage in an electrical line, there is a need for cooling the coils and the steel parts that are inside

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the steel case.

At the same time, the coolant must be of such a nature that it's a nonconducting--that it doesn't carry electricity through it. The PCBs have been found to be ideal for this purpose in that they act as coolants, they do not carry electricity, and in situations where there is a surge of electricity going through the equipment, and there might be a tendency to break down the fluid, well, the PCBs tend to not break down. But if surges have terrific force and does break off, the gas is given off, the gas we talked about earlier, HCL, which is not an explosive gas.

If this same unit were filled with a clean mineral oil, something like you find in a medicine bottle which works well, except that when it breaks down it gives off gases which can explode, and if there is arcing, these gases will explode, the unit will fail, it will spray the oil and the oil may, of course, catch fire, so you have this problem as it relates to mineral oil versus PCB in transformers.

THE COURT: What were used in transformers prior to the production of PCBs?

THE WITNESS: The common ingredients were

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mineral oil, sir. There is also a type of transformer that doesn't have any fluid at all. It's an air-cooled or so-called gas-filled unit.

THE COURT: All right.

BY MR. SNOW:

Q Now, it's my understanding, Mr. Papageorge, that the production of PCBs for this dielectric business, whether it be transformers or capacitors, represented a very substantial percentage of your total production of business each year. Is that a fair statement?

A Yes, sir. It's about half of it was in this application.

Q All right. And isn't it a fact that as compared to any other single application that you have discussed today, use of plasticizers or in other applications, there were no other applications that came anywhere near in terms of percentage of total business to these two users? Is that a fair statement?

A That is correct.

Q And in 1970, when Monsanto made the decision to pull back the miscellaneous uses and other uses other than dielectric, there was a substantial amount of discussion in this country as to whether PCB production ought to be banned entirely; isn't that correct?

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A. Yes, there was some discussion. I have no way of describing it, as to whether it was "considerable.

Q. Okay. So isn't it a fair statement, sir, that Monsanto's decision to voluntarily pull back a segmen of its market was based, at least in part, on the economic desire to retain a substantial portion of it current market?

A. That is not true.

Q. Absolutely.

THE COURT: Excuse me just a minute. We are going to take the afternoon recess. I only want you to answer this question, if you can. But can you explain to us what a heat exchanger is?

THE WITNESS: I will try, sir.

A heat exchanger is a device--I am thinking of a good example. For example, the radiator in your automobile is a form of heat exchange: The fluid in that radiator circulates to your engine block, picking up the heat from the engine, and goes back to the radiator where the heat is given off, so the radiator in an automobile is a small version of a heat exchanger.

THE COURT: Now, again, only if you know, and so that based on your explanation, a heat

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exchanger in a bakery would be part of the oven system for baking bread?

THE WITNESS: That is one application in a bakery, yes, sir.

THE COURT: Let's take a short recess.

(Recess taken at 3:00 p.m.)

- - -

(Resumed at 3:15 p.m.)

BY MR. SNOW:

Q Mr. Papageorge, before the recess we were discussing your company's voluntary withdrawal of about half of its total production in PCBs. Remember that discussion?

A Yes, sir.

Q Did your company lose ultimately all of its customers and business from whom it had withdrawn the PCBs or did you provide substitutes and retain substantial portions of that market?

A We maintained or retained many of them. I don't have a good measure of whether or not that represents a substantial portion. Many of them found alternative materials from different sources.

Q Other than the products that we have been discussing, PCBs have had a great resistance to fire.

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What alternatives were there in 1970 to these products for the uses in the food industry, for example, in heat exchangers?

A. The alternatives that were available in 1970 for heat transfer would have been, well, the very common one, water and steam with its problems of reaching high temperatures, which requires very high pressures, which requires some safety considerations for high-pressure steam installations.

There were materials similar to our non-fire-resistant fluids that are very closely resembling mineral oils that can withstand the temperatures, but they are not fire-resistant when exposed to air, they flash into a fire quickly. Or other approaches would involve direct-flame heating from gas or oil fires, and this creates problems in controlling the temperatures, to give uniform heat, and that type of problem.

Q. How were fluorocarbons?

A. I am not aware of fluorocarbons applied in heat transfer systems.

Q. Isn't it a fact that fluorocarbons have high thermal stability and are used as convectors for evaporative coolants?

A. I am not familiar with that.

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Q You just don't know?
A That is correct.
Q Your company was proposing in 1970, specifically in the June 8 letter which has been marked as Exhibit 9-5F, that one of your own products be used, Therminol 66; isn't that correct?
A That is correct.
Q I show you a document entitled "Therminol 66 Heat Transfer Fluid," which has been previously marked as No. 145, and ask you if that is the product that you were suggesting in 1970 as a possible substitute?
A Yes, sir.
THE COURT: What is that number?
MR. SNOW: 145. I would like that marked.
THE COURT: All right. Monsanto had no objection to that, my records show.
What report is that?
MR. SNOW: Therminol 66 Heat Transfer Fluid, technical bulletin.
THE COURT: 13-145P. That is a pamphlet entitled what?
MR. SNOW: "Therminol 66 Heat Transfer Fluid."

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BY MR. SNOW:

Q. Mr. Papageorge, would you turn to the last page and interpret the date code at the bottom and tell me when this was prepared, this document, based on the code?

A. The code has, in the set of numbers, a setoff with hyphens, 0267, that represents February 1967.

Q. Thank you. So in February of 1967 Monsanto was producing and selling Therminol 66, correct?

A. That's right.

Q. And I take it from having scanned briefly this technical bulletin that Therminol 66 does not have the PCB characteristics that we have been talking about as a possible environmental contaminant in this case?

A. That is correct.

Q. I would like to show you another document which has previously been marked as 146, entitled "Therminol 77, High-Temperature Heat Transfer Fluid," and ask you, from the code, when that product was on the market?

A. I am somewhat confused.

Q. Would you look to the last page again?

A. These dates I have been talking about are the date of publication of the brochure.

Q. That is all I am interested in.

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THE COURT: This is Therminol 77?

MR. SNOW: Yes, sir.

THE COURT: All right.

THE WITNESS: This latest bulletin I am looking at has the code 0767, which indicates July 1967.

BY MR. SNOW:

Q Is Therminol 77 another possible product that could be used in heat transfer as a substitute for the kind that we were talking about earlier, the FR-1's and the FR-2's, FR-3's?

A It could be, with safety differences.

Q And I take it that Therminol 77, again, is not a PCB product of the type that we have been discussing in this case?

A That is correct.

MR. SNOW: Thank you.

THE COURT: All right. This will be 14-146P.

THE WITNESS: I would like to make a correction, if I may.

THE COURT: Go ahead.

THE WITNESS: I just recall, I believe Therminol 77 is no longer a commercial product. I had

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forgotten just when it was removed from the market, but there are other similar materials available.

BY MR. SNOW:

Q I will ask you, because I am having trouble hearing you now, keep your voice up a little so everybody can hear.

A I am sorry.

Q Mr. Papageorge, we discussed earlier today the delivery schedule to the Bond Bakery from your records in Brooklyn. Referring again to Exhibit 12-9, which I believe you still have before you--

A Yes, sir.

Q --there is an indication that, from your records, that another supplier was Ward Food, Inc., East Orange, New Jersey, who received Therminol FR-2; is that correct?

A That is correct.

Q Now, the only date--and that amount is indicated on this document as August of 1970, 600 pounds; correct?

A That is correct.

Q Do you have any knowledge or records which would aid you to trace back as you did in the Bond Bakery, Brooklyn, instance the deliveries to Ward Food, Inc.,

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East Orange, New Jersey?

A I am trying to recall--let me see. I have here a reference to a Ward Food, East Orange, New Jersey, Therminol FR-2.

Q Would you start with the earliest date and bring it up to date?

A I am trying to find the year. This is 1969, in April they received 600 pounds.

In November they received 600 pounds.

Q Do you have anything for 1968?

A No, sir, no reference.

Q You told us that in 1970, August, 600 pounds; correct?

A That is correct.

Q Have you ever been to a commercial bakery such as Ward or Bond yourself to see what this looks like?

A No, sir.

Q Do you have any knowledge, based on any information that you have available to you, how many pounds of this Therminol product are put into a typical bakery installation when it's filled up?

A No, sir. I understand in a bakery these applications can vary from location to location. In some instances they are used to heat the shortenings

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in oils in which the goods are cooked. In other cases they are used in the regular baking ovens to heat the oven itself. And still other places they're used to cook the jellies and the other ingredients involved in a bakery.

I have never heard a number that applies to all these systems uniformly.

Q Can you give me a range without trying to give me a number that would apply to all of them uniformly as to range of pounds to fill a system up?

A This is complex, because it's a function not only of the size of the unit, the number of units, but the distance from the boiler to the heater to the oven itself. They can range up to 10,000-gallon systems.

Q How many pounds is that?

A Well, each gallon is about 12 or 13 pounds, so we are talking here 100,000 to 150,000 pounds.

Q Is that the high?

A For this kind of application, I would say that would be on the high side.

Q What is the other, what is the low range?

A The low side, the small cooking pots, could hold as much as a drum of material; that is a 600-pound system.

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Q What you are saying is we could go all the way from 600 to 150,000 pounds, depending on the application?

A That is my understanding.

Q How about in an oven kind of operation where they're actually using the coils to bake with, heat exchangers producing heat?

A I would say that that might approach the 3,000, gallon system, as I say.

Q 3,000 gallons?

A About that size, yes, sir.

Q You testified earlier that Monsanto made a test for Agway in 1971, I believe it was in March, in which there were two samples that produced a result of 700--in excess of 700 parts per million of PCBs. Remember that testimony?

A Yes, sir.

Q And you communicated that back to Agway?

A That is right.

Q And you had knowledge at that time that these samples were of a bakery byproduct?

A I am trying to recall the sheet that I looked at previously. I think it referred to it as Agway feed.

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Q Your answer is that it was a feed sample that was being given?

A Yes, sir.

Q Subsequent to that you learned as part of that feed sample there were Rozansky bakery byproducts in it?

A Yes.

Q My question is, as a result of that accumulatio of all of that knowledge, did Monsanto, to your knowledge, make any independent investigation for the source of that contamination?

A No, sir.

Q You told me earlier that as far as your information went, Monsanto never suggested to the Federal Government or any of its agencies an overall warning to the public with respect to the possible PCB contamination problem. Do you remember that testimony?

A That is correct.

Q To your knowledge, did Monsanto during 1970, the same period we have been talking about, issue any specific warnings about this problem to any food associations or trade associations?

A If by issuing specific warnings you mean was a letter mailed to them, no. On the other hand, I

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personally attended meetings of food-type organization at which this PCB situation was discussed.

Q But your company was not issuing statements warning food associations or food trade associations about a possible contamination from its products?

A Not directly, no, sir.

Q I believe you testified this morning that you have learned from materials that have come to your attention that mink are very susceptible to PCBs; is that right?

A That is what I am told, yes, sir.

Q And part of that information I believe you said were papers written by Doctors Aulerich and Ringer?

A I am aware of those papers, yes.

Q In fact, you have met with these gentlemen at sometime, have you not?

A Yes, sir.

Q And discussed this problem with them?

A Not in detail, sir. My meeting with them had to do with supplying them with samples of test material and their description of their plans for the tests.

Q And this information was available to you in 1970, generally that they were studying and working on this problem?

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A. Yes. It was, as I recall, the fall or early winter of 1970, sometime in there.

Q. Now, you said earlier, and referring to some of the materials that were up on the board that Mr. Brown was talking about, that Monsanto has run tests on beagles, that is dogs?

A. That's right.

Q. On mice?

A. Correct. Mice.

Q. Maybe any guinea pigs?

A. Rats.

Q. Rats, I believe. Chickens?

A. Chickens, yes, sir.

Q. Ever run any tests on mink?

A. No, sir. That is not a test animal.

Q. But you knew in 1970 that there was an alleged problem involving your products having to do with mink?

A. No, I didn't get that inference. I knew these gentlemen up in Michigan had been studying coho salmon and mink and they were also interested in what effect PCB might have, but it was sort of an academic question at that time.

Q. And, as far as you knew, we have no dispute

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about this, Monsanto was at least the most substantial producer of PCBs in this country?

A That is correct.

Q At any time, so far as you know, in 1970, did Monsanto, through you or anyone in your office, issue any specific warnings about PCB contamination problems to the mink industry through its trade associations?

A No, sir. That would not be any reason to.

Q The document which we have been discussing, the red pamphlet which has been identified as 10-14B, at Page 15, the right-hand column, last full paragraph, indicates that vapors emitted by Aroclor 1248, which have been heated, could be injurious and people should not breathe them for any prolonged period; is that correct?

A That is correct.

Q Would you tell us why that is so; what would it do to us if we breathe them for a prolonged period?

A Well, you know, some of the studies listed earlier indicated that by breathing the vapors of PCBs, human beings could exhibit what is known as a skin symptom known as chloracne, and there was some indication, if you know from the earlier studies, there is possible liver damage to humans. And these

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resulted in the kinds of cautionary words about breathing and exposure. That is how that information came about.

Q The reports that were published in 1969 by the Japanese of this so-called Yusho incident indicated this chloracne happened to these people for three years--

MR. PETERS: May I have a continuing objection?

THE COURT: I don't know why we have to continue with this. It was covered by Mr. Brown.

MR. SNOW: It goes to the issue of notice.

THE COURT: Mr. Brown went into it. I don't--I think you made your point. Next question.

BY MR. SNOW:

Q In Mr. Peters' opening statement he referred to the fact you were shipping PCBs to the Department of Defense and they, I believe his words were, forced Monsanto to keep shipping them. Do you remember that reference?

A Yes.

Q Will you tell me, A, what you were shipping to the Department of Defense?

A We were shipping Aroclor 1242.

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Q And what was it used for?
A I haven't been told the use, because it was classified as Secret, but I have been told this much, that they have used it as some component in the Chapparel Missile, and these missiles, because of the very nature, as I understand, must be brought back on a routine overhaul or maintenance program which involves a replacement problem with the PCBs.
Q Are you still shipping to the Department of Defense for any purpose?
A For that purpose, we have shipped about two months ago, the latest shipment.
Q You said earlier that a PCB, if it's pure, would look just pretty much like water, be colorless and odorless, unless it were heated; is that correct?
A That's right.
Q And it might have a slight oily viscosity, but if it were mixed in with feed or grain that it could probably not be readily apparent to anyone?
A I didn't mean to imply that. It would give the contaminated material an oily appearance. And this, of course, is a function of the amount.
Q Mr. Papageorge, if we assume for a moment that this duck feed which came from Agway, which had a

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Rozansky bakery product in it, had within this bakery byproduct candy, noodles, cookies of various types, there would be some oily consistency to that product to begin with, would there not?

A. I can only guess as to what that mixture might look like, sir.

Q. Okay. Mr. Papageorge, is it a fair statement, in your opinion, that a mink rancher would have no way through the chain of sequences that have been described in this case, that is the duck byproduct being frozen and sold as mink food, to himself, as a mink rancher, determine the presence of PCBs if that contaminant were inspected way back at the line as part of the bakery byproduct?

A. If I understand your question, you are saying would you expect the mink farmer to be aware of the presence of PCBs in this kind of material?

Q. Right.

A. Since I know nothing about the mink industry, I don't know that I can comment on that. I don't know what test facilities they have. I don't know what they look for. I don't know what certificates they ask of their suppliers. It's a different business than the chemical industry with which I am involved.

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Q You indicated earlier that in 1970, your company, Monsanto, had more knowledge than anyone, including the Federal Government, Environmental Protection Agency, about how to find PCBs in the environment and what the effects would be; is that correct?

A Yes, sir.

Q All right. So it wouldn't be unreasonable to assume that a mink rancher in Massachusetts who buys duck byproduct for his minks is going to be equipped to find a colorless, odorless liquid of a range of some 20 parts per million in his duck food, is he?

A Not knowing--I don't know if I can answer that, because as we all know, there was considerable interest in such things as DDT many years before the PCB issue came up.

And from what I have been able to determine, many feed and food people got into DDT testing programs. Anyone in that kind of program may have seen some evidence of something unusual and in time could have determined that this was the PCB that everyone started to talk about.

Q Absent being in some kind of an ongoing testing program, do you agree it's not likely they will detect it?

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A. If they didn't have a testing program, they couldn't have--they couldn't detect it.

MR. SNOW: I have no further questions.

THE COURT: Who is next? I think Mr. Spellman, wouldn't you be?

MR. SPELLMAN: No. I am last.

THE COURT: Not with this witness.

MR. SPELLMAN: Brother Peters skips, Rozansky, Agway, and then myself, and then Mr. Peters.

THE COURT: All right.

BY MR. RICHARDS:

Q. Mr. Papageorge, you indicated earlier that your first contact with Mr. Rozansky came sometime four to six weeks after your first contact with Agway; is that correct?

A. As best as I recall, yes, sir.

Q. This would have been sometime in early February of 1971?

A. That is a good date, yes, sir.

Q. What was the nature of your initial contact with Mr. Rozansky, how did he come to your attention?

A. I dd not know where he got my name, but the first telephone call I had with Mr. Rozansky, as I recall, was one of trying to answer his concern,

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questions and confusion he was experiencing, and questions such as what are these PCBs I hear about, where in my operations will I find them, what can I do to get rid of them, and how do I test for them; these kinds of questions, the typical kind of question of an individual with no background whatever in chemistry, let alone PCBs.

Q So that your initial contact with Mr. Rozansky made it clear to you that he apparently encountered some kind of problem with PCBs and he had no idea what they were, where they were, or what the problem was?

A That was my understanding, yes, sir.

Q Mr. Rozansky, by the way, wasn't ushered into your office by some Executive Vice President, was he?

A No, sir.

Q Having received this initial inquiry from him, what did you do, what was the nature of your conversation with him?

A As I recall, I tried to describe for Mr. Rozansky, in a way that I hoped the layman would understand, what PCBs were, and then I went into a description of what kinds of places they might be used in.

As I remember, he mentioned his truck fleet,

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he mentioned something about his equipment and his operation, and as I recall, he mentioned that the use of inks and adhesives and some paper products that were recycled, and these PCBs could well be in the recycled finished product.

This is the kind of discussion, as I recall. And I don't recall if it was this conversation or a subsequent one where we talked about analytical methods, standards, and laboratories.

Q Did he describe to you in general terms what the nature of his operation was?

A Yes, sir.

Q And what do you recall about that conversation?

A As I recall, he had a fleet of trucks that went to several sources for the material that he would collect, and these sources included bakeries, salvage, macaroni, candy, and this material was taken to his plant, where a crushing, grinding kind of operation took place. And I recall that there was some attempt to screen, but I don't remember the details. I do recall, however, I raised the question, since I talked about the possible presence in paper and ink and the like whether or not he removed the packages and cartons. He said no.

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I said you mean you don't remove any of it? He said just the big pieces were taken out. This is my first exposure to this kind of operation, and I was inevitably, I suppose, surprised at this kind of materials fed to poultry.

Q. Did Mr. Rozansky go on to explain to you that after the paper and so forth was ground up, that it was then screened out and vacuumed away so there were virtually no, or a very small percentage of that substance left in the material?

A. No, sir.

Q. If he had done that, would that have relieved your shock and surprise somewhat?

A. It would have relieved it to a considerable degree, yes, sir.

Q. What else did he tell you about his operation?

A. I think I covered the broad picture. I don't remember any other details at that time.

Q. Did you obtain or did you get a feeling as to what size operation he was talking about, big operation, small operation?

A. For some reason I remember that 17 trucks--and I don't know if there is any validity in that number--but it represented a sizeable truck fleet that he had

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to keep moving for economical business reasons.

Q Did Mr. Rozansky indicate to you that he had any independent testing facilities of his own on the plant or available to him?

A He did indicate to me, but I don't believe it was the first discussion we had. The subsequent discussion he mentioned that he had found a laboratory and wondered about the results, reports he was receiving. It appeared that--

Q Excuse me. I didn't mean to interrupt you, Mr. Papageorge, but I am talking now about the initial discussion.

A Initial?

Q Was there any discussion of whether he had independent testing facilities on his premises?

A Oh, yes, I did ask him, although I didn't expect him to say yes. I did ask him if he had any facilities and he indicated he did not.

Q So he did not have the facilities such as has been described Agway had to perform this type of sophisticated testing on his own premises?

A No, sir.

Q Do I understand after you discussed the nature of the problem with him, that at some juncture you

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referred him to certain testing labs so he could undertake testing of his products to determine whether, in fact, there was a PCB problem?

A That's correct.

Q Do you recall what the labs were you referred him to?

A At that time I was able to recommend the Warf Institute Laboratory in Madison, Wisconsin, and another laboratory in Memphis, the Woodson-Tenant Laboratories, and I believe I was able to refer him to a laboratory called ABC Laboratories in Columbia, Missouri. I believe those were the only laboratories I had personal experience with at that time.

Q I see. And your advice to him was to obtain the services of one of these labs to determine whether, in fact, there were PCBs in this product and possibly what the source might be; is that correct?

A Well, I suggested these laboratories could do him good analytical work. I don't know that any laboratory can describe the sources.

Q They can, however, take specific samples of any given substance and determine whether, in fact, there are PCBs in that substance?

A That is correct.

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Q Now, there have been some discussions previously about the amount of PCBs in--pure PCBs in liquid form that would be necessary to contaminate a 20,000 or 20-ton load of dry bakery products, as I recall.

There has also been some discussion about paper and bits of paper and so forth found in the bakery product.

Now, Mr. Papageorge, if you assume that the percent or the amount of PCBs in any given sample of paper that might be found in a bakery product was in the order of 8 parts per million, how much of that paper would it take in a 20-ton load to contaminate that load at a level of 757 parts per million of PCBs, if you would?

A I don't know if I can do the mathematical gymnastics mentally here. You say 8 parts per million in the paper?

Q In the paper.

THE COURT: Would you like a pencil and paper?

THE WITNESS: I have a pencil. I can try it here. 8 parts per million in the paper, and we were looking, as I recall, to a pail or bucketfull,

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am I correct?

BY MR. RICHARDS:

Q. No, I am talking in terms of a 20-ton load of bakery product.

A. That was 40,000 pounds?

Q. 40,000 pounds.

A. And we wanted what level?

Q. 757 parts per million.

A. As I remember our earlier conclusion we reached, it was something like 40 pounds of PCBs, am I correct in that?

Q. I believe you were talking in terms of 40, 50 pounds of PCBs.

A. All right. So, if there are 8 parts per million, that means 8 pounds for every million pounds of paper. In order to reach that 40 pounds, we need the astronomical amount of 5 million pounds of paper, which is--you can't reach that, because you are exceeding your total weight of the mass.

Q. So there is no way that that sample that was tested in your lab which showed a 747 or 757 parts per million sample could have been contaminated by paper present in it if that paper had total PCB content of 8 parts per million?

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A You raise a very difficult question, because we are dealing here with nonhomogeneous matter. When you say paper analysis is 8 parts per million, that assumes that this sample of paper is homogeneous throughout the total sample. To go back to this sample that analyzed 700 parts per million, keep in mind that is only one sample. We do not know the history of that sample and we don't know what fractions of a gram, at least I don't recall the number, it's usually in the laboratory a very small amount of material is finally analyzed.

It's very conceivable that in that gram or so sample you pick up a spec of matter that is highly loaded with PCBs, a piece of adhesive is still on it, for example. The results you get from such an analysis does not tell you anything about the total mass.

Q All right. You speak of a nonhomogeneous mass. What do you mean by that, Mr. Papageorge?

A It means that no two samples are alike.

Q In terms of a 20-ton truckload of dried bakery product, as a chemist who wanted to determine what the actual PCB content of that load was in a fair fashion, how would you go about selecting the necessary samples from that load to do this, or could it be done, for tha

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matter?

A. It can be done with the help of a statistician who would know all the facts there were about that load, and characteristics and the statistician would then design for the chemist a sampling program of how much sample and where to take it, so that the average number then determined will tell us within 95 percent, 99 percent, depending on how accurate you wish, what is in this total mass.

One couldn't go out and just grab a sample and make decisions on that one number.

Q. Do I understand, then, from your testimony, that one 20-pound sample taken from a 40,000-pound load, and then broken down and ultimately one of those tested for PCBs, that if this were done, this would be in no way reflective of the PCB content in any of the total load itself?

A. No way.

Q. So that this would not in any way be an accurat reflection of what that total load of 20,000 or 2[illegible],000 tons or 40,000 pounds actually contained, if any, PCBs?

A. That is correct.

Q. Other than that sample of bakery byproduct that was sent to you by Agway, to your knowledge, has

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Agway performed any other tests on bakery byproduct that have shown anything, any significant quantities of PCB contamination whatever?

MR. BROWN: Agway you are talking?

MR. RICHARDS: I am talking about Monsanto. Excuse me.

BY MR. RICHARDS:

Q For either Agway or anybody else involved in this particular litigation.

A I don't remember specifically all the samples. I know we had several samples.

THE COURT: You had several samples from Agway?

THE WITNESS: That we analyzed and Agway analyzed and we compared notes. I am trying to recall just how many.

Say half a dozen or so, as I recall. I am trying to refresh my memory as to the numbers. I am having difficulty. It seems to me that they range, say, from about 5 parts per million up to 30 parts per million. Something like that.

BY MR. RICHARDS:

Q Is this bakery byproduct you are talking about or feed samples, or do you really have any honest

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recollection?

A. It's my understanding these were feed samples.

Q. I am talking specifically about bakery by-product.

A. Bakery, I don't recall. I don't remember.

Q. This is the only sample, or these two samples that you have referred to, that have shown quantities of this amount of PCBs that you are personally aware of; is that correct?

A. That is correct.

Now, when we say two samples, this is a rerun from the same original sample that was sent to us.

Q. It's one sample?

A. One sample run twice.

THE COURT: That isn't so as to the other six samples?

THE WITNESS: That is correct, sir.

THE COURT: All right.

MR. RICHARDS: I don't have anything further, your Honor.

THE COURT: All right. Well, anybody want to go for five or ten minutes, or do you want to suspend for the day?

You are next, Mr. Plaut.

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MR. PLAUT: I would be perfectly glad to start, your Honor.

THE COURT: All right.

I will ask the witness. Would you like to--

THE WITNESS: I am at your disposal, sir.

THE COURT: We will go about ten minutes.

BY MR. PLAUT:

Q So, if I gather what you said to Mr. Richards correctly, the only sample that you remember testing on bakery feed specifically was this one which came from Agway and which tested out as something in excess of 700 parts per million?

A That is the only one I vividly recall, that is correct, sir.

Q Now, you have talked also about certain testing laboratories that you considered to be competent to perform these tests on PCBs, I think in answer to Mr. Richards; is that correct?

A That is correct.

Q And those were what names, please?

A The Warf Institute Laboratory, Woodson-Tenant Laboratories, and ABC Laboratories.

Q Is that a list of all of the laboratories that

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were qualified to make these--incidentally, these PCB tests are rather sophisticated, aren't they?

A Yes, sir.

Q Is that a correct word?

A That is an appropriate word.

Q What does methodology mean?

A It's a fancy word for procedure, sir.

Q And who developed the procedure for making these tests?

A The basic procedure was the procedure used by Dr. Jensen in Sweden. The procedures used fairly widely today are based on that method, with slight modifications as they refer to what is known as the cleanup method.

The beginning of this process, the procedure, involves certain steps which are intended to remove other interfering chemicals, primarily such chemicals as DDT, that is where the differences appear to take place in the different methods in use today.

Q Incidentally, you talk about these three laboratories; Monsanto itself was called to make these tests, I assume?

A Yes, I would think so.

Q How many laboratories did you have at Monsanto

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making these tests, well, say sometime around the 1st of December of 1970?

A In 1970 we had one lab at each of the two plants that produced the PCBs, and we had a laboratory in our Central Research Department, and we also had a laboratory in our Dayton Monsanto Research Corporation.

Q And in addition to those laboratories--by the way, where was this food sample, this bakery meal sample sent?

A It was sent to our St. Louis Central Research Laboratory.

Q That is where you were stationed?

A That's correct, sir.

Q Is that where Dr. Tucker was also stationed?

A That's correct.

Q Now, in addition to these other laboratories of yours--and you had one, two, three, four?

A Four.

Q --qualified to make these tests, did the Food and Drug Administration have a laboratory?

A Yes, the Food and Drug Administration had several laboratories.

Q Were they testing for PCBs we'll say on December 1, 1970?

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A. 1970, some of these laboratories were checking and looking for PCBs. At that point in time, many of the FDA laboratories were learning. They were in th learning process.

Q. How about universities, were there laboratories a universities?

A. In 1970, I am not aware of any laboratory that felt competent with this method.

Q. How about Dr. Risebrough, did he have a laboratory to do testing?

A. Dr. Risebrough had a laboratory that was testing for PCBs, but his method was not followed with a very necessary test, at least in that day, in that point in time, required for confirmation of his results.

Q. And what was that?

A. In the early days of the development of this methodology, because of some confusion in interpreting the results, the chemists had to resort to a second instrument which definitely confirmed that what the analyst was seeing was in truth polychlorinated biphenyls.

Dr. Risebrough's work in 1970 did not have this confirmatory step in it.

Q. Now, when you used that word "methodology"

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before--but didn't Monsanto have a methodology of its own?

A Yes. We still do.

Q And wasn't this methodology what Mr. Rice--by the way, you referred to him as Dr. Rice. Is it Dr. Rice or Mr. Rice?

A I thought he had a doctorate degree. But I have been calling him Dr. Rice. I don't know.

Q I guess a lot of people think of you as a doctor, do they not?

A Yes, they do.

Q Did you give him the Monsanto methodology; was that the purpose of his coming out to St. Louis?

A As I recall, I mailed him a copy of Monsanto's methodology along with the samples of material to use as a standard in his laboratory.

Q And was that around the end of December of 1970, December 29 specifically?

A I believe it was more likely the first week of January.

Q You think it was closer to the first week in January?

A I think it arrived in his laboratory the first week in January. I made arrangements the last week of

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December.

Q In this methodology that you had which you taught to Mr. Rice, which you explained to him when he came back out to St. Louis--I think you said that was sometime around the middle of January; somebody said the 11th. Was it somewhere in that area?

A That's correct.

Q Did you actually meet with him and go through all these procedures, or did somebody else do it?

A I didn't meet with him and go through all the procedures. I spent about half a day looking over his shoulder as he and Dr. Tucker compared notes, compared charts, made measurements and whatever it takes to quantify this material.

Q How long does it take to make--assuming you got a sample in, how long does it take to set up and make this test using the Monsanto procedure?

A For a facility in which the equipment is in place, and all the facilities are clean and uncontaminated and the laboratory is ready for use, it takes about three to four hours to run a sample through to the end result.

Q And after you finish that test, do you have to clean everything up and start over again?

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A Yes, sir.

Q So as not to have a contamination?

A They have to clean up very carefully.

Q So this is really a scientific matter, is it not, a scientific test, rather than something you ordinarily find in--well, let's say something like feed?

A Well, I am not familiar with feed analytical methods, but this method is about as complex and sophisticated as any that I am aware of used to analyze for industrial chemicals.

Q And up until December of 1970, when no one was doing any testing in industry to locate these PCBs; is that correct?

MR. BROWN: May I have that question read?

THE COURT: Up until December of 1970, no one was doing any testing in industry to locate PCBs; is that correct?

MR. BROWN: No one in industry?

THE COURT: That is what he said. That was the question, wasn't it, Mr. Plaut?

MR. PLAUT: That's right.

Let me put it this way:

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BY MR. PLAUT:

Q In 1970, sometime early in December 1970, Campbell Soup made some kind of a determination, did it not?

A Yes, sir. This is an example of industry finding it. I am aware of cases Monsanto was involved in where our laboratory looked at samples.

Q You were checking--

A For PCBs.

Q You were checking your own product, because you were manufacturing it?

A I am a little confused by the question. We always checked our product for quantity. I thought your question went to independent testing, not quality test of the product.

MR. PLAUT: Maybe I am getting lost here myself.

THE COURT: Want to quit for the day? Think it over.

MR. PLAUT: I will get one more.

BY MR. PLAUT:

Q When do you know that Agway first started testing for PCB content?

A I don't know. They just called me in December

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and said they got PCBs in some of their feed. I don't know when they started testing.

Q And Rice came out after that?

A That's correct.

Q And that's when you went over the whole thing with him?

A That's correct.

MR. PLAUT: All right.

THE COURT: All right, tomorrow morning, ten minutes to 10:00.

I want to see counsel in my chambers. You don't have to bring anything in with you.

Go ahead, Mr. Foreman, you are finished for the day. Tomorrow morning, ten minutes to 10:00.

(Adjournment at 4:10 p.m.)

- - -

I hereby certify that the foregoing is a true and correct transcript of my stenographic notes in the aforementioned matter.

Court Reporter

Transcribed by: James P. Gunning, III

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