SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF SULLIVAN

INTER-COUNTY FARMERS COOPERATIVE ASSN.,

Plaintiff,

- against -

ROZANSKY FEED COMPANY, INC.,

Defendant.

ROZANSKY FEED COMPANY, INC.,

Third-Party Plaintiff,

- against -

MONSANTO COMPANY and GENERAL HOST CORPORATION,

Third-Party Defendants.

MONSANTO COMPANY,

Fourth-Party Plaintiff,

- against -

DENK BAKING CORP.,

Fourth-Party Defendant.

SUPREME COURT : SULLIVAN COUNTY

MAX M. BRENDER and BEATRICE BRENDER d/b/a BRENDER'S LEGHORNS,

Plaintiffs,

- against -

INTER-COUNTY FARMERS COOPERATIVE ASSOCIATION, INC.,

Defendant.

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INTER-COUNTY FARMERS COOPERATIVE ASSN., INC.

Defendant and Third-Party Plaintiff,

- against -

ROZANSKY FEED COMPANY, INC.,

Third-Party Defendant.

ROZANSKY FEED COMPANY, INC.,

Third-Party Defendant & Fourth-Party Plaintiff,

- against -

MONSANTO COMPANY and GENERAL HOST CORPORATION,

Fourth-Party Defendants.

SUPREME COURT : SULLIVAN COUNTY

INTER-COUNTY FARMERS COOPERATIVE ASSN., INC.,

Plaintiff,

- against -

VICTOR BECHAR,

Defendant.

INTER-COUNTY FARMERS COOPERATIVE ASSN., INC.,

Plaintiff & Third-Party Plaintiff,

- against -

ROZANSKY FEED COMPANY, INC.,

Third-Party Defendant.

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ROZANSKY FEED COMPANY, INC.,

Third-Party Defendant &
Fourth-Party Plaintiff,

- against -

MONSANTO COMPANY and GENERAL HOST CORPORATION,

Fourth-Party Defendants.

SUPREME COURT : SULLIVAN COUNTY

SUNNYSIDE UP, INC.,

Plaintiff,

- against -

INTER-COUNTY FARMERS COOPERATIVE ASSN., INC.,

Defendant.

INTER-COUNTY FARMERS COOPERATIVE ASSN., INC.,

Defendant and Third-
Party Plaintiff,

- against -

ROZANSKY FEED COMPANY, INC.,

Third-Party Defendant.

ROZANSKY FEED COMPANY, INC.,

Third-Party Defendant
and Fourth-Party Plaintiff,

- against -

MONSANTO COMPANY and GENERAL HOST CORPORATION,

Fourth-Party Defendants.

WATER_PCB-SD0000049785

SUPREME COURT : SULLIVAN COUNTY

INTER-COUNTY FARMERS COOPERATIVE ASSN., INC.,

Plaintiff,

- against -

LOUIS QUESADA,

Defendant.

INTER-COUNTY FARMERS COOPERATIVE ASSN., INC.,

Defendant & Third-Party Plaintiff,

- against -

ROZANSKY FEED COMPANY, INC.,

Third-Party Defendant.

ROZANSKY FEED COMPANY, INC.,

Third-Party Defendant & Fourth-Party Plaintiff,

- against -

MONSANTO COMPANY and GENERAL HOST CORPORATION,

Fourth-Party Defendants.

SUPREME COURT : SULLIVAN COUNTY

AGWAY, INC.,

Plaintiff,

- against -

ROZANSKY FEED COMPANY, INC., and GENERAL HOST CORPORATION,

Defendants.

WATER_PCB-SD0000049786

Tuesday, September 27, 1977

10:10 o'clock A.M.

APPEARANCES:

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W I L L I A M B. P A P A G E O R G E, a witness in behalf of the Third-Party Defendant and Fourth-Party Defendant, Monsanto Company, having been previously duly sworn, was further examined and testified as follows:

MR. McDERMOTT: Let the record show that we're reconvening on 9/27/77, and when we terminated the testimony yesterday at approximately 5:00 P.M., Mr. Eisenberg was pursuing a line of questions of the witness pertaining to the time that he was the superintendent of the plant in Anniston, and had asked the witness concerning certain discussions that would take place back at the home office in St. Louis.

The witness has advised me that he did not have a complete opportunity to respond to the question and did not intend to leave the impression that at any of those conversations during that time period any discussion was had with respect to any problems relating to PCB's or PCB related products, and I'd like to give the witness an opportunity to clarify that on the record at this time.

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BY MR. EISENBERG:

Q Why don't you go ahead and do just that.

A The general topic of health and environmental impact of our products is always appropriate for meetings of this type. Since the Anniston, Alabama plant had many products that it used and manufactured and shipped, discussions on occasion as indicated would take place, but at no time in the period '65 to '69 was there ever any reason -- there was no information available that would indicate that PCB's should be discussed along these lines.

For example, we manufacture at that plant such things as chlorine gas and a pesticide known as Parthion, which is a deadly nerve poison. Certainly discussions regarding safety, proper handling and impact on the environment would take place regarding those two products; so to summarize, the period '65 through '69, while I was in Anniston, Alabama I had heard nothing regarding PCB's and their presence in the environment or impact on the environment or impact on people.

Q When you say you heard nothing, do you know whether or not other divisions or other people in Monsanto, employees, had any knowledge of any adverse effects of PCB's on humans during that period '65 to '69?

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A Yes. I too had knowledge of adverse effects of PCB's, but nothing happened in the period that we talked about that would necessitate further discussions.

Q I am distinguishing between, I think, what you are deeming to be complaints about the product from knowledge about adverse effects. Those are two separate and distinct categories. Quite apart from any complaints to the company that would prompt discussion at one of these meetings that we've been talking about, you've indicated that you had some knowledge personally of potentially adverse effects of PCB's on humans. My question is:

What was the extent of that knowledge and what did it consist of?

A It's well known among those who work with these kinds of chemicals that chlorinated hydrocarbons of which PCB's are representative, can create problems with human beings. The typical symptoms are the skin eruptions, skin effects due to exposure. Whether that exposure be by breathing, by actual contact or by injection, it will show as a skin problem known as chloracne. Another symptom that comes about with direct skin contact, where the skin after it's been exposed has a redenned chapped skin appearance, because the PCB's have extracted the oils out of the skin.

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It's also known that when breathing these fumes the individual can get a temporary condition of irritation of his breathing system.

These kinds of things are well known, and this accounts for the precautionary statement that appeared on the label at that time and they were also further substantiated by the normal animal testing that took place in the chemical industry at that time.

Q You refer to testing in the animal industry?

A In the chemical industry.

Q Did personnel at the Anniston and Sauget plants utilize protective devices such as masks or certain kind of outer garments to protect against the kind of damage you just described when they handled the finished product?

A The only protection that was unusual is the use of rubber gloves, but the material is not the type for which we use respirators, gas masks, rubberized suits or anything that unique, no.

Q Now, you made reference yesterday to -- I don't remember the exact name of it but you talked about a Medical Department whose responsibilities included, in addition to taking care of the health cares of the people, research into potential hazards involving Monsanto products

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as I remember.

MR. McDERMOTT: I don't recall that testimony.

(Discussion off the record.)

MR. EISENBERG: I do or I wouldn't ask.

MR. McDERMOTT: I think you're recalling the testimony that you may have read.

BY MR. EISENBERG:

Q Let me start from the beginning. If my recollection is faulty, straighten me out. I asked you yesterday or I thought I did: Was there some department or division within Monsanto which did research or in any way considered any problems arising from the impact of Monsanto products on either the environment or adverse effects on humans or animals?

A Yes.

Q What was that department?

A It's the department that back in -- before 1972 as best I recall was known as Monsanto's Medical Department.

Q That's what you said yesterday, the Medical Department.

A The Medical Department.

Q I take it the Medical Department had a broad area

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of responsibility.

MR. McDERMOTT: Well, I'm going to object to the form of the question.

Q What I'm getting at in addition to worrying about potential adverse effects, were they also charged with health problems of the Monsanto employees, were they general physicians?

A Yes.

Q That being true, was there some separate section not concerned with employee health that did ongoing work and research into the potential hazards of Monsanto products on the environment and on people and animals?

MR. McDERMOTT: We're talking the time period we used yesterday, '65 through '71?

MR. EISENBERG: Yes.

A I think I can speed this up a bit by putting it this way: Monsanto did not have at that time the physical facilities for conducting the research you're mentioning, but we did have a group of professionals who saw to it that the studies were conducted according to Monsanto's needs by contract laboratory.

Q Let's avoid the other products and zero in on PCB's. Can you tell us what was done either -- of course,

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you've indicated that Monsanto didn't have full research facilities to do work. Whether inside or outside the plant, whether by in-house personnel or contract personnel, can you give us some detail chronologically from the first time down to the end of '71 as to what was done either by or on behalf of Monsanto to ascertain whether PCB's produced adverse effects on the environment, animals, vegetation or humans?

A I'll try. The very early studies conducted prior to 1950, and I don't recall exactly, were the type that are commonly referred to were toxicity studies. These studies are designed to give us the necessary information to properly caution people on the handling of the material and to properly label it to conform to whatever the Federal statutes and regulations there might be on labeling a product before it enters commerce. The acute toxicity studies usually represent high dosages of the chemical that is fed to a laboratory animal, the mouse or the rat, and from that it's calculated a quantity or a dosage that is referred to as an LD-50, lethal dose at which 50 per cent of the animals die, and that is a significant number to the toxoiogist. He can by comparing the more toxic materials to the less toxic come up with

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some appreciation as to where the material being tested fits into a scale. There's also another test in which rabbits are exposed, the skin of a rabbit is exposed to the material to determine any effect on the skin, rashes, redness, blistering, scarring, permanent or temporary.

Then there's another test in which the material is dropped into the eyes of the animal to determine what an irritating effect it might have on the eyes. That's the battery of tests. It's been common to the chemical industry for many, many years. As far as PCB's were concerned, they were treated like any other chemical, and going through this battery of tests we did determine that they can irritate the eye, they can irritate the skin, and it certainly shouldn't be ingested; and this is, again, I'll refer to the wording on the labels, the cautions, the person handling the material how best to handle it.

No further studies were made with PCB's until 1969, early '69, perhaps late '68, when additional studies were being designed and planned to find out if PCB's could pose any problems out in the environment. Monsanto representatives at that time approached government representatives to determine the proper tests that would

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be meaningful. No one in government was either able to help or willing to help; nonetheless, we got no guidance from any existing agency at that time, so Monsanto on its own decided to test PCB's the way we have tested other chemicals for food additive applications. We decided that that was the most severe testing known to us at the time. This is not to imply that we ever intended to petition FDA to permit us to use PCB's in food. That was not the intent. The intent is to find out what this testing would tell us about the effects of PCB's on the test animals.

Therefore, to follow the accepted practice and testing at the time, we selected two species of animals, mammals, the rat and the dog, and conducted what are known as long-term chronic toxicity studies, two-year studies. For the rat this represents the lifetime of the animal, the full lifetime. Of course, for the dog, it does not represent lifetime but it does go far enough into its life span to give us an indication of any potential problems if any do show up.

In addition, because Monsanto kept hearing reports about the accusation being made that PCB's are responsible for affecting the reproduction of some wild birds, affecting the shell formation and the like, we had to find some kind

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kind of bird for testing. We missed an opportunity because of the sequence of timing to get enough eggs from wild birds to conduct tests that we hoped to in such things as the Japanese quail, the pheasant and duck, wild duck. We decided rather than to lose another full year waiting for the next season to go and use the commonly available leghorn chicken for our bird testing.

So we started the long-term bird-feeding test test. We also tried -- not tried, but did arrange for some testing with fish, aquatic testing. As I recall, we had at least two kinds of fish. One is the blue gill and the other I forgot the species. The intent here was to get a species that lived at the bottom of the waters near the -- where the sediment and all collects, and then another species that spends most of its time near the surface.

I believe that covers all of the Monsanto-sponsored studies to determine the effect on creatures and the environment.

Q Can you tell us what information or data Monsanto had received prior to late 1968 that prompted this area of inquiry?

A Prior to 1969 we were aware of analytical results from a laboratory at the University of Stockholm. These

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results indicated the presence of PCB's in a variety of samples which included pine needles, feathers from an eagle in a museum, clippings of a child's hair. I think that represents the variety of samples. In addition to that report, our laboratory got copies of the analytical method used by the University of Stockholm Laboratory and worked with that method, and we think we refined it a bit, made it more accurate, and we started looking at some samples ourselves.

And, also, other laboratories were reporting the presence of PCB's.

Q Can you give us some of the names?

A The most popular laboratory, or at least the researcher, most popular researcher at that time was Robert Riscborough, University of California at Berkeley. His laboratory had done some studies looking for PCB's in the environment, and it's his laboratory that determined the presence of PCB's in the area at which the brown belly pelican off the southern coast of California is supposed to have had some difficulties reproducing.

I think in '68 Dr. Riscborough was the only one who was doing much here.

Q During this time span you were chief down at

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Anniston, and I take it none of these studies were under your direction and you had no contact with them.

A That is right.

Q Who in the broad sense, meaning department, not just individuals or both, who or what division or divisions in Monsanto had charge of the scientific inquiries during this time span, '68, '69, '70, to make these studies into potentially adverse effects of PCB's?

A I would say that the Corporate Medical Department.

Q Do you know if there was then and perhaps still is in existence today a file on this particular subject? Is there a PCB hazard file in a broad sense in that Corporate Medical Department tracing all these studies from their inception right through this time span we're concerned with?

A There is a file of the studies with PCB's, and I don't know if they refer to it as a hazard file.

Q That's just a broad term.

A There is a file in our Corporate Medical Department containing all available toxological and health data on PCB's.

Q Have you had occasion either in this case or in other cases to examine it and become familiar with its

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contents on the whole spectrum of hazard for PCB's? Have you looked at it before today, that particular file?

A No, I've never personally gone through the file myself.

Q Who would the custodial officer of Monsanto be today who would have knowledge of the contents of that file?

A That would be Dr. George J. Levinskas.

Q What is his title with the company?

A I believe it's currently Director of Toxicology and Health Effects, something like that.

Q Has he been with the company for, let's say, the last ten years?

A No. Dr. Levinskas joined Monsanto in about 1972.

Q Do you know in the period following 1965 as a random date whether there were physicians or even non-medical personnel, scientific personnel attached to the Corporate Medical Department who specialized, so to speak, in inquiry on PCB's?

MR. McDERMOTT: You're referring '65 through '71?

MR. EISENBERG: Yes.

A Yes.

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Q Could you give us the names of these physicians or other personnel?

A Mr. Elmer Wheeler was in charge at that time for arranging for toxicity studies and maintaining the file on chemicals.

Q Was he a doctor?

A No, sir.

Q Do you know if there was any doctor who devoted, say, the bulk of his time to PCB potential hazard studies?

A No.

Q You've indicated you haven't looked at this medical file, but do you have any knowledge of whether or not anyone in Monsanto first became aware from any source of any potential cancer-producing effects of PCB's in either animals or humans?

A The only information we have in which cancer effects were claimed to have been noted in test animals came to Monsanto from Dr. Renata Kimbrough who was with the Center for Disease Control in Atlanta, George, who had studied PCB's in rats while she was still with the FDA back in '71 or '72 . I'm trying to recall the year, but I remember it was a November, and I believe it was 1974.

MR. McDERMOTT: I've understood on the

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record all these questions were relating to the time period '65 to '71 unless otherwise specified.

MR. EISENBERG: Well, some of them have. Of course, this last question was a general question. It wasn't limited in any way.

BY MR. EISENBERG:

Q The answer is 1974 is the first year?

A Yes.

Q Now, you've indicated that in the period starting maybe late '68 testing was contracted out to outside laboratories. Did the results of those studies then come to Monsanto?

A Yes.

Q And I take it they were paid for by Monsanto, too?

A Yes.

Q Where are the results of those studies presently? Are they in that same corporate medical file?

A The reports are in that same corporate file.

Q What laboratories or testing agencies were utilized to make tests?

A Industrial Biotest Laboratories in Chicago, Illinois.

Q Did that involve the ingestion of PCB's into test

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animals?

A Yes.

Q Any other testing laboratories?

A There is a fish laboratory. I can't recall the name. I believe it's Bionomics Laboratories in Waltham, Massachusetts, who did some fish exposure studies for Monsanto.

Q When were these studies received by Monsanto?

A The reports?

Q Yes.

A Depending on the study, we would get the reports throughout the period. They didn't all arrive at one time. The last set of reports were available to Monsanto in 1971, fairly late in '71.

Q Was it Bio Industries, were they the first one you referred to?

A Biotest Laboratories, yes.

Q What did the tests involve, rats and dogs?

A Rats, dogs and chickens.

Q Can you summarize the nature of the tests and the conclusions derived from the tests?

A In all cases the exposure was through the diet. The materials tested were Aroclor 1242, 1254 and 1260. In

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every case the test was -- is the type that is referred to as a chronic-feeding study, the intent being to determine any effects on the test animal after exposure for a long period of time. There was another test in which we tried to determine the effect on reproduction, so with the mammals it involved a three-generation reproduction test and with the chickens it involved a determination on the effect of the hatchability of the eggs.

Q Have you seen these studies yourself or the test reports yourself?

A I have seen the reports, yes. Now, a report is a summary of all the laboratory data. There's two sets of documents.

Q Where are these documents today?

A Well, the report to Monsanto, the original copy, is in the Medical Department files we talked about. I have never seen the laboratory log books and data books and alike so I have to assume the laboratory still has them.

MR. EISENBERG: Counsel, we respectfully make demand for the corporate medical file on PCB's.

MR. SOMMERS: I join in that.

MR. MORAN: Likewise.

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MR. LAGARENNE: Likewise.

MR. McDERMOTT: We take the request under advisement.

(Discussion off the record.)

BY MR. EISENBERG:

Q Now, I made some reference before to Monsanto going to the Federal government making approaches to them somewhere in the late '68 time span. Who in Monsanto was the company spokesman or spokesmen who were charged with approaching the Federal Government and who, in fact, did it?

A Mr. Wheeler, that I mentioned earlier, and on some occasions, not every occasion accompanied by Dr. W. R. Richard who was the research director of the laboratory involved with PCB's, and on some occasions accompanied also by Dr. R. E. Keller who was the director of the laboratory who developed the analytical methodology for PCB's.

Q Why don't you just tell us what that is, analytical methodology?

A Methodology? You want me to describe the technical details?

Q Yes.

A I don't know that I'm qualified but I can give

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you the --

Q Not just the technical but the overall considerations involved and why they do it and -- what they do and why they do it, and what do they find out when they do it.

A All right, I'll attempt this. The methodology uses an instrument referred to as a gas liquid chromatograph. What that instrument does, it has as part of it a device which contains really a tube which is packed with an absorbent material and the test material, the material to be tested is exposed to high temperature causing it to volatilize. This gas that is formed is forced to travel through this absorbent material, and as it cools it adheres to the particles of this absorbent material through the column. I think you can visualize a hollow tube filled with absorbent material on which we have at different parts different components of the gas that adhere to these different parts.

Later the chemist deliberately heats up this absorbent material to release the different parts of the original test material and these parts are then forced into another chamber in the instrument which has a device that detects the presence of a material and reacts differently

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for different materials, so as each of these parts is forced through this detecting chamber, this sensing of the presence of the chemical is transmitted to a pen which makes a chart on a moving piece of paper, so the net result is a long strip of paper on which we have peaks and valleys.

Whenever the chemical is in the sensing chamber the needle starts climbing and it will continue to climb along as that material is present. Then when it starts diminishing, it will start falling. If there's no material in there the pen makes no peak or valley, it's just straight across the page, so the net results from all of this is a chromatograph commonly in the industry referred to as the fingerprint for that material.

Q This covers many chemicals, not just PCB's?

A There are many chemicals that can be detected in this fashion. Many chemicals -- each chemical has a point at which it will form its peak on the chart. Some chemicals will form a peak at the same point, so there is a possibility for confusion.

Q What was the man's name again who evolved this process? Dr. who?

A The application of this instrument to PCB's -- no, that's not correct. I think we're talking about the

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University of Stockholm people or are you talking about the Monsanto?

Q My question was introduced by an answer that there were three men who went to the FDA, Dr. Wheeler, Dr. Keller and then a third man --

A Dr. Richard.

Q Dr. Richard was a Monsanto employee?

A Correct.

Q And was he the one who first introduced this method of analytical methodology to the detection of PCB's?

A No, sir. Dr. Keller took the University of Stockholm method and with his staff refined the approach, the preparation of the sample and the fine tuning of the instrument to make it less apt to give erroneous answers.

Q When Dr. Keller and Dr. Richard did that, did they come across this from what might be deemed pure research or had they been requested by their superiors at Monsanto to develop some better method for detecting PCB levels?

A I don't know that any management people asked them. They are responsible researchers and I can -- of course, I wasn't personally there. I can see where these

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individuals would go to the laboratory on their own.

Q This would be sometime in '68?

A Starting '67, late '67 through '68.

Q And, again, do you know what data or information had been received by the medical people, including Dr. Keller, Dr. Richard and their associates which during that time frame caused them to seek out some better way for measuring PCB levels?

A The data that stimulated this study was the University of Stockholm information and the activity of Dr. Riscborough in his laboratory and his request for test material from Monsanto, I think the two efforts were going on simultaneously -- both Dr. Riscborough and Monsanto used the University of Stockholm method as the starting point.

Q Do you know if any of the raw data that was available at that time, be it from Stockholm, Berkeley or any other place, dealt with the subject of PCB levels in the fatty tissue of animals or humans?

A No, not at that time.

Q Do you know when -- and this would have to be based on what was told to you about the files -- data, be it raw, refined or in any other way referable to fat

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levels of PCB in fat, first became part of raw data available to the medical people at Monsanto?

MR. McDERMOTT: If you don't know, don't guess. We can leave a space in the examination.

A I don't know specifically.

Q Well, then, in the tests made by Industrial Biotest Laboratories on the dogs, chickens and the rats, was there data reported in those studies relating to levels of PCB in the fatty tissues of the test animals?

A Not from Industrial Biotest Laboratories, no.

Q Did such data come from any other laboratory, agency or any place?

A Monsanto Laboratory under Dr. Keller analyzed samples submitted to it from Industrial Biotest.

Q When was that? Is that when they got the results from Biotest?

A Well, the tests were underway and throughout the test period at some pre-scheduled period they would get samples from Industrial Biotest Laboratory and analyze for the presence of PCB's.

Q Having made these analyses from this data you just described in your last answer, did they document or record their findings and conclusions in some written report to the

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company?

A Yes.

Q And are those also in the medical, corporate medical file or is it in some other file?

A It is possibly in the medical file and certainly is in the research file.

Q The research file is some separate and distinct file, is it?

A Yes, sir.

Q Is it in some division other than the corporate medical department?

A That is right.

Q Tell me what department that's in.

A That's referred to as the Applied Sciences Section of the Research Department of Monsanto Industrial Chemicals Company.

Q Is there a file in that department that follows PCB's from the earliest time right down to the present?

A I do not know.

Q Well, you've indicated that those test results are in the file or it would be in that research file.

A Yes.

Q What other reports and data relative to PCB's

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are in that file?

A I do not know the entire contents of the file.

Q Well, to the extent you do know, tell us what it is.

A Well, it contains information received when we studied the biodegradation of PCB's -- how do bacteria affect PCB's. It contains the results of analyses of hundreds, perhaps thousands of samples.

Q Performed by who, Monsanto people or outside?

A By Monsanto people under the direction of Dr. Keller. I believe that describes the general nature of the information from that laboratory.

Q Other than the corporate medical file on PCB's and the Research Division file on PCB's, are there other files within the company in any other division or department which might be within their particular area of competence dealing with PCB's as the company has used it and sold it over the years?

MR. McDERMOTT: Up to what time period are you talking about?

MR. EISENBERG: That I go right down to today.

A I think you're referring, for example, to the regular marketing files. Those are kept for some period of

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time as designated, and I don't know the period.

Q The marketing file would be essentially economic and financial files or if I'm wrong, tell me that, too. Would marketing files deal with potential hazards and studies or potential hazards of PCB's?

A No, but they would contain correspondence, trade literature and the like that was used to convey information to our customers.

Q Again, is there a specific PCB file within the Marketing Division?

A Yes.

Q Any other files in any company, department or division essentially concerned with PCB's?

A I can't recall any.

Q So it is essentially three files that are centrally concerned with PCB's, the corporate medical, the Research Division and the Marketing Division?

A I have forgotten my own file.

Q Let us not forget your own file.

A It is too close to me. I did keep a file, but in the majority of instances the material in my file was a duplication of the original documents we referred to in these three other files or it would be material available in

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the public journals, newspapers, meetings and alike.

Q Where is that file today?

A Physically I don't know where it is, but I passed it on to my successor who inherited the job.

Q Who is the lucky fellow?

A J. C. Weber.

Q Where is he and what is his job title today?

A He is manager of product acceptability in the Specialty Chemicals Division of Monsanto Industrial Chemicals Company.

Q And is he headquartered in St. Louis?

A In St. Louis, yes, sir.

Q And does he today have prime responsibility for the PCB problems in Monsanto or is that still within your bailiwick?

MR. McDERMOTT: I'll object to the form of the question.

Q I think you told us earlier yesterday that there came sometime when your job with the company, I think you described it as having to do with PCB considerations or problems. Wasn't that one of your job assignments that you told me about yesterday?

A Yes, sir.

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Q That's what I'm getting at. Is Weber now the fellow who has that job that you then held?

A Correct.

Q And that being true would it be correct to describe him as the man who is primarily concerned with it at the present time for Monsanto?

A That is right.

Q We can't remember everything. Did Weber take over directly from you or was there some intermediate---

A Mr. Weber took over directly from me in February of 1976.

Q You were starting to say before we got the names of Keller, Richard and Wheeler, they were the three who made approaches, I guess would be an apt word, to the federal agency, would that be the FDA they talked to?

A FDA, USDA, Department of Interior.

Q I think you described their efforts pretty much as being rebuffed by the Federal government. Is that fair?

A That's a strong word. I would say ---

Q Less than rebuffed?

A Not helpful.

Q Do you know if the government in any of these agencies or even contracting out to any of these

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universities or laboratories were doing any work on PCB research at that time?

A The government was not interested in PCB's.

Q Is there a file somewhere documenting the efforts of Wheeler, Richard and Keller in their contacts with federal people?

A I have never seen that so I don't know.

Q Do you know if those three doctors did this on their own initiative or were they directed at the highest echelons of the company to make these contacts with federal officials?

A Their own initiative as part of their assignment, part of their duties.

Q Did they report their activities to the top management level of the company?

A Yes.

Q Do you know that after they were met with what might be called a lack of cooperation, whether the senior company people made any contacts with federal officials to see if cooperation might be obtained?

A No, I do not know of any effort.

Q Coming back to what your counsel has told us which is part of that first question where we didn't get

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into the results of these tests, would you finish your answer now and tell us what conclusions came to Monsanto as a result of the testing we've talked about before?

A All right. The test indicated that the higher chlorinated PCB's affected the mammals at high disages. Now, by "high," I'm talking about 100 parts per million in their diet, daily diet for the two-year period. The results noted were a decrease in weight gain. Now, this does not mean they stopped gaining weight, but they didn't gain weight as fast as the animals that did not get the exposure. Then there was damage to the livers of these animals in that the livers were enlarged, which I understand is not unusual because the liver is the body organ that tends to cope with materials of this type, to try to eliminate it from the body.

Also, the higher chlorinated PCB's affected the reproduction of the third generation in the three generation rat reproduction study. The effect was one of smaller numbers of pups in each litter and fewer litters. On the chicken studies the reverse seems to be true in that the lower chlorinated PCB's, the Aroclor 1242 affected the hatchability of the chicken eggs, and this effect was noted at somewhere between four parts per million and eight parts

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per million in the diet of the chickens.

Q Did the tests indicate that PCB's tended to build up and remain in the fatty tissue of the animals?

A At that point in time the emphasis was not into looking where the PCB's were distributed in the tissue.

Q Apart from emphasis or not, did the tests reveal any data as to whether the PCB's were eliminated with body wastes or they built up in a reservoir, so to speak, in the animal?

A An analysis of tissues from the animals that I referred to earlier, the analysis which was performed in Dr. Keller's laboratory, was made on the total tissue. There was no attempt to extract or determine the PCB's in the fat as distinguished from PCB in the muscle as a total tissue, and the intent of those studies was to determine the fate of PCB's in total in the animal to demonstrate that some PCB's disappear and others persist.

Q Was there some data on which persist and which disappear? Were there some PCB's which have those characteristics?

MR. McDERMOTT: What time period?

MR. EISENBERG: This is when the test results came in. I think this is the late '68, '69 period

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when the results came in.

A What I think is confusing the tissues that were collected from the studies that terminated in about 1970, '71, and they were analyzed later. They were frozen and stored and were analyzed, and as best I can recall about 1972 -- '73 period.

Q Who made the decision to not test them when they came in but store them and freeze them and test them later?

A There was no deliberate decision not to test. There is as part of most tests samples of tissue are kept frozen in the event we have to go back for some further studies, so the tissues were stored with no thought in mind at the time as to exactly what we were going to do with them. It is only later that this information we received relating to presence in fatty tissue as distinguished from lean tissue that we went back and retrieved those frozen samples and looked at them.

Q When the test results came to the company, who did they come to? Was it the corporate medical people?

A Yes.

Q When this data came to the Monsanto Corporate Medical Department, do you know if they in turn reported to the higher echelons of the company?

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A They reported to me the information, and I in turn reported it to my superiors who were the managers of the business unit that was involved with PCB's. That is the normal route of communication.

MR. McDERMOTT: Can we specify the time period? Again, I think there's some ambiguities in the questions with respect to what specific time period we're talking about. I'm not trying to limit your questioning but I think the questions are ambiguous in what specific dates we're talking about.

Q Your counsel has raised some questions about when these things took place. If I've been following you right, the testing began sometime in late '67 and continued through a two-year cycle. I think you told me in rats it was a full two years and in dogs two years out of their life, and if I've been following you this terminated sometime in '69 when you started getting data. Am I right in that?

A No, the pilot work -- and by pilot work I'm talking about preliminary testing with animals, a few animals, half a dozen or so -- started in '68 and the purpose of those studies is to help establish what levels we're going to expose the hundreds of animals in the long-

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term study did not start until 1969. The actual feeding period did not terminate until 1971, and then it takes about six months or more for the pathologist to look at all the specimens and samples and finally for the report to be assembled and published so when we talk about a two-year study we're almost talking about a four-year lapse of time from the very inception of the idea until the final report is in our hands. In the meantime interim reports are published about every six months. A brief report is published reporting on the observations made to date. Some of these observations are just visual. They observe the animals and their behavior; they observe their physical appearance as they look at the cage. Some of the animals are sacrificed. A few are taken out, sacrificed and there looked at internally to see if anything is developing.

Now, these interim reports I would get from the Medical Department, and I would relay the information to the managers of the business to help them make their decisions about do we label anything differently, do we tell our customers anything, do we protect our workers differently. That's the purpose of that indication.

Q Those interim and final reports would be in the Research Division file and would you also have probably

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copies in your own file as well?

A I receive copies and they're in the file that I passed on to Mr. Weber. The original report from the testing laboratory should be in the Medical Department file.

MR. EISENBERG: I think we've already asked of the discovery of the medical file. At this time we'd ask for discovery and opportunity to examine the PCB file formerly under the care of Mr. Papageorge, presently under the care of Mr. Weber, the marketing file and the Research Division file, all on PCB's.

MR. McDERMOTT: We'll take those requests under advisement.

MR. SOMMERS: I join in that request.

MR. MORAN: Likewise.

MR. GOTTLIEB: Likewise.

BY MR. EISENBERG:

Q You told us before that your recollection of some of the test results on chickens indicated as opposed to the high readings that affected the animals, that the lower readings seemed to have an effect on the chickens and hatchability. Is that a proper statement?

MR. McDERMOTT: I object to the form of the

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question. I don't know what you mean by the use of the term "readings."

Q Lower-numbered PCB's had an effect on chickens; is that right?

A That is correct.

Q And I think you mentioned it had an effect on hatchability.

A That is correct.

Q Did those tests also indicate whether there was any adverse effect on the reproduction rate of the chickens or that part of hatchability?

A As I understand it in poultry the hatchability of eggs is the measure of reproduction.

Q In other words, it is synonymous in a sense.

A That is correct.

Q How about egg quality, was there any results showing some adverse effect on the quality of the egg?

A There was no attempt made to evaluate egg quality.

Q How about egg size?

A I don't believe -- I don't recall any mention about any adverse effect on egg size.

Q How about egg production, rate of egg production, was there any results on that?

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A No effect on rate.

Q Now, you've told us that as these test results came in to corporate medical and relayed to you, and then in turn to the highest echelon, the business unit, I think you described it, was the business unit of such a nature as to have responsibility for the marketing labels?

A Yes.

Q And were changes made in 1970 on the labels that had theretofore been on Therminol and Aroclor packages and containers?

A Yes.

Q Now, in the packet of six that we all have, the top one which is marked A-1 has a pen notation imprinted 1965, and is that the earliest one that you can recollect used on Therminol?

A Yes; the earliest one I can recollect.

Q Is the last one in the packet a duplicate -- is A-6 a duplicate of A-1 or is the only difference just the size of the lot or the size of the package?

A The only difference is the net legal weight shown to indicate a different container.

Q So it is essentially the same label on different size packages; A-1 and A-6 is the same label. It is just

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two different size packages; is that right?

MR. McDERMOTT: I don't want the witness to testify as to the contents of the documents that are in front of all of us.

MR. EISENBERG: I just want to know if there's any difference other than the size it refers to.

MR. McDERMOTT: I think the document that's been marked will indicate whether there's a difference by comparison.

(Discussion off the record.)

BY MR. SOMMERS:

Q Mr. Papageorge, on the lower left-hand corner of A-1 and A-6 there appears to be a stamp of the Underwriters Laboratory. To your knowledge is this the standard Underwriters Laboratory stamp that appears on both A-1 and A-6?

A Yes.

Q Is that stamp identical as it appears on all of the exhibits that have been furnished to us, A-1 through 6 on which it appears?

A Yes.

Q Do you know what it says?

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A Not word for word, but it does refer to fire resistance.

BY MR. EISENBERG:

Q Look over at A-2 and A-3. On my copy A-2 is more legible. That was a change in the label, and the date of the change was August 24, 1970, was it?

A Yes.

Q And who were the authors of that change?

A There were several of us. I put together the first draft. This draft was reviewed by an attorney, research director, the individual who was in charge of the label design department and the business group director. Some slight modifications were made. I don't recall what they were, but after this review by these individuals, the wording you see there was adopted.

Q I would take it a corporate entity such as Monsanto, when you say you made the first draft, your draft was accompanied by a memoranda of some kind to the next person to see it?

A Yes.

Q Then that department, I take it, would study it for some time and some documentation go on it and pass it on

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A That is possible. Sometimes a telephone call would be sufficient.

Q Well, changing a marketing label was in the corporation at that time something that a number of people had to work on. It wasn't a minor item, was it?

A That's true.

Q That being so, much of it was done by documentation in writing as opposed to phone call, was it not?

MR. McDERMOTT: I'm going to object to the form of the question. I think it is leading and suggestive. If you want to ask him if he knows what method it was done, by phone, memorandum or face-to-face conversation.

MR. EISENBERG: I'll kind of stand on the question.

MR. McDERMOTT: I'll object as to the form of the question and direct him not to answer in that form.

BY MR. EISENBERG:

Q Is there in existence a file indicating the steps through which the change in the label took place?

A There is no file specific to the label change. The correspondence would be in chronological order along

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with other general correspondence.

Q Would the bulk of that material be in the marketing PCB file?

A I would not expect the bulk to be in that file, no, sir.

Q Which file would it be in, file or files?

A It is difficult to determine, but I would expect the pertinent pieces are in Mr. Sido's file. He is the individual who is responsible for finally designing the label, a very key man in matters of this type.

Q As far as the decision to change the label, I think I said who was the author of the change in label, but the decision and direction to go ahead and change the label came from what echelon of the company?

A It is very difficult to pinpoint because the matter was discussed at a meeting at which many individuals were present. I don't recall who in the group first approached the subject, but I do recall the active discussion, and I suppose the emphasis placed on the importance of communication by the attorney present, so if anyone is considered the main proponent, I would say the attorney was.

Q Was the head of the -- what was it, the Organic Chemical Division at that time?

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A Yes.

Q Was the head of the division at that meeting?

A No, sir.

Q Who was the highest official of the Organic Chemical Division who was present at that meeting?

A That was Mr. H. S. Bergen, business group director.

Q And in the hierarchy what level was he on compared to the head of the division?

A He reports directly -- he reported directly to the head of the Organic Division.

Q Do you know if the approval and the final go ahead for the change in label was, in fact, approved by the head of the division?

A No, he does not get involved in those matters.

Q So Mr. Bergen was the highest official in the division to take part or participate in the decision to change the label?

A Yes.

Q Now, do you know when that meeting took place?

A Early in 1970. About March or April.

Q Now, prior to the actual go ahead being given to change the label, had there been earlier meetings, not with

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the identical people present but were substantially the same people present at which data with respect to tests to PCB's were discussed and preliminary proposals made to possibly change the label?

A I'm not aware of any.

Q Are the records or memoranda in file somewhere that would throw light on that question?

A I have not seen any.

Q Well, were you, yourself, present at any earlier meetings on that subject?

A No.

Q Of course, this happening in early 1970, it would have been shortly after you left as chief of the Anniston PCB plant.

A Yes, sir.

Q When was it you actually removed yourself and your family from Anniston and got back to St. Louis? Was it in '69 or early '70 or when?

A I reported and was functioning on my new assignment right after the holiday season of the first of the year. I forget, January 1st, 2nd, 3rd, 4th, somewhere in there, 1970.

Q Do you know if during 1969 the people who

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ultimately came to that March or April meeting had met, talked about preliminary proposals to change the label?

A I just don't know.

Q Who chaired that meeting? Was it Mr. Bergen, the senior man present?

A Yes.

Q And is Mr. Burgen still with the company?

A No, sir.

Q Do you know where he's at or is he still alive?

A Oh, yes. The last I heard he was residing in Houston, Texas.

Q Now, when you made up this first draft and it went through I think you said the lawyer, the chief of Research Division; is that right?

A Yes.

Q Do you remember who that was?

A That was Dr. Richard --

Q The same one we talked about before?

A Yes, sir.

Q And on my copy it says: "Some studies have shown that PCB's may be an environmental contaminant." Can you identify for us now which studies you had reference to as used in that sentence?

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A All right. In the early part of 1970 we had the University of Stockholm information. We had Dr. Riscborough's information, and as I recall, at that time we also had some information about an incident that occurred in the North Sea involving wild birds and seals.

Q What was that information?

A Information was that many of these creatures were found in dead or dying on the beaches in the North Sea area, Norway, if I remember correctly, and it was immediately attributed to the presence of PCB's, so with that kind of information coupled with the fact that we had ourselves taken some samples of rivers and sediment and found PCB's, a decision was made to let our customers through the labels and through other material know that it could be -- and we had to use the words maybe, it could be, because the evidence wasn't overwhelming, nor was there enough of it.

Q Well, when the company found out about the North Sea incident, did they assign someone, someone even under your control to look into it further and obtain all data possible on the amount of PCB's and the possible source of the PCB's?

A No.

Q Do you know if any government agency was contacted

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for information about that?

A Yes. Mr. Wheeler spoke with representatives of the Department of Interior which is interested and concerned with wild life, and since there was no other agency in existence at that time, there was no one else to go to.

Q Do you know what he found out from the interior at that time?

A He didn't find out any more than we had already seen in the public press at that time.

Q Did you ever subsequently see any scientific study of the problem?

A I've never seen a scientific study, no.

Q You made reference to studies Monsanto made with respect to PCB levels in water. I think you mentioned streams and lakes, did you?

A Yes.

Q How did that come to pass and what was involved in that?

A I'm trying to remember which samples were obtained. Of course, we got some from the Mississippi River which was near our plant, near the one plant, Sauget plant. There was some other samples. If I remember

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correctly, they were from the Ohio River -- one of the rivers to an industrial area, but I don't recall who sent them to us, whether it was a customer or an agency, but we did look at Ohio River samples and saw PCB's.

Q Were they studies made because people sent you samples of the water or did Monsanto take the initiative and go out and test water from certain areas?

A Both kind of studies.

Q What were the considerations that prompted Monsanto to go ahead and take that step at that time?

A Well, when one keeps hearing about PCB's in the environment and lacking any other data to deny or confirm, it is almost a natural step to go out and get your own samples, run it through your own instruments with your own methods to see if in truth this is really what's being observed. I don't know of any other motivation that could have occurred.

Q Okay. Now, the second sentence of the label change, my copy is partially illegible. Does it say "extreme care should be taken"?

A "Extreme care should be taken to prevent any entry into the environment through spills, leakage, use, disposal, vaporization or otherwise."

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Q Was that in your first draft in April?

A Yes, essentially. In fact, if I remember correctly, I didn't have all of those categories in and some were added.

Q Now, at any time prior to 1970 had Monsanto done any research work or any studies, laboratory studies or any other scientific studies on the life of PCB's? I think you told us early yesterday that it had a high indestructability quotient. What information or what did the company know about the life of PCB's prior to 1970? Would they simply break down eventually? What was their life expectancy?

A We had no information regarding the life of PCB's in the environment.

Q But was it not true that one of the characteristics of the composition that made it desirable was its long-lasting vitality?

A True.

Q And having known that did the company do anything to obtain any data whereby they might instruct customers on what to do with it after the customer used it and wanted to get rid of it?

A At that point in time the state of the art would not have stimulated anyone to think along those lines.

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Q Well, on the subject of I'll just use lay terms, I call it life expectancy which is an inartful term, and I'm sure you have a scientific word for it, but if you could visualize for us what might be called a garden variety type of machine used in a factory where you put PCB's, it would be in a closed system for heat transfer purposes?

A Yes.

Q What would the useful life of a particular batch be in a garden variety machine?

MR. McDERMOTT: Well, if you can answer it without him specifying further as to what type of machine he's talking about. If you can't answer the question in the form asked, so indicate.

A I can only speculate because there are many factors that have their impact on that fluid.

Q Give us the low range and the high range of what might be deemed the average range.

A I find it difficult to -- if the fluid is abused by stressing it, let's say exposing it to a hot surface above the given temperature. They are not totally indestructible but they do resist destruction under normal operating temperatures. If it is abused, the fluid can be destroyed the first hour it is in the machine. If it is

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not, it can outlast the machine, 30, 40, 50 years, and when you say average, it's most difficult to come up with.

Q You've answered the question. When you talk about abuse, you're talking about some abnormal use of the machine or some adverse effect on the fluid itself. Heat is one of the examples?

A Heat is one effect.

Q What would some other factors be that would shorten -- I don't want to use life expectancy but what would a better term be?

A Fatality.

Q Well, useful life, maybe call it useful life. What would other factors other than heat be?

A Well, bacteria will affect PCB's. We determine that sunlight, ultraviolet light will affect PCB's. Those are the only factors that come to mind at the moment other than the high temperature we already spoke of.

Q How about pressure?

A I have no information that relates to pressure.

Q So that if we get you right, when a customer would order PCB's to be used as a heat transfer agent in a machine, it would be put into a closed system and barring abnormal use or abuse of it of some kind it would last

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literally indefinitely?

A That is right.

Q In normal use nothing would break down or wear it, it would just stay PCB and just do the job it was intended to do?

A That is right.

Q Now, ehen PCB's were used and put into machines to replace old PCB's, was there any instruction of any kind by the company, either by way of warning, by way of any brochure in the container, any trade literature with respect to methods of getting rid of the PCB's?

MR. McDERMOTT: Up through 1971?

MR. EISENBERG: Yes, up through '71.

A No.

Q Now, I think yesterday we also referred to the biodegradable characteristics of PCB's, did we not, or maybe we didn't. I thought we did.

A Another thought was going through my mind. I'm sorry. I said no to the previous question and was thinking. He said 1971 was the cut-off date. Well, this information such as appears on the label was present from early '70 to the period 1971.

Q Was it not available even earlier than 1970?

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Until 1968?

MR. McDERMOTT: I don't understand the question posed. I object to the form. You've used the term "the information."

MR. EISENBERG: I picked it up from the last answer.

MR. McDERMOTT: Read the questions and answers back. I don't follow.

(Discussion off the record.)

BY MR. EISENBERG:

Q The subject of the questioning was methods of disposal and my earlier question went down to the end of 1971. Then I think you indicated certain information was available in early '70 which then prompted advice on methods of disposal. Am I right on the summary so far?

A Yes.

Q Then I think I asked was not some of that information available even prior to '70? I suggest that '69 and '68 --

(Discussion off the record.)

MR. McDERMOTT: I'm going to object to the form of the question. Be more specific.

Q Let's do it year by year. Can you tell us: Was

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it the change in the marketing label that first set the time when advice was given to customers about methods of getting rid of used or old PCB's?

A Yes.

Q And is it fair that prior to that time there was no admonition or warning or advice of any kind given to customers on how to get rid of old PCB's?

A That is right.

Q Monsanto -- this is elementary. Monsanto had vast knowledge of American industry, did it not?

MR. McDERMOTT: I object to that.

MR. EISENBERG: I think it's a fair question.

MR. McDERMOTT: I'm going to object to that.

Q Did Monsanto have knowledge of custom, usage and practice in industry for getting rid of used lubricants and petroleum products?

A I don't know that I can speak for all of Monsanto.

Q For as much as you can speak for, didn't you know it's common practice to just simply discard it?

A That's --

MR. McDERMOTT: Ask the question and let the witness answer. I'm going to object to your suggesting an answer to the witness.

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MR. EISENBERG: I'll take a stand on that.

MR. McDERMOTT: I stand on my objection.

MR. EISENBERG: The C.P.L.R. says I can examine as upon a trial. As upon a trial means just that.

MR. McDERMOTT: I'm objecting as to the form. So the record is clear, I think the question is leading and suggestive whether you're on trial or at an EBT; I think the obligation is to ask the question in a direct form initially so as not to lead or suggest any answer to the witness.

BY MR. EISENBERG:

Q Going back to some of your information yesterday, you gave us about how PCB's were made, specifically in your years as boss down at Anniston. During the production of PCB's there was a certain amount of tars I think you called it, gloop, residues. How were they gotten rid of by Monsanto?

A The residual material referred to as residue yesterday was disposed of in two ways. Some of it found a place in the market and we sold it as under the trade-mark Montar. The material which we did not sell we buried on property at the plant, inside the plant fence.

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Q You put it into drums first, did you, or did you bury it sort of naked?

A There's two sites. One, the material was put in steel drums and put into the hole and buried. The other site was in a pond, open pond. This material was pumped into it and it would solidify, very much like asphalt we use on roadbeds. That's where it's stored, it was stored.

Q Now, did you give any instructions after early 1970 to customers on how to dispose of used PCB's that you wanted to get rid of?

A Yes. As I recall, later in 1970 we informed our customers that we were constructing an incinerator for the purpose of disposing of used PCB's, and we offered to our customers an opportunity to send us their accumulated material and we would stockpile it until the unit was put into operation, and we would then go ahead and destroy it.

Q When did work commence and I'm including in that research into the design of an appropriate incinerator to dispose of PCB's?

A It started early in 1970.

Q Who was in charge of that?

A I believe I was the main instigator of the focal point.

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Q I take it from your last two or three answers that you needed some special kind of incinerator to do the job.

A Yes.

Q What was there about the incinerator that was appropriate that was different than just the ordinary incinerator?

A The incinerator had to be capable of achieving temperatures that exceeded about 2,000 degrees Fahrenheit and also had to be of such design that the material was retained in unit long enough at that temperature to assure total destruction.

Q Where was the incinerator?

A The incinerator was finally installed at the Sauget, Illinois Monsanto plant.

Q What happened to the PCB's in the incinerator and what did it look like after it got finished?

A If you remember, PCB's are made of carbon, hydrogen and chlorine.

Q I remember.

A The carbon when totally oxidized, and this is what incinerators are, you introduce oxygen goes to carbon dioxide which I suspect many of us have heard of. It's an innocuous gas and out there already. The hydrogen is

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oxidized to make water, H_2O. The chlorine is combined with hydrogen to make hydrogen chloride which is the gas that is used to form an acid that many of you may have heard of, muriatic acid. It's a weak acid, used, for example, to clean brick and so on. The unit has with it a water scrubbing chamber so that when these gases of carbon dioxide, H_2O, which is water vapor and HCO pass through this spray chamber, the hydrogen chloride is absorbed in the water to make a very weak acid. The carbon dioxide goes on up the stack, the H_2O that's formed, of course, joins the rest of the water in the spray tower to become part of that weak acid that finally results from this whole operation process. The weak acid is then introduced into the rest of the plant's waste stream which in this instance is what we call basic.

In other words, it's more caustic, so the acid helps to neutralize, so we put it to use to neutralize our waste.

Q When the customers were told of the availability of this incinerator, was it by a form letter sent to all PCB customers?

A Yes.

Q Which file would a copy of that letter be in?

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A This is normal marketing correspondence. I would expect to find it in the marketing file.

Q Was it just a single letter or notice sent or were there follow-ups and even personal contacts by field representatives at Monsanto to customers who didn't respond?

A There was all of that that you mentioned.

Q Who had charge in the company of seeing to it that this information was very fully disseminated to customers?

A That would be the Director of Marketing.

Q Those efforts would be in the marketing file on PCB's, would it not?

A I would expect to find it in there, yes.

Q When the old PCB's was sent to Sauget for destruction, who was to pay for that -- shipping I'm talking about?

A Normally the owner of the material paid for it. On occasion because of some business agreements Monsanto would pay for it. It varied.

Q Was there anyone at Monsanto who is charged with keeping track and monitoring the amount of used PCB's that were sent back for destruction at Sauget compared to

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the amount of new PCB's that were being sent to customers?

A The comparison was not made.

Q Did Monsanto take any affirmative steps to ascertain the percentage of discarded PCB's that were actually being returned for destruction in Sauget?

MR. McDERMOTT: Percentage of what?

MR. EISENBERG: Percentage of old discarded PCB's.

(Discussion off the record.)

Q My question is: Did you send people out or by correspondence actually make some affirmative effort to find out how much PCB's were being discarded by customers to ascertain the efficacy of your incineration system, whether it was being utilized or whether it was just a service that was available and nobody took advantage of it?

A I'll attempt to answer it in this fashion: The material that was returned to us came in in overwhelming quantities and from the day the unit was placed on stream we've always had an inventory of material to work on. It is difficult to measure the effectiveness in terms of did we get all or virtually all or very little of the total. Some of our customers found other ways of disposal. For example, some were using a service that the nuclear waste

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industry uses, where they store the material in salt mines and alike. I use that word broadly. After we put our unit on stream, shortly after we put our unit on stream, commercial units became available, so some customers used that service.

I don't know how else to answer the question except that we did get a respectable amount of material back but we have never and to this day no one ever really knows how much waste was generated.

Q You told us this morning of the steps that went into the preparation of the additional warning that went on the label during 1970. Had there been earlier meetings within the company where proposals were made to amend or change the label which were not adopted prior to this time?

A I'm not aware of any such meetings.

Q Is there someone still in the company who would have knowledge had such events occurred?

A I think the only individual that might have been involved is the attorney that I referred to earlier.

Q What was his name?

A Phocian Park.

Q He's still with the company?

A Yes.

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Q Headquartered in St. Louis?

A Yes.

Q When the change was made on the label, was any letter or notice sent to the customers advising them of this change on the label?

A No.

Q Were any of the field men directed to call on customers and call this change specifically to their attention?

A Their managers were told to do so. Now, whether they did or not, I cannot speak for that.

Q Which managers were told to do so?

A The manager for heat transfer fluids, for example, the manager for dielectric fluids, the manager for industrial hydraulic fluids. They were informed of the pending change. It was suggested to them that they communicate this to their field representatives, and they in turn conveyed this to their key accounts. It couldn't possibly cover all the accounts but hopefully the key accounts. I personally have no information to tell me they actually accomplished all this.

Q Where would the documentation of the implementation of that directive be?

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A If such a document exists, it would be in the marketing files.

Q During the various meetings that you attended where the change in label was discussed -- that would be during the middle and latter portion of 1970 -- do you know whether the subject was raised of the adequacy of the warning to tell customers about this warning?

MR. McDERMOTT: I'm going to object to the form of the question as I believe it improperly characterizes the prior testimony. You used the reference to the middle and the latter part of 1970, I think the testimony was --

MR. SOMMERS: I think late '69 and early '70.

MR. EISENBERG: I may be in error.

BY MR. EISENBERG:

Q I thought you said the first meeting about the label was in March or April of '70. I'm almost sure you said that.

A That's the first meeting I attended at which the subject was raised.

Q I guess you didn't know whether there had been prior meetings?

A When I first took over the new assignment which

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was in January, we started having these kinds of meetings on other subjects, the intent there being to communicate all we knew about PCB situation primarily for my benefit. The meeting in March was about the second or third such meeting. This is when the subject of labeling first came up in my presence. As best I can recall, it was raised in such a way that it was not a totally new concept, but it was a review of the timing -- do we have enough information to convey; is it the kind of information that can best be conveyed through a label? This is the gist of that type of conversation.

Q I take it from that when conversation was given to be conveyed through a label, alternatives were considered.

A Yes.

Q What were some of the alternatives?

A The principal alternative, of course, is the person-to-person contact with field sales representatives. Other approaches would have been that we did consider was mailing of a letter, which was -- this consideration was held in as best I can remember, a January meeting, and we actually followed up on that, as I recall, with a mailing within a month or so.

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Q So there was a mailing.

A There was a mailing at which we tried to share with our customers the limited knowledge we had at that point in time. I don't recall the exact words, but the intent was to inform the customer that we were getting reports that PCB's were found in the environment, PCB's are present in these kinds of products, you are a customer of ours, that general context. I don't remember the exact words.

Q Were there follow-up mailings in a similar vein?

A I'm sorry but I don't understand the follow-up. Follow-up to which, the first mailing?

Q Yes.

A Subsequent mailings varied dependent on what we had to share with our customers. In some cases we would inform them of our discontinuing marketing a product. In other instances we informed them of a reformulation of a product. In one mailing I recall we informed them of this incinerator we were building and the fact that they could send us their scrap material. These are examples of the kinds of mailings that went out.

Q Do you have copies of those mailings with you today?

A I have with me a copy of the letter that went out

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on February 9th to our customers on record at the time in 1970 in which we informed them of the reports we were receiving relating to the presence of PCB's in the environment and the kind of PCB that was being reported, which of our products had that kind of PCB and also an attempt to inform our customers about our other product lines, and then we attached to that a copy of an article from a chemical journal called Chemical Week, an article that appeared in the October 29, 1969 issue, which covers the broad field of water pollution and water contamination that we felt might be instructive to our customers to bring them up to date on the fact that we had to control on what went down our sewers. That was the intent of our first mailing.

MR. EISENBERG: Mark that Inter-County's B for identification.

(Documents were marked Defendant Inter-County Exhibit B for identification.)

(Discussion off the record.)

BY MR. EISENBERG:

Q We've had some off-the-record discussion about the full thrust of the question. I tell you now that the purport of the question is mailings having to do with

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PCB's in any form or any type sold by Monsanto, mailings on any kind of PCB so with that clarification, go ahead.

A There were many mailings and I already referred to the first mailing to all our customers dated February 9, 1970. The only other example of a mailing I have with me is a copy of a letter mailed dated June 8, 1970 in which the manager of the heat transfer fluids business group informed his customers, customers of the Therminol products that as of July 31, in other words, about the end of the following month Monsanto was no longer going to sell the Therminol FR series fluids to applications where the potential for food application exists.

MR. EISENBERG: Mark that C, please.

(Letter was marked Defendant Inter-County Exhibit C for identification.)

Q If you want to expand on your prior answer, you're free to do so.

A Let me try to describe what was happening. We were learning virtually every day something a little bit new and different about PCB's. We had the problem of how to best communicate this to several thousand employees throughout the world.

Q Your own employees?

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A I'm sorry, customers. Employees, too, but customers is what we're addressing here. We tried all the means of communications with the key accounts and by key accounts I'm referring to large volume users, where the potential might be greater. We tried the personal approach with the field representative, talking with the proper representative of our customer. We then went to the letter approach, the February 9th letter being the first of a series of letters. In the meantime we're considering what to put on the label and that consideration, as I remember, best was finalized in the early part of 1970, March-April. We immediately went to press and had a small label made that contained just that paragraph, and it was sent immediately to our plants and warehouses and wherever the material was, and this label was added onto the inventory in stock.

In the meantime we're making arrangements with the printer to print the full label with that new wording. This is why you will see some apparent discrepancies in dates, because these things were evolving. There's a February 9th notification letter, there's an April -- March-April decision to include a new paragraph, and there's a reference to an August '70 for a printing of a label. All

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of these things were all happening simultaneously or as fast as we could get it done. Our whole objective was to inform the customer that the material was an environmental problem and the problem at that point in time was present in the environment.

Q Was not the problem even more specific and in its more dangerous form, I'm speaking of the problem of the possibility of ingestion by humans of either PCB's themselves or fowl or cattle or some livestock fed with PCB's?

MR. McDERMOTT: I'm going to object to the form of the question.

Q As you say, this became during the year 1970 a matter of virtually day-to-day concern to Monsanto. Do we agree to that?

A Yes.

Q Many facets of the problem that was unfolding were discussed by appropriate personnel at the company, yours included.

A That is right.

Q Now, in these discussions was it not pointed out and discussed in the course of the conferences that the greatest interest in avoiding a problem was to prevent

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PCB's from either being ingested by humans or ingested by livestock that would in turn be ingested by humans?

MR. McDERMOTT: Again I'm going to note an objection as to the form of the question. If you're going to ask him what conversations they had, and did they discuss this and did they place this in some order of importance, I have no objection; but I'm going to object to the form of the question strictly on the form.

Q Did you discuss it and did you discuss the priority of that aspect of the problem?

A Yes. In 1970 the information we had did not indicate that it was a dairy cattle problem or a human problem, ingestion problem. It was never intended to be put into food. It's a material that we looked upon, the way we look upon thousands of other industrial chemicals, many of which are much more toxic than PCB's. It never occurred to anyone that these materials would end up being ingested. It just is not that type of material.

So the emphasis placed on hazards exposed by ingestion was never there because it's not a likely avenue of exposure to the people.

Q Well, was it discussed that one of the basic uses

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of PCB products was wax coatings, waxpaper coatings? Was it discussed that these were common packaging articles for food, and that this might present the area of greatest hazard to humans? Was that at any time discussed at that time?

A The various applications of PCB's were discussed. The use in such things as food packaging has to be approved by a federal agency, and as long as the federal agency has approved an application, this is deemed to be appropriate and there is no further information to indicate that it shouldn't be so.

Q Well, by the 1970's was Monsanto aware that federal agencies were looking into and studying and setting up restrictions and prohibitions with respect to PCB's?

MR. McDERMOTT: I'm going to object to the form of the question as it implies that the federal government was conducting such a study.

MR. EISENBERG: There was no such implication. That was a pure request for information.

MR. McDERMOTT: Rephrase the question, please.

BY MR. EISENBERG:

Q Was there any activity on behalf of the federal government during 1970 to either restrict, regulate,

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prohibit or limit in any way PCB's in channels of commercial distribution of food products?

A Our federal government agencies were not interested in PCB's in 1970.

Q And Monsanto knowing that relied on the fact that the federal government didn't bar it, and they took no action themselves to limit it from food packaging?

MR. McDERMOTT: I'll object to the form of the question.

Q In your second prior answer do we understand correctly that although the subject of PCB's getting into food packaging materials was discussed, the decision was that since the federal government didn't prohibit it, that no action need be taken?

A It wasn't based only on the fact the government agency did not object to its use, it's also based on the health data available to Monsanto at that point in time, 1970, which was roughly about a year or so into the long-term studies that were underway. There was absolutely no information that says PCB's at those levels of use would be harmful to human beings.

Q Was there information that PCB's at higher levels of use would be harmful to human beings?

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A Not at that time.

Q When did Monsanto first learn of any problem with PCB's concerning Holly Hill Farms in North Carolina?

A About the summer of 1971.

Q Did Monsanto when these incidents occurred set up any task force or division within the company or even in your department where you send field people or trouble-shooters out to these various places where problems of PCB's cropped up?

MR. McDERMOTT: I'm going to object. Could you be more specific as to what incident or incidents you're referring to?

Q As you told us, the PCB problem began to unfold greater and greater as time went on; is that right?

MR. McDERMOTT: I'm going to object to that -- the form of that question.

Q There came a time when you learned of a problem at Holly Hill Farm in North Carolina?

A Yes. I am personally confused by your use of the word problem. It's really a presence of an industrial chemical in the environment really. That's all we're getting.

Q When you learned of the presence of an industrial

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chemical at the Holly Hill Farm.

A Yes, we did.

Q Did you send any people down or any company investigators of any kind down to the scene to look into it?

A No.

Q Ultimately the company learned of the presence of an industrial chemical problem up in New Hampshire involving some mining, did it not?

A Yes.

Q Did you send people up to look into that?

A No.

Q You learned of a problem here in Sullivan County involving Inter-County and later Rosansky, did you not?

A Yes.

Q Were any people sent down to that?

A No, sir.

Q Was there an incident in Michigan where dairy cattle had adverse effects on their health? Did you make any inquiries whether PCB's got into their diet in some way?

A I'm not aware of any dairy cattle with adverse effects of PCB's.

Q If it wasn't dairy cattle, was there any dairy

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cattle under a power line that had adverse effects with the milk products from the cattle?

A Yes.

Q Did you send people down to do that?

A No.

Q When did you learn of the milk problem in Michigan?

A I believe it was 1974.

Q How about in Georgia or Florida, with problems with the presence of an industrial chemical crop up there?

A I don't recall Florida, but Georgia, '72 or '73, somewhere in there.

Q How about Ohio?

A I can't recall whether it was 1970 or '71.

Q What was the nature of the Ohio problem?

A Milk from some dairy farms was found to contain PCB's. When the dairy scientists were looking for pesticides like DDT. The dairy officials in the State of Ohio embargoed the milk from some of the dairy herds. It was later determined that the PCB's came from what was present in sillage which in turn was stored in silos which had been concrete silos which had been coated with a coating which contained PCB's.

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Q Was the coating a paint or lacquer of some kind?

A It's a lacquer -- it's a home-made kind of lacquer that somebody mixed out in the field and applied.

Q Do you know what the vehicle was, the component with PCB's were carried?

A PCB's was one of several ingredients, all of which were blending. I don't recall the other material. One of them was a material supplied by another company called Cumar.

Q That wasn't a carrier for PCB's, was it?

A I don't know what is meant by carrier. It's another ingredient. They all blend in pretty well.

Q Well, the PCB had to get into that coating carried in some product; isn't that so?

A I'm confused by the word "carry."

Q Do you know how the PCB's were introduced into the coating of the inside of the silos?

A I am told that several ingredients were put in a little cement mixer and PCB's blend quite well with many materials.

Q My question is one of the ingredients had to have PCB's. Do you know which ingredient it was that had PCB's?

A No, I don't. I don't understand the question,

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really. The other ingredients as I remember --

(Discussion off the record.)

A There's no way to know. The question, if I understand it, is somewhat similar to asking me if I took three oils and mixed them together, which oils is in which. I can't answer that. These ingredients are --

Q If you had three oils, only one containing PCB's, the PCB's wound up in the finished blend, you would know that the oil with PCB's contributed the ultimate PCB's to the mixture. That's the thrust of my question.

A The minute I mix those three oils, one of which contain PCB's, the PCB's will be present in all the oils.

Q That's true but the origin will be known, would it not, of how the PCB's got in?

A That's true. In this instance the origin is the Aroclor itself.

Q Which Aroclor was it?

A Aroclor 1254.

Q Is that sold commercially as a Therminol or as an Aroclor?

A That's sold as an Aroclor.

Q When did Monsanto first obtain any knowledge by any means or method of any claim of PCB's in feed sold by

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the Inter-County Cooperative here in Sullivan County?

MR. McDERMOTT: In these last series, this entire series of questions are not limited to 1971. We're talking right up to the --

MR. EISENBERG: That's correct.

A I believe it was either late 1970 or early 1971.

Q Was a file set up at that time in your department labeled "Inter-County"?

A We don't file that way.

Q How was data on the Inter-County matter ultimately filed with Monsanto?

A As best I can remember, there were not many pieces. It made documents involved. What there was, it involved the analysis of some samples from Inter-County. In that instance I would personally have filed it under either PCB analysis or customer service, one of those two files.

MR. EISENBERG: We didn't make a demand for copies of all of the correspondence referred to as follow-up correspondence in the earlier question. We make a demand for that and also make a demand for all company records and data, tests, test results involving Inter-County Feed or Rozansky

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Feed involving this case. I must include also in that involving Agway.

MR. McDERMOTT: Counsel will take the request under advisement.

BY MR. EISENBERG:

Q Do you have with you today test results of samples of Inter-County Feeds as well as Rozansky components that went into Inter-County Feeds, and also Agway Feeds and Rozansky components, if any, that went into Agway Feeds?

A Yes.

(Documents were handed to counsel.)

Q Before we go into the reports which I think in their nature would be time consuming, by 1970 or 1971 had Monsanto been made aware of impermissible levels in terms of parts per million of PCB in fowl, fish or domesticated livestock handed down either by any federal agency or by appropriate state agencies having charge of agricultural and markets matters?

MR. McDERMOTT: I'll object to the form of the question. The question implies that there were such standards or levels established.

MR. EISENBERG: I will delete and amend the question to take out any such implication and

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simply ask: --

BY MR. EISENBERG:

Q Were there such limits?

A There were no established limits but as cases were brought to FDA's attention, they were referring to limits as guidelines.

Q Were you ultimately made aware in the Inter-County matter it is part of the allegation that the Agriculture & Markets Department of the State of New York tested certain birds fed with Inter-County's feeds and directed their non-use for human consumption based on certain limits? Were you ultimately made aware of that?

A Yes.

Q Prior to being made aware of that, were you aware of such limits promulgated by the New York State Department of Agriculture & Markets?

A No.

Q By that time were you aware of any limits by any other state?

A No.

Q When you learned of these standards set down by the New York agency, had you already run tests on some Inter-County feeds?

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A As best I can recall, I heard about the permissible amount of PCB's in edible poultry before we got the samples.

Q So is it fair to say by the time you got the samples you knew that quantities of poultry fed with these feeds had been ordered killed and removed from the egg and meat market within the state?

A I don't recall the events occurring as stated. It was my impression that the poultry was already slaughtered and someone in looking for the presence of DDT determined that PCB's were present and tried to get some guidelines as to the significance of the PCB's present. Eventually I understood that the authorities -- and I don't know at this time whether they were federal or state -- permitted this poultry meat to be used as long as the final product intended for human use did not exceed five parts per million in PCB content.

Q When you ascertained that did you disseminate that in any way to your customers?

A No, because we are not tied into the poultry business. We wouldn't know who to disseminate that to.

Q Did you learn in 1970 that the FDA had set down guidelines for maximum permissible amounts of PCB's in milk?

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A I don't recall whether that was 1970 or '71. This was at the time of the Ohio Department of Agriculture was trying to get some ideas as to permissible PCB levels in milk. I just don't remember whether it was the summer of '70 or the summer of '71.

Q What is your present recollection of when the FDA first set down guidelines, if they did at all?

MR. McDERMOTT: If you can't recall, so indicate.

A I recall very vividly a meeting in September of 1971 with officials of the Food and Drug Administration at which they were wrestling with the question of what is permissible in human food. Up to that point they had been drawing analogies with DDT, and on a case-by-case basis and in a very quiet way were passing out these guidelines, such that the five parts per million in the poultry incident in Sullivan County was handled quietly without any publication of any regulations.

The incident regarding milk in Ohio was also handled in this fashion. The regulations referring to PCB's in food did not come out until 1973, July of 1973.

Q Was that just milk in '73?

A Milk, eggs, poultry, fish, animal feed, baby food.

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Q These tests haven't been marked yet. Let me count the pages. There are 19 sheets. Is this all the Inter-County -- Rozansky and Agway test results?

A To the best of my knowledge, yes.

Q We spoke before of incidents and without characterizing them as either problems or non-problems, were there also incidents that came to your attention in your capacity as head of the PCB section of Monsanto during '71 of a Yusha incident and Aescambia Bay incident and a New York Campbell Soup incident? Were you aware of all those in either 1970 or 1971?

A Yes.

Q Is New York Campbell Soup the same as Inter-County?

A That's my terminology for this Inter-County incident.

Q Tell us about the other two, Yusha and Aescambia Bay.

A The Aescambia Bay incident, I believe, occurred in 1970 -- I think it's 1970. This was an incident in which a compressor at Monsanto's plant in Pensacola, Florida developed a leak of the hydraulic fluid in the compressor. The leak went undetected because it was small. As I recall, no more than a pint or as much as a quart might have been

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lost from the total system. This leakage ended up in Aescambia Bay which is the estuary that leads out into, I believe, Pensacola Bay which in turn goes into the Gulf of Mexico. I'm not real certain of that but it does eventually end up in the Gulf of Mexico. I have forgotten the details, but as I best recall, someone from the Florida agency detected PCB's in that area and raised it back to this compressor. That was our first example of pollution from an industrial application of this material, first known recorded example.

The Yusha incident refers to an accident that occurred in Japan about 1968 which wasn't publicized, as I recall, until -- and by publicized I mean we in this country had heard about it until about 1970. The initial reports were most confusing and it wasn't really in the government agencies held a PCB meeting in North Carolina in 1970 that we got a clearer picture of what happened, and the incident is related to the use of PCB's as a heat transfer fluid to provide heat in a distillation unit which was used to refine oil which is extracted from rice bran. The coils in which the PCB's were to circulate developed a leak and the PCB's then were mixed with the rice bran oil. The oil was sold as a salad or cooking oil. The people who

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ingested this material developed many kinds of symptoms, including nausea, loss of appetite, serious breakouts of their skin, dizziness, some nervous disorders, confusion -- they couldn't think clearly. There were babies born to women who were pregnant at the time, and these infants apparently had a discoloration where they had a pigmentation, dark pigment and they were known, called locally at the time as chocolate babies and told that eventually the pigmentation became normal.

There were some stillbirths, but to this day I have not had any report that associates the stillbirths with the PCB exposure. One of them was strangulated with the umbilical cord, and I've forgotten what the other two were supposed to have died from. It appears from the information that we could gather that the PCB's were present in this oil at about 2,000 parts per million, very high concentration.

In a subsequent follow-up report given by the same Japanese investigators at a PCB meeting in Chicago in November, 1975, they indicated that some of these people were still showing some symptoms. There, of course, had been deaths in that seven-year period, but the reporter categorically stated that none of them can be attributed

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to the PCB exposure. That is the incident referred to as the Yusha incident.

Q You referred to a meeting in North Carolina in December, 1970, among government officials?

A Yes.

Q What government officials were they?

A It was called -- there were representatives from the National Institute of Environmental Health out of North Carolina, NIEH. There were people there from the Food and Drug Administration, U. S. Department of Agriculture, the Department of Interior of wild life and fisheries groups. There were also people from universities such as a Dr. Riscborough who we mentioned earlier, and Monsanto was invited since we were producers of PCB's.

Q Did you attend on behalf of Monsanto?

A Yes, I was one of Monsanto's representatives.

Q I was going to ask you in the company of others from Monsanto?

A Yes.

Q Were either Doctors Wheeler, Keller or Richard present?

A Mr. Wheeler was present. Just the two of us from Monsanto.

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Q And do you know how this conference came to pass, what was the genesis of it?

A I can only speculate. I don't know what created a need for a meeting other than general interest from many agencies about this material, and they wanted in essence a status report -- what was the knowledge.

Q Were there any other manufacturers of PCB's invited to the meeting?

A I do not know.

Q Did any other manufacturers of PCB's other than Monsanto attend the meeting?

A No.

Q How long did the meeting take?

A Almost a week -- three to five days. I don't know exactly.

Q Was a report ultimately prepared by the participants that was published, documented in some way?

A Yes.

Q Do you have that?

A I don't have a copy, but there is a copy -- the last I knew there was a copy in our research laboratory.

MR. EISENBERG: We would request that this be produced.

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(Discussion off the record.)

Q Can you give us the name of this journal?

A The proceedings of this PCB meeting held at Quail's Roost, North Carolina in December of 1970 were published in the first volume of Environmental Health Perspectives. I think it's published by the National Institute of Environmental Health located at Research Triangle, North Carolina.

Q Was that your first contact with this group, that particular meeting or had you had prior contacts with that particular group?

A When you talk about a group, I'm defining that as a group in total in one setting.

Q I was again imprecise. I meant the environmental council that you talked about, was that your first contact of that environmental council which as I understand was the host for the meeting?

A That was my first introduction to the director of that institute, yes.

Q Had you had correspondence, any contact with them before that time apart from personal contact?

A No.

Q By the time that interview took place had you

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been interviewed by NBC Television on the subject of PCB's?

A I believe I was. I was interviewed by NBC. I think it was in 1970 before the December meeting, yes.

Q Do you remember how it came to pass that that television interview took place?

A Yes. Congressman Robert Ryan -- Congressman Ryan from New York had spoken out against PCB's and NBC decided to interview the congressman and contacted Monsanto asking us if we could comply; they'd like to talk with us and as a result Mr. Wheeler and I were both interviewed by NBC TV.

Q Prior to that time had Congressman Ryan had any contact with Monsanto on the question of PCB's or his office?

A Yes, Congressman Ryan had been in contact with Monsanto representatives.

Q Was there some specific incident that prompted that?

A I don't know that there was an event of any sort other than Congressman Ryan was quoted about making some remarks about PCB and the Monsanto representatives contacted the congressman's office offering to discuss PCB's in some depth.

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Q Do you know whether Congressman Ryan had been introduced to the problem through some incident involving any of his constituents?

A I do not know.

Q Do you know who in Monsanto spoke to him about the problem?

A Yes. Mr. Sam Pickard and Mr. John Mason spoke either jointly or individually with Congressman Ryan on several occasions.

Q Have you learned from that what the specific interest was of Congressman Ryan or his office was into PCB's?

A As best we can tell, Congressman Ryan just felt that PCB's were bad chemicals and shouldn't be in commerce. There was no incident specific to his congressional territory. We do not know who educated Congressman Ryan on PCB's.

Q When did the Environmental Protection Agency come into existence?

A Let's see, the law setting up EPA was passed in 1970 so it must have been in '71 that they became a body.

Q Did that agency contact you on the subject of PCB's during 1971?

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A I think it was the other way around -- we made contact with them.

Q And who was the contacter from Monsanto, you?

A Mr. Wheeler and I.

Q Was there any discussion at that time of limits on PCB's in domestic fowl or livestock?

A EPA is not concerned with domestic fowl and livestock so there would not have been such a discussion.

Q That was under the Department of Agriculture?

A No. It would have to be the Food and Drug Administration for those products that crossed state lines.

Q Were any limits set down by FDA as of the end of 1971?

A There were limits at the end of '71 -- there were guidelines that were not published in the normal journals, federal register and alike, but there were guidelines that were sent to their field offices referring to presence in milk, fish, poultry.

Q Were FDA -- I think you told me FDA people were at the Carolina conference in December of '70.

A Yes.

Q Did they together with you discuss limits at that conference?

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A No, sir.

MR. EISENBERG: At this time I'll ask the reporter to mark the test results as Defendant Inter-County Exhibit D-1 through 19 for identification.

(Documents were marked Defendant Inter-County Exhibit D-1 through D-19 for identification.)

BY MR. BAUMAN:

Q Mr. Papageorge, I show you Defendant's Exhibit marked D-1 marked for identification, and ask you what this particular document represents?

A Exhibit D-1 is a memorandum from Dr. Tucker addressed to me. It's dated January 27, 1971, and in this memorandum Dr. Tucker is reporting to me his results from the analysis of samples submitted to his laboratory from Agway Company.

Q Mr. Papageorge, who is Dr. Tucker?

A Dr. Tucker is a chemist employed by Monsanto Company.

Q And does he work under your chain of command?

A No. Dr. Tucker in 1971 was the chemist in charge of PCB analytical method development and PCB analyses.

Q Did Dr. Tucker have a hand in the finding of the

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gas chromatography technique that was employed by Monsanto?

A Yes.

Q Does that document indicate when the samples were received by Monsanto for analysis?

A Exhibit D-1 does not indicate when the samples were received.

Q Do you know for a fact when these samples were received?

A I know that they were received in early January, 1971.

Q Do you know in what manner these specimens were received?

A As I recall, a representative from Agway came to St. Louis and brought the samples with him.

Q Do you know who from Agway came to St. Louis with these samples?

A Richard Rice.

Q Would you know what position Mr. Rice or Dr. Rice, as the case may be, would have with the Agway Corporation?

A At that time I understood Mr. Rice to be the analytical chemist from Agway's laboratories.

Q Would you know for a fact whether Mr. Rice had conducted tests or evaluations on these samples prior to

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their deliverance to Monsanto?

A No, I would not know it as a fact.

Q Mr. Papageorge, what is qualitative and quantitative analysis?

A Qualitative analysis -- describes an analysis in which the type of material present is identified; quantitative analysis not only determines the type of material but also determines the amount present.

Q Were both these techniques employed in the tests run on samples indicated in Exhibit D-1?

A D-1? Yes.

Q How many test specimens were received by Monsanto for analysis?

A For which purpose? For this document?

Q Yes. All the questions right now are addressed to Document D-1.

A There's been -- I'm sorry, seven samples received.

Q And would you know the ultimate source of those samples indicated on that document?

A No, I do not know the source of these materials.

Q Do you know the nature of the materials that were submitted to you for examination?

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A Only as described for us by Agway.

Q Was there any further description attached to those materials offered by Dr. Tucker?

A On this document? Yes.

Q That or any other document.

A Yes. He identified the first four listed as samples as feed. The next two are referred to as muscle, which I understand is a composite tissue sample, and the last listing is an extract from an egg.

Q On Test Samples 1 and 3, I'm referring to the first and the third sample listed under the column "Sample Identification," there is indicated the terminology "After Chemical Treatment." Could you tell us what the significance of that statement is?

A Samples can be submitted to a laboratory in two forms. One is the -- let's refer to it as the virgin material, untreated in any way -- in other words, as is. Another type of sample is one which has been pre-treated in which someone attempts to extract that chemical for which we're looking and sending that extract to the laboratory for identification.

Q Am I correct in understanding that the extract of certain chemicals were forwarded to you under Samples 1

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and 3?

A That is correct.

Q And the extract of what chemical would we be talking about?

A In this case since we're interested in PCB's the extraction process attempts to isolate the PCB's, and that is the material sent to the laboratory for further analysis.

Q Do you know whether this was done under the supervision of Mr. Rice over at Agway?

A I do not know.

Q Now, would this extract be a solid or a liquid component?

A It would be a liquid.

Q Was this sent in some sort of vial?

A Yes.

Q Would it be a plastic vial or a glass vial?

A Glass.

Q Now, referring to Items 2 and 4 under the sample identification column, we have a statement "Before Chemical Treatment." Judging from what you said previously, am I correct in understanding that this is the virgin material, untreated? This is not an extract we're talking

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about.

A That is right.

Q There is a further legend to this statement noted by three asterisks which states: "Sample consumed for GC mass identification." Could you tell us what that means?

A Occasionally a sample is in essence lost in the machine, and that particular test is no good for our purposes so it has to be redone.

Q Did that particular instance occur during the test conducted on these eight specimens?

A That's what that note would indicate, yes.

Q Do you know for a fact whether Dr. Tucker prepared test plans or procedures in connection with analysis that he did on these Agway samples?

A Yes.

Q Would you have copies of the test plans and procedures that were prepared in conjunction with these analyses?

A Yes.

Q Do you have these documents with you?

A I don't think so.

MR. BAUMAN: Could they be provided to us?

MR. McDERMOTT: Yes.

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Q Mr. Papageorge, could you tell us what sample identification number 34604-1 is, what it represents?

A The number you just quoted is an Agway number. I do not know the significance of that number.

Q And this represents a certain chemical in a vial that was presented to you for analysis; is that correct?

A That is correct.

Q Who provided the "description of feed" associated with that particular chemical vial?

A It would have to come from Agway Company.

Q Could you tell us the test methodology that was employed in conjunction with the testing of that first sample?

A Well, since this first sample had been previously treated, the sample is ready for introduction into this instrument I described earlier.

Q That would be the gas chromatograph?

A The gas chromatograph. The sample is measured out in a hypodermic arrangement and introduced into the instrument through a needle and that given quantity is introduced into the instrument, and with the proper amount of elapsed time the product of that machine is this chart

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I referred to earlier.

Q That strip chart, yes.

Q And there would be a certain reading of peaks and valleys coming off the strip chart?

A That is correct. In the meantime the laboratory has run through this same instrument a sample which contains one of the many Aroclor mixtures so that the machine has previously made a strip chart that has the peaks and valleys of the standard sample.

Q Would this be deemed a calibration of the machine?

A That's a good way to describe it, so that the unknown peaks and valleys are now compared to the known and the analyze then looks to see which of the mixtures the unknown mostly resembles. He makes a decision, is it closer to 1242, is it 1248, is it 1254? Which is the closest? Sometimes it's difficult so he makes a judgment. He says I'm going to call it 1242 for qualitative purposes.

Q In other words, this is a subjective way of determining what the Aroclor compound actually is that is under stress?

MR. McDERMOTT: I'm going to object to the form of the question and direct him not to answer

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in that form.

Q Would you deem this an objective way or subjective way of determining the Aroclor compound?

A Of course, the chemist tries to be as objective as he can and in many cases there is no question, the fingerprints are -- there's no question, they match but when we get into these areas where it could be one or the other, the individual has to make a decision and it really doesn't make an awful lot of difference which one calls it, if they're that close, so decides subjectively at this point to call it 1242 or 1248, which is the one most often creating this confusion. The others are much different so that confusion doesn't normally occur.

We're talked now about the qualitative part of the answer. We now have to quantify how much. That is done by comparing -- there are several approaches. Normally for those laboratories that are most sophisticated, they determine the area under that curve, so many square millimeters or centimeters. The more material present, the greater the area because the peaks are higher so you cover more area under the curve.

Some laboratories have decided that it's just as accurate to pick some of the more prominent curves or

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peaks, and measure the height of the peaks and add the height, so the sum of the heights compared to a standard, a known solution gives them a calculation to determine the quantity present.

Q Which technique would provide the greatest accuracy?

A The area under the curve is the most accurate.

Q And in determining the area under the curve, would this be commonly known in calculus as an integration technique?

A Yes, sir.

Q Are the results of this qualitative and quantitative test presented on that document which is marked Defendant Inter-County D-1 for identification?

A The results are reported, yes.

Q Could you tell us what those results are?

A The results are reported on two bases. One is referred to as wet weight which means the total weight of the original material. The other is referred to as the lipide.

Q Could you tell us why the results are reported on those two bases?

A PCB's are known to concentrate in fatty material

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and as a measure of their concentration it's sometimes interesting to know how much is concentrated in the fatty portion. At that point in time, in January of '71, there was no standard reporting method that was adopted by all the laboratories, so we felt that we should report it both ways.

Q I recall you advising us that the sample, Sample Number 1 we'll call it for want of a better term, was provided to you in extract form.

A That's right.

Q Would this be common to report in both ways an analysis on an extract form?

A We'd have to know for the sake of accuracy a little bit more information about the original of that extract. I don't know specifically in this instance what kind of information was forwarded, but normally along with that extract sample we will get the weight of the original sample as well as the per cent fat in that sample which would help calculate the results as shown here.

Q Was that provided to you in the data and information that was sent to you by Agway?

A I don't know. I --

Q In the 18 pages following the top sheet in that

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exhibit, are there any lab notes associated with that first test you just described?

A Let me look. I have looked over the remaining exhibits, Inter-County D series, and I note Exhibit D-8.

Q That would be the eighth page?

A The eighth page, is a copy -- let me describe it. It's a copy out of the laboratory notebook of notes kept by the laboratory technician and in the lower part of the page there is reference to weighing of the sample that we talked about earlier, the first sample listed on Inter-County D-1, and from that information I would have to conclude that this analyst made his own total weight basis and fat content. There is listed there if you'll note under Sample 34604 under wet weight he has parenthesis 1 and parenthesis 2, and there are numbers listed there. The top number is the gross weight of the container and sample.

Q What would the units be for that gross weight? Are you talking about grams?

A We're talking milligrams here.

MR. SOMMERS: Just for identification are you referring to the sheet that's numbered at the top 157446?

THE WITNESS: 445. It's Page 157445 from

WATER_PCB-SD0000049889

the analyst's notebook. The date there is 1/15/71. Down about three-fourths of the page you see a list of numbers and a subtraction. That shows a weight was made on an analytical balance.

BY MR. BAUMAN:

Q And this was the weight of the total sample; is that correct?

A Yes. And then he -- and I don't know the procedure he used, but he did something to the sample to get a different set of weights, which gives him the amount of fat present in that sample.

Q Would this be a mathematical computation or did he do something physical to the sample?

A He'd have to do something physical. He'd have to remove the volatile materials for example and end up with the fat.

Q How would this be done, with a centrifuge or something like that?

A In that case it would have to be a distillation where he drives off the moisture and volatile materials. He's left then with the fatty portion and he weighs that.

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Q Now, when it says "1" and "2" above the first two columns and "1" and "2" above the third and fourth columns, does this mean that two shots were taken at this analysis?

A That is right.

Q And how would you account for the discrepancy in the readings?

A That is a normal variation you would find in this kind of work. This is why two weighings were made, and then they average them to get the number that is finally used.

Q I see the name of the person performing these tests is W. J. Litschgy.

A Yes.

Q Is he still employed by Monsanto?

A Yes.

Q And is Dr. Tucker still employed by Monsanto?

A Yes.

Q Now, the second item submitted for analysis was a virgin test specimen, so to speak.

A Yes.

Q Can you describe the analytical techniques employed in performing tests on this specimen?

A The technique is identical to the one I described

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for the first sample, except that this virgin sample would be pre-treated in terms of extracting from it the PCB's that might be present. This pre-treatment involves such things as crushing and grinding if this happens to be in pellet form or solid form. It is then treated to a strong chemical solution to destroy chemicals that might be present that would interfere with the PCB analysis, and all of this is described in the methodology that we referred to earlier that you asked a copy of.

Q The best plan and test procedure.

A Right, test procedure. Finally, what is left really is an ash almost. It's the non-destructible part which is exposed to a solvent which will remove the PCB's that remain and it's this mixture of solvent and PCB's that's introduced into the machine.

Q Am I correct in understanding that the significant difference between the first sample and the second sample is that with the first sample Agway did all the work in reducing the extract. In the second sample you did.

A That is right.

Q Before the second sample was submitted to analysis, was there some sort of purging technique to clean

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and a lipid weight reading of 30.81. Could you tell us the significance of those readings?

A Well, to me it signifies that the PCB's were very highly concentrated in the fatty tissue or it could mean that the amount of fat present is very, very low, so mathematically you end up with a high number. It could be a very lean piece of tissue with very little fat in it, such that when you went through the calculations you could get a high arithmetic number.

Q Pursuant to the standards that you spoke about before, would this reading present any difficulty with any of the rules or standards promulgated by the FDA?

MR. McDERMOTT: I'll object to the form of the question and direct him not to answer in that form. I think he's already answered the question in prior questions in which he described the standards, and I don't believe there's any testimony that would indicate that such a standard existed as of -- note my objection to the form of the question.

Q Am I correct in understanding that there was some sort of guideline that was in existence back at the time that these analyses were being performed?

WATER_PCB-SD0000049893

out the gas chromatograph?

A Oh, yes. That's standard procedure. The unit is turned on and the temperature raised to in essence boil out all interfering materials so the unit is clean and ready for the next sample.

Q Now, getting back to the first analysis that Monsanto performed. We find a reading of .11 under wet weight and 3.61 under lipide weight. Now, this would be parts per million of PCB's in the test specimen?

A Right.

Q Now, during your examination by Mr. Eisenberg a short while ago, you referred to permissible standards that might have been promulgated by some governmental agency to the effect that five parts per million was an acceptable level for food submitted for human consumption. Do you recall that portion of your testimony?

A Yes, sir.

Q Which column would be comparable to the standard that we just spoke about? Would it be the wet weight column or the lipide weight column?

A It will depend on the standard itself. For example --

Q Could you go into a description of the standard?

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A For example, the tolerance in animal feed, as I recall, is .2 parts per million. That's on the total weight basis which would be the first column.

Q That would be total weight?

A Total weight basis. The standard, as I recall, for poultry is five parts per million in the fatty tissue. For that standard you'd have to look at the second column. The standard for milk, as I recall, is 2.5 PPM in the fatty portion, so for that case you must look at something that resembles the second column.

Q And judging from the methodology that you described, the second column would also be larger than the first column, since you're talking about a condensate.

A Yes.

Q Am I correct in understanding that the third specimen was tested in pretty much the same fashion as the first specimen?

A That is right.

Q And that the second specimen would have been tested pretty much in the same fashion as the fourth specimen.

A That is right.

Q We're getting down to the fifth specimen under the

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sample identification column it's indicated "Muscle - 1," and then there's a sample description. Could you tell us what that says?

A It says chicken homogenate.

Q Could you tell us what that means?

A It means that bits of chicken tissue from various parts of the carcass were all put into a mixing device very much like a household blender and a composite of the different parts of the chicken carcass results from this homogenizing, blending.

Q Could you tell us the form in which the sample was received by Monsanto?

A I did not see it so I can't tell you.

Q Would that have been received in its homogenized state or Monsanto be responsible for homogenizing the mixture?

A I do not know that.

Q Could you describe the testing techniques associated with homogenate mixture?

A It's identical for the one that I described for the second sample in the list.

Q Now, under the fifth sample identification, that's "Muscle-1," you find a wet weight reading of 1.55

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A Yes.

Q And this guideline was for concentration of PCB's in various materials.

A The guideline was for concentration of PCB's in edible poultry.

Q Could you tell us what these guidelines were and who promulgated these guidelines on January 27, 1971?

A It's my understanding that the Federal Food and Drug Administration, that a guideline of five parts per million of PCB's in the edible human product produced from poultry.

MR. GOTTLIEB: That's five parts per million measured on lipid weight or total?

THE WITNESS: That's total edible product.

Q Were these rules as promulgated presented to Monsanto in some sort of written document?

A No, sir.

Q How did you become aware of these guidelines?

A Telephone conversations -- at that time telephone conversations with someone from the New York State agency who informed me that he was given this guideline from FDA. This guideline was later mentioned by Food and Drug individuals in subsequent visits in Washington

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during early 1971. These were informal discussions made between Monsanto representatives and FDA representatives.

Q And the PCB's picked up in the first five tests were of AROCLOR 1248 nature?

A That's what the chemist says it looked like, yes.

Q In connection with Test Number 5 are there any laboratory notes annexed to this Exhibit 1 through 19 which would indicate the work done with respect to this evaluation?

MR. McDERMOTT: When you refer to Test Number 5, you mean the one designated Muscle-1?

MR. BAUMAN: That's correct.

A I see a reference to the muscle samples from Agway on Exhibit Inter-County D-11 which has the laboratory notebook Page Number of 157448.

Q This Monsanto method 70-1 was the method described for making such analysis on PCB's?

A Yes, sir.

Q And the designations wet weights and lipid weights and the columns under those designations would follow pretty much the same form as for test results 1 through 4?

A Yes.

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Q Could you tell us what the significance of the numbers are under the column "Muscle Number 1" in the middle of the page?

A Those appear to be numbers generated from the graph strip chart.

Q Would they be related to amplitude and duration or curves?

A Yes. Not having done this personally, I can only tell you what I believe they tell me. The first number is probably the integrated area under the curve which the analyst picks from an instrument that did this for him. The other numbers represent his attempt to compensate for the size of the sample compared to the total sample he had, because the material introduced into the machine is not all of the sample he has. He only takes a portion of it in his hypodermic needle, so one of the numbers represents that escalation.

Q That would be to normalize the equation.

A That's right, and then I don't know what that factor 1.10 is. That has something to do with the instrument and how it compares to the standard, and so on, so really this calculation attempts to bring out how many milligrams of material are present in a given size sample,

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and then using his lipid and wet weights, he comes up with two different parts per million numbers.

Q And the same procedures would hold true for the column labeled muscle Number 2.

A That is right. To summarize, it's taking the data generated by the machine and treating it mathematically to allow for sample size and amount of fat present to end up with the report in parts per million.

Q Mr. Papageorge, in the seventh sample identification, Agway egg extract was a washout from what I see. There was just no test results gleaned from your analysis?

A That first report indicates so, yes.

Q What are the numbers which are handwritten under the dashes on the wet weight column and the lipid weight column? What significance would they be?

A Those are rerun and I'm looking in this collection of Exhibit D-1 and I note on Exhibit D-12 refers to egg extracts.

Q And what would the number of that page be?

A 12. The page number is 157449, but I also note that that information on Exhibit D-12 doesn't take us all the way to the parts per million calculation. It ends with

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just so many micrograms, 6.70 micrograms of material found in that sample. I cannot relate that number to the pencilled numbers that appear on Exhibit D-1. On the other hand, I see some calculations on Exhibit D-9, Page 157447 at the bottom of the page a reference to egg results. Those results are shown in parts per million, but they do not relate to the egg extract on Exhibit D-1.

Q So nothing you've told us thus far would give rise to the pencilled inserts under those columns.

A That is right.

Q Is there anything in this total exhibit which would give rise to the test results as submitted?

A I do not see anything that supports the pencilled-in numbers on Exhibit D-1.

Q Now, going down a few lines there's a statement in this test report that, "The presence of Trichlorophenyl, Tetrachlorobiphenyl, and Pentachlorobiphenyl," et cetera, et cetera, were found in the Agway extract; is that correct?

A That is correct.

Q Are these three chemicals manufactured by Monsanto?

A Yes. They are the homologues which I described yesterday that are present in PCB mixtures that are sold

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commercially. There's three chlorals.

Q That would be a three benzene ring and a four benzene ring --

A No, sir. It's always two benzene rings, and it's the number of chlorines that are changing. Three chlorals, four chlorines and five chlorines.

Q Going to the second page of this report which would be D-2, could you tell us what the significance of this page is?

A This is a copy of the work request for our laboratory to do an analysis of an egg sample submitted by Agway which Agway referred to as Number 34603.

Q And this request differs from the tests run on the prior page; isn't that right?

A That is correct.

Q Could you tell us the nature of the test that Agway requested?

A Determine the presence and amount of PCB's.

Q Was a sample submitted along with this test request?

A Yes, sir, and you may recall I referred earlier to Exhibit D-9, that reference to Agway sample 34603 at the bottom of the page. That's page 157447. It's the last

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calculation on Exhibit D-9 shows in parts per million on the wet basis and lipid basis of PCB's in Sample 34603 submitted by Agway which is shown on the work request sheet marked Exhibit D-2.

Q Now, was this work request sheet submitted on a Monsanto form?

A This is a Monsanto form, yes, sir.

Q And are these forms sent to various agencies or companies throughout the United States?

A No, sir.

Q Could you tell us how come Agway had a copy of this test request form in their possession?

MR. McDERMOTT: I'm going to object to that. It presupposes that they had a copy of it in their possession.

Q Did Agway have a copy of this test request form in their possession?

A I'm not aware of any of that.

Q Now, the test requester of this particular test was Dr. Tucker who, as you said before, was a Monsanto employee.

A That's right.

Q Do you know who from Agway requested this

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particular test to be performed?

A I have no information to help me identify the Agway person who asked for this.

Q In addition to these seven evaluations that are indicated on Page 1 and a further evaluation that is indicated on Page 2, are there any other tests that are reflected in this test report?

MR. McDERMOTT: You say this test report. You're referring to --

MR. BAUMAN: The total exhibit, D-1 through 19.

A Yes. Exhibit D-6 indicates that still another sample was analyzed.

Q What page would that be? Could you give us the last two numbers?

A There is no page number because that's a memorandum from Dr. Tucker to me dated March 10, 1971.

Q Now, in this memorandum from Dr. Tucker to yourself does he indicate that the analysis revealed a finding of 747 parts per million of Aroclor 1248?

A Yes.

Q After performing such an analysis were you in contact with Agway on the results of this analysis?

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A You're talking about this specific analysis?

Q This specific analysis.

A I don't remember this specific one. Some of these results were telephoned by me to Agway and some of them were telephoned by Dr. Tucker.

Q Did Monsanto ever cause to have a search made or an investigation made as to the source of the PCB's found in this particular sample that gave rise to a 747 finding?

A Well, I recall discussing -- discussions were not with this specific sample, but there were discussions with individuals with Agway and the individuals concerned with this bakery by product meal as to the source of the PCB's, and we were trying really to guess as to where it could be coming from.

Q Was any correspondence exchanged between Monsanto and Agway or any other company or agency with respect to your investigations as to the source of this particular contaminant?

A No.

Q Aroclor 1248, is there a heat transfer fluid which would bear a different terminology than Aroclor 1248?

A Yes.

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Q And could you tell us what that would be?

A Therminol FR-2.

Q Was there any way of determining whether the sample you had investigated was indeed Aroclor 1248 or Therminol FR-2?

A I cannot tell.

Q Were there any other test analyses described in this exhibit other than the ones you told us about?

MR. SOMMERS: Is there another sheet which describes the analysis for the report leading to the 774 PPM figure?

A Exhibit D-13 which is a copy of laboratory notebook, Page 157451 shows a notebook entry referring to this sample and the presence of 700 -- well, actually it's the presence of more than 700 parts per million of PCB's as Aroclor 1248.

Q Getting back to the original question, are there any other tests which are reflected in this report?

A In this collection of exhibits we have additional samples shown on Exhibit D-14 which is laboratory notebook Page 157486.

Q And were the test specimens submitted in connection with this evaluation from Rozansky or Agway?

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MR. McDERMOTT: Well, I'm going to object. You can ask him who they were from.

Q Who were the test specimens from?

A I'd have to refresh my memory, as best I can recall, we got samples from both Inter-County farms and from Rozansky, but I don't know if those are the samples shown here. I have no way of relating the two. There is no documentation.

Q Would there be any documentation in any other file that may be in Monsanto's possession which would indicate the source of the test specimen under analysis?

A I don't know.

Q Well, could you lead us through the results of the tests that are indicated on page ending at 86, on D-14.

A This page shows the results of samples of what appears to be different types of poultry feed, as well as a sample of bakery meal from Mr. Rozansky's operation.

MR. MORAN: Could we ask where it says "Bakery Meal"?

Q Could you tell us what leads you to conclude that one of the samples tested was bakery meal?

A All of our information that we have of material from Mr. Rozansky leads us to think it's all referred to as

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bakery meal.

MR. MORAN: I move to strike the answer as speculation.

MR. SOMMERS: I join in.

MR. McDERMOTT: I've allowed the witness to testify freely as to this, but I assume we are all reserving our objections with respect to any of this except as to form.

THE WITNESS: The results on this page are reported as amounts of PCB's representing Aroclor 1242 and for each sample there is a set of two numbers. The first number represents the amount of PCB's present on a total or wet basis. The second reports the amount of PCB's on a lipid or fat basis.

BY MR. BAUMAN:

Q Rather than going through all of the numbers set forth in this particular page, is it correct to say that all the results were under one part per million except for the last one listed under the Rozansky heading on the bottom of the page?

A There's some confusion. The results reported on the wet basis are shown as the first of a set of two numbers

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and in every case but the last case which is identified as Rozansky, the numbers are less than one part per million. The last number is 1.82 parts per million on a wet basis.

Q And on the lipid basis?

A Lipid basis it appears to read 19.7 parts per million.

Q And that's from the Rozansky feed specimen; is that correct?

MR. SOMMERS: Objection.

A Yes.

Q Now, going to the following page, Mr. Papageorge, I'm referring to a memo to yourself from Dr. Tucker dated April 29, 1971. Does this reflect another test or tests performed on Rozansky specimens and a specimen from the Mueller Company?

A Yes.

Q And the results of this test are in parts per million, 25 for Rozansky and 83 for Mueller?

A Yes.

Q Mr. Papageorge, do you have any test analysis on any evaluations performed on feed samples submitted to you by Inter-County aside from the ones that were set forth in this particular exhibit?

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A To the best of my knowledge, this represents all the samples from Inter-County or designated as being related to Inter-County.

Q Do you have any other test rules from samples submitted to you by Rozansky?

A Not to my knowledge.

Q Do you have test results of any other evaluation submitted to you by any other parties to this action?

A Not to my knowledge.

MR. BAUMAN: Gentlemen, I think this might be a good time to break. I'm finished with the report.

(Discussion off the record.)

(At 4:24 o'clock P.M. the deposition was adjourned until Wednesday, September 28, 1977.)

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