

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF ILLINOIS
EASTERN DIVISION

THE UNITED STATES OF AMERICA,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	No. 78 C 1004
	)	
OUTBOARD MARINE CORPORATION	)	
AND MONSANTO COMPANY,	)	
	)	
Defendants.	)	

The continued deposition of WILLIAM B. PAPAGEORGE, called by the Defendant Outboard Marine Corporation for examination, pursuant to adjournment and pursuant to the Rules of Civil Procedure for the United States District Courts pertaining to the taking of depositions, taken before Thea L. Urban, a Notary Public in and for the County of Cook, State of Illinois, and a Certified Shorthand Reporter of said State, at the offices of Kirkland & Ellis, 200 East Randolph Drive, 58th Floor Conference Room, Chicago, Illinois 60601, on the 31st day of August, A.D. 1981, commencing at 9:00 o'clock a.m.

PRESENT:

MR. JAMES T. HYNES,
Deputy Chief, Civil Division
(United States Attorney's Office
219 South Dearborn Street, 15th Floor
Chicago, Illinois 60604),

appeared for the United
States of America;

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PRESENT: (Continued)

MR. MICHAEL A. POPE,
MR. DOUGLAS J. LIPKE,
(Phelan, Pope & John, Ltd.
30 North LaSalle Street
Chicago, Illinois 60602),

and

MR. JEFFREY C. FORT,
(Martin, Craig, Chester & Sonnenschein
115 South LaSalle Street
Chicago, Illinois 60603),

appeared for Outboard Marine Corporation;

MR. JAMES H. SCHINK,
(Kirkland & Ellis
200 East Randolph Drive
Chicago, Illinois 60601),

appeared for Monsanto Company.

ALSO PRESENT:

MR. HUGH THOMAS.

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I N D E XWITNESS:DirectCrossRedirectRecross

WILLIAM B. PAPAGEORGE

By Mr. Pope

463

E X H I B I T SPapageorge-OMC Deposition
ExhibitMarked for ID

No. 31	507
No. 32	588
No. 33	603
No. 34	610
No. 35	621
No. 36	626
No. 37	642
No. 38	657
No. 39, 40	684
No. 41	705
No. 42	714

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WILLIAM B. PAPAGEORGE,
called as a witness herein, having been previously
duly sworn, was examined and testified further as
follows:

DIRECT EXAMINATION (Resumed)

BY MR. POPE:

Q Good morning, Mr. Papageorge. I know you
know this, but you are still under oath.

A Yes.

Q I would like to focus your attention this
morning on these documents which we marked last week
as Papageorge Exhibit 28 for identification, consisting
of a memorandum from Mr. Johnson and also the attach-
ments to the customers in February of 1970, all right?

A Yes.

Q Calling your attention to the February 9,
1970 letter, I think the language appears in the other
letter as well, the number 2 at the bottom of that page.

Can you tell me what Monsanto's purpose
was in advising customers of that statement?

A Well, its intent here was to be factual and
the information as of February was just that.

Q Was it the intent to assure customers that as
of February 9, 1970 there was no reported evidence of

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Aroclors with lower numbers than 1254 found in the environment?

A Yes.

Q Was it also the intent of Monsanto to assure customers that were using products that contained Aroclors lower than 1254 that they could continue to use those products?

A I don't know about the word assure. This anticipated the question from our customers of the materials less than 54 percent, a very natural question, "How about our type?"

So in anticipation of that, we predicted the need for this response; namely, that those types of Aroclors had not been found in the environment, were not being found.

Q Was it Monsanto's intent to advise customers that they could continue to use those products with lower Aroclors than 1254?

A I don't know personally that that was the intent. At least it wasn't when I reviewed this document.

Q It was not your intent?

A That's right.

Q At the time that document was sent out, Monsanto

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had made the corporate decision to attempt to replace the higher Aroclors with lower Aroclor material, is that correct?

A Yes, where appropriate.

Q Where was it not appropriate as of February 9, 1970?

A I certainly don't recall all the situations, but I recall the transformer application, our suggested change to replacing Aroclor 1254 with Aroclor 1242 was not acceptable because it was demonstrated that the conditions in transformers was such that the higher chlorine content was essential.

Q So with that exception the decision had been made with regard to the remaining uses to replace, and this is as of February 1970, to replace the 1254 and 1260 with lower-numbered Aroclors, is that correct?

A As best I recall.

Q Was that No. 2 on the bottom of Page 1 of the February 9 letter intended to advise customers that Monsanto was undertaking to continue to sell Aroclors with less chlorine content than 1254 and 1260?

A I personally don't know of any intent other than what the written word says. I was never present at any discussion that talked about anything other than

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just trying to relate to the customers our understanding of the situation.

Q I see.

You were advising the customers that the only material found in the environment so far had been 1254 and 1260, is that right?

A Yes, that's correct.

Q You were not intending to advise the customers of any assurances of safety with respect to any lower-numbered Aroclor, is that correct?

A I don't personally know of any other intent than the stated word. There is nothing in here about safety, per se, but it does include that there appears to be, quoting, "appears to be no potential problems in the environment."

Q As of February 9, 1970, what was Monsanto's perception as you understood it of how many of its customers had the capacity, the technical capacity to analyze products or discharge for the presence of PCBs?

A It depends on the level of detection desired.

Q Would you explain that, please?

A If our customer had desired to detect soluble PCBs in water, for example, they would not have had the instruments or the methodology to do that.

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Q Virtually none of your customers in 1970 would have that technology, is that right?

A That's right.

On the other hand, if a customer had a material that had quite a bit of PCBs in it, but say, for example, percentage amounts, that capability was generally available either to the customer or to consulting laboratories.

Q Through what methodology of analysis?

A I am not an analytical chemist, but I understand that there was an infrared technique, the details of which I am not familiar.

There is a procedure for determining total chlorine content which involved some more basic non-instrument type chemistry, if I can call it that.

So there were ways to determine significant amounts of PCBs in some materials.

Q As far as you know, the use of an infrared technique would have been adequate to determine the presence of PCBs if the sample being analyzed had, how did you say, high percentage PCBs?

MR. SCHINK: Not high.

BY THE WITNESS:

A A significant amount and I just use a percent

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as an example of that, the amount of material that could be present.

BY MR. POPE:

Q When you say a percent, what do you mean, one percent or more?

A Yes, all right.

Suppose there is one percent PCBs in it, in 1970, many laboratories could determine.

Q Many of your customers' laboratories?

A Either their laboratories or they had access to outside laboratories.

Q Was it your assumption that a significant percentage of Monsanto customers in February 1970 either had a sophisticated laboratory itself or was regularly in the process of using an outside laboratory?

MR. SCHINK: Objection to the form unless you clarify what you mean by sophisticated laboratory.

MR. POPE: I mean a laboratory to do the kinds of studies that Mr. Papageorge just referred to, the infrared and total chlorine content or gas chromatogram/mass spectrometer type of analysis.

MR. SCHINK: I don't think he indicated that was necessary for one percent.

MR. POPE: That would include a laboratory that

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had that to have been sophisticated in my definition.

MR. SCHINK: Now you are talking about customers or their outside laboratories or consultants?

MR. POPE: Customers that had such sophisticated technology themselves or as far as Monsanto knew regularly used laboratories that had such techniques.

MR. SCHINK: What do you mean by regularly used outside laboratories?

MR. POPE: Any definition Mr. Papageorge wants to use.

MR. SCHINK: Well, it is your question. If you would clarify it, I would appreciate it.

MR. POPE: Regularly used is a material that is flexible depending on the context and the context is what does one company, Monsanto, know about the sophistication of its customers in terms of whatever regular use they put to an outside laboratory.

MR. SCHINK: Are you talking about the fact that maybe during the last two years prior to 1970, a particular customers had consulted with an outside laboratory regarding a wastewater problem?

MR. POPE: That may well be.

BY THE WITNESS:

A That would be a circumstance.

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BY MR. POPE:

Q That would be depending on the circumstances?

A It is my understanding that many of our customers had their own capability to conduct analyses and their capability represented the state of the art in the early 1970s as it regards PCBs.

It is also my understanding that those that did not have their own laboratory could very easily seek help from laboratories that were in the business of providing this service.

Q You have no way of knowing which ones or how many of your customers regularly used outside laboratories as opposed to having the ability to go out and bring somebody in?

A No, no, I do not.

Q Was it the intent of Monsanto in the sending out of the letter dated February 9, 1970 that your customers, alerted as they would be by that letter, would go out and retain an outside laboratory or employ this sophisticated technique in order to analyze its discharge?

MR. SCHINK: Again --

BY MR. POPE:

Q (Continuing.) For the presence of PCBs?

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MR. SCHINK: Sophisticated technique as you used the term before?

MR. POPE: Yes.

MR. SCHINK: That this was equipment that any customer had, the capability of using and within their own facilities?

MR. POPE: Yes.

MR. SCHINK: I object to the form of the question because I think sophisticated in that context is misleading.

BY MR. POPE:

Q Mr. Papageorge, is it misleading to you?

A I think I understand.

There was no intent in this letter to influence the customer to go to a laboratory. The intent was to inform him of what we knew and what his subsequent actions were depended totally on his judgment, his particular situation, his resources, his evaluation of the situation.

There are so many possible situations that could exist with thousands of customers, there is no way for Monsanto to know exactly what each one would have done.

Q For example, with regard to No. 1, were you

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advising customers that the products listed under the Pydraul products, for example, A-200, were not formulated with Aroclor 1254 and 1260?

A Correct.

Q You were not suggesting that a customer employ techniques to determine whether or not that was true. You were advising him of that, is that right?

A That is correct.

Q And similarly with regard to No. 1 on Page 1 of the February 9, 1970 letter, was it the intent in this letter to advise customers of which products did contain Aroclor 1254 or 1260?

MR. SCHINK: Why don't you give him the letter.

BY THE WITNESS:

A In the letter, in the second paragraph, there is reference to those Monsanto products which contained Aroclor, either Aroclor 1254 or 1260 in February of 1970.

BY MR. POPE:

Q In February of 1970, the only products that Monsanto sold which contained Aroclor 1254 and 1260 were Pydraul 625, Pydraul AC, Pydraul AC Wintergrade, Pydraul 540, Therminol, FR-1, FR-3, and dielectric formulations, is that right?

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MR. SCHINK: Are you asking if those were the only ones or were those ones?

MR. POPE: I asked if those were the only ones.

MR. SCHINK: Okay.

BY THE WITNESS:

A To my knowledge those were, and in addition, the Aroclor 1254 and 1260 previously mentioned in the preceding questions.

BY MR. POPE:

Q The Aroclor, the trade name Aroclor 1254 and Aroclor 1260?

A Yes. They were sold as such.

Q As such?

A Yes. To the best of my knowledge, that paragraph contains a list of products sold by Monsanto that contain Aroclor 1254 and 1260.

Q Was it your intent, that is to say, the intent of Monsanto to advise customers who were using products that contained Aroclors lower than 1254 that they were using such products containing PCBs? Did you understand that?

A Would you repeat that?

Q Sure.

With respect to customers that were using

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products that contained Aroclors of a lesser chlorine content than 1254, was it the intent of this letter to point out to those customers that they were in fact using PCB-bearing products?

A Yes.

Q Where is that information contained?

A It is implied in Item 1 on Page 1 of the February 9 letter.

Q Would you please read where it is implied?

A "Products such as Pydraul 90, 135, 230, 312, A-200, F-9, 150 and 60, Turbinol 153 and Therminol FR-1 and FR-2 are not formulated with Aroclor 1254 or 1260."

Q Would it be fair to say, Mr. Papageorge, that it was Monsanto's intent to use that language and only that language in this letter to advise by implication to a customer that he was using 1242, for example?

MR. SCHINK: You are talking about language as opposed to the letter itself, Mr. Pope? You are talking about language within the letter?

MR. POPE: I am talking about language in the letter.

MR. SCHINK: As opposed to the letter itself?

MR. POPE: I don't know what you mean.

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MR. SCHINK: What I mean is the entire letter relates to the subject of PCBs. You are asking him now for specific language in that entire letter that in addition refers to PCBs?

MR. POPE: No, sir. I am asking him if that line he has just read into the record is the only language in the letter that advises the customer that products he may be using contain PCBs of a chlorine content of less than 1254.

BY MR. POPE:

Q Is that true, Mr. Papageorge?

A Yes, and it is designed in this fashion because it addresses someone who knows PCBs are present. It is a question of which kind.

MR. POPE: I would move to strike the part after he answered the question yes.

BY MR. POPE:

Q At the time this letter was sent, was Monsanto developing and testing new formulations to replace products that contain Aroclors of less than 1254?

A Yes.

Q Was there a corporate decision made not to advise customers of that fact?

A I don't know.

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Q These customers were advised that Monsanto was developing and testing new formulations to replace the 1254 and 1260?

A Yes.

Q Pydraul products, is that correct?

A Yes.

Q Was there any discussion in the meetings that you attended with the people you talked to about sending out the February 9, 1970 letter as to how many of your customers knew that they were already using products that contained PCBs?

A As best I remember the discussion regarding sending out a letter, I don't recall the specifics. It was generally recognized that our customers already knew about PCBs because that is what gave these products some properties that the customer was looking for. So the discussion did include that thought, but since it was well established, it was not a long detailed discussion.

Q Was it your understanding that part of the marketing approach that Monsanto had previously taken with regard to products such as Pydraul was to advise customers or potential customers that polychlorinated biphenyls were in these fluids?

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A That is my understanding, yes.

Q On what is that understanding based, Mr. Papageorge?

A Discussion with individuals involved with marketing of PCB-type products.

Q Who told you of that, of those people that you had discussions with?

A Oh, the managers responsible for each of the subgroups, such as the Heat Transfer, the Dielectric, the Hydraulic Fluids, Plasticizer, each of those managers on many occasions would mention this. It is a very normal kind of piece of information as far as that business is concerned.

Q With respect to hydraulic fluid, is it your testimony that Norm Johnson told you that his salesmen had also marketed Pydraul with reference to the fact that it contained PCBs?

A That is my understanding, yes.

Q When did he tell you that?

A Starting in early 1970 and throughout 1970.

Q Have you ever seen a label or a brochure that related to Pydraul for sale prior to 1970 that referred to polychlorinated biphenyl as part of its makeup?

A No, referred to chlorinated hydrocarbons.

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Q Have you ever seen a training manual or a bulletin that goes out to the salesmen at Monsanto that refers to specifically Pydraul as containing polychlorinated biphenyls?

MR. SCHINK: You are excluding statements such as this letter, Mr. Pope?

MR. POPE: Yes, I am talking about what went out prior to 1970.

BY THE WITNESS:

A I don't recall seeing it.

BY MR. POPE:

Q Did you ever see any Monsanto advertising that contained references to Pydraul as containing PCBs prior to 1970?

A No.

Q Would your answer to those questions be the same with regard to the other applications, other than as a hydraulic fluid?

A Yes.

Q Is it your testimony as far as you know Monsanto salesmen were encouraged to discuss the chemical makeup of products such as Pydraul with their customers or potential customers?

MR. SCHINK: I object to the form of the question,

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chemical makeup is ambiguous, an ambiguous term.

BY MR. POPE:

Q Is that an ambiguous term to you, Mr.

Papageorge?

MR. SCHINK: What do you mean by that, Mr. Pope?

BY MR. POPE:

Q Let us start with this:

Was the way the Pydraul was made, was that a proprietary product?

MR. SCHINK: You are talking now about the blending process for Pydraul?

MR. POPE: Sure, that's how you manufacture it, isn't it?

THE WITNESS: Yes.

BY THE WITNESS:

A The complete formulation for Pydraul was considered proprietary, yes.

BY MR. POPE:

Q So the complete formulation for Pydraul would not be something that the salesmen would be permitted to discuss with customers, is that correct?

A Correct.

Q What is your understanding as to what the practice was prior to 1970 with regard to explaining to

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customers the chemical formulation of Pydraul without getting into the complete formulation?

MR. SCHINK: Complete formulation?

BY THE WITNESS:

A My understanding is that the salesmen were encouraged to talk about the principal ingredient that gave Pydraul that property that competitive fluids did not have, particularly the fire-resistance feature, and in order to do that they would mention the presence of polychlorinated biphenyls.

BY MR. POPE:

Q You got that information from people such as Norm Johnson, is that correct?

A That is correct.

Q And including him, he specifically told you that?

A Yes, yes.

Q When you use the term chlorinated hydrocarbons as you did a moment ago, do you intend to use that synonymously with chlorinated biphenyl?

A I don't know what you mean by synonymously. Chlorinated biphenyls are a subgroup of the broad term used in chemistry of chlorinated hydrocarbons.

Q What are some other parts of that generic term?

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A Well, there were --

Q Do pesticides qualify?

A There are a group of pesticides that are chlorinated hydrocarbons. There are wood-treating chemicals that are chlorinated hydrocarbons. There is an ingredient used in your deodorant soap that is a chlorinated hydrocarbon. Chloroform is a chlorinated hydrocarbon. Carbon tetrachloride used for cleaning and spot removal is a chlorinated hydrocarbon. There is a fluid used, freon in air conditioners, the freon used in refrigeration systems falls in that broad category.

Q Prior to the label changes that were made in 1970 that we discussed last week, were there any Monsanto products that contained PCBs which contained a label, was packaged with a label that made specific reference to chlorinated biphenyls, to your knowledge?

A Not that I know of.

Q A moment ago we were referring to laboratories and capabilities of various of Monsanto's customers in February of 1970. I believe you said there were some customers that had the state of the art laboratory and analyses facilities, is that correct?

MR. SCHINK: I think the testimony was many of the

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customers had the ability to do state of the art PCB analyses, Mr. Pope.

BY MR. POPE:

Q Is it your testimony that in February of 1970, many of Monsanto's customers had the same degree of capability as Monsanto had to detect PCBs in various materials?

MR. SCHINK: Now I object to the form of that question. You say detect PCBs in various materials. Are you talking now about what Mr. Papageorge has defined as a percentage amount, or are you talking about the parts per million soluble levels that he talked about earlier?

MR. POPE: I will be happy to pursue that. I don't want to confuse Mr. Papageorge.

BY MR. POPE:

Q What specifically did you mean when you said percent amounts? I didn't understand that.

A These are, in my way of thinking, amounts that exceed the standards of parts per million levels.

Q Where does that leave us as a break-off point for your definition?

MR. SCHINK: I think he said earlier one percent is a percent amount.

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BY MR. POPE:

Q That comes out to be how many parts per million?

A 10,000 parts per million, if I have my decimal in the right place, I believe.

Q Do I understand that as you understood the situation in early 1970, were there two different states of the art, one state of the art with respect to percent amounts and another more sophisticated state of the art which was capable of picking up parts per million and lower amounts?

A No, I would not call the second one as representing state of the art just yet. It was an evolving yet to be tested method that was capable of determining parts per million and lower.

Q Monsanto had that capability in early 1970, did it not?

A We were developing it yet. We were comfortable with the numbers but still anxious to demonstrate the total accurately.

Q But you were detecting parts per billion at that stage?

MR. SCHINK: Billion or did you say million?

MR. POPE: Yes, billion.

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BY THE WITNESS:

A In 1970 we were still talking parts per million, if I remember correctly. I suppose, yes, we had tenths of parts per million, so you get down to parts per billion, all right.

BY MR. POPE:

Q In what medium was this that you were making those detections?

A In 1970 it was certainly in water and sediments and in animal tissue.

Q What was the solubility level?

MR. SCHINK: In what medium?

MR. POPE: In water.

BY THE WITNESS:

A I don't recall the exact numbers, but they were in the parts per billion range.

BY MR. POPE:

Q How about sediments?

A There is no solubility level in sediments.

Q So as to those types of levels, parts per billion levels, Monsanto did not expect that many of its customers would have that degree of technology available to them, did it?

MR. SCHINK: In 1970?

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MR. POPE: In February 1970.

BY THE WITNESS:

A That is correct.

BY MR. POPE:

Q Just to finish up this area, the infrared technique you referred to would not be capable of detecting PCBs in sediment, would it?

MR. SCHINK: At what level, at any level?

MR. POPE: I will start at any level.

BY THE WITNESS:

A The sediment has to be processed to extract the PCBs and then they could use infrared.

BY MR. POPE:

Q Was the technology available to process the PCBs from the sediment?

A It is my understanding, yes.

Q Was that in generally available?

A Yes.

Q You also referred to the technique involving the total chlorine content.

A Yes.

Q Could you describe that technique, please, that is a method of analytical detection?

A Yes, it is a common method for determining

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chlorine in chemicals. I don't know the details, but it involves placing the sample in a high pressure container which we call the bomb and exposing it to a lot of oxygen and literally burning it, exploding it, if you will, internally. And I understand under those conditions the chlorine is released from the hydrocarbon and then there are methods for analyzing the amount of chlorine in this ash which is all that is left from this process.

Q Was that a technique that had been available for quite some time prior to 1970?

A Yes.

Q Was that a technique that Monsanto itself used in the 1950s and 1960s?

A Yes.

Q And that is a technique that would only be available for the detection of PCBs in a medium other than dissolved in water?

A Well, there again it depends on the level of content.

Q That technique would be available to a person if all he wanted to determine was the presence of PCBs to the percent amount or the 10,000 parts per million, is that correct?

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A All right, yes, yes.

Q That would give you a reading as to whether it was there in those parts, is that right?

A Yes. Anything less than that would not be detectable.

Q Was that available to analytical chemists to determine, to detect the presence of PCBs dissolved in water to those amounts?

MR. SCHINK: I object to the form of the question. It assumes you could dissolve PCBs in water up to a level of one percent, 10,000 parts per million, I think the testimony was.

BY MR. POPE:

Q That was not possible?

A No, they separate into two layers.

Q What uses could this total chlorine content method be put to determine presence of PCBs? What would you go back to to use that technique? It would not be wastewater discharge, I take it?

A That is not applicable there, not helpful.

Q In what application is it helpful?

A The most obvious that comes to mind is the situation that occurs very commonly in the electrical business in which a sample of liquid from a transformer

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is taken and the individuals don't know if it is a mineral oil base or a PCB-type or a mixture of the two.

Under those conditions because it is present, it would be at very high levels; that method is very appropriate.

Q It would also be used for quality control?

A Yes, yes.

Q To determine --

A Control of PCBs, is that what you mean?

Q No, to determine whether a particular batch of material meets specifications.

A Yes.

Q Would it be fair to say that that method would not be useful generally speaking for detection of PCBs in the environment?

A There again I don't know what you mean by environment.

Q I mean water, sediment. I mean animal tissue, those types of analyses.

A PCB levels are too low. It won't detect it.

On the other hand, if there is an oily spot there in the ground somewhere and it is suspected to be PCB, one could sample that oily spot and use that method.

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Q Prior to 1970 did in fact Monsanto employ that method to determine whether PCBs were in fluids such as you detected, the example you used, the oily spot?

A Yes.

Q The infrared technique, would that be a useful technique to determine the presence of PCBs in the environment in the same fashion you just referred to with the chlorine content?

MR. SCHINK: I don't know that he testified with respect to chlorine that it was useful. He talked about acknowledging the presence of PCBs in fluids in a transformer, for example.

BY MR. POPE:

Q With respect to the infrared technique, would it be useful to determine the presence of PCBs in the environment?

A Only if the PCBs are again at a very high level at which this technique would still be able to detect the presence of them.

Q Was that a technique that was available for some customers sometime prior to 1970?

A Yes.

Q Was it a technique that was used by Monsanto

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for its internal purposes?

A Yes.

Q How about the gas chromatograph? Was that a device that could be used to detect PCBs in the environment?

MR. SCHINK: When?

MR. POPE: Prior to 1970.

MR. SCHINK: When prior to 1970?

MR. POPE: Prior to 1967.

BY THE WITNESS:

A Prior to 1967, it was not used.

BY MR. POPE:

Q That was not my question.

My question, Mr. Papageorge, was was it capable of being used for that purpose.

MR. SCHINK: I don't know if this witness has the --

MR. POPE: He has the expertise. He may not know and I am asking questions that you know.

Whether you know it, whether it had been used or could have been used.

BY THE WITNESS:

A Are we talking, sir, about hindsight?

BY MR. POPE:

Q Yes.

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A In hindsight, I would say if it had occurred to someone to try it, yes, it would have been proven successful.

Q As far as you know, Monsanto never used it for that purpose?

A No.

Q Calling your attention once again to the subparagraph No. 2 on the February 9, 1970 letter to customers, did there come a point in time when Monsanto received reports that as to some species, lower chlorinated Aroclors produced more adverse effects than higher Aroclors?

A Yes.

Q When was the first time that Monsanto received such a report?

A I don't recall the exact dates. I recall a report out of the Gulf Breeze Laboratory.

Q In Florida?

A In Florida, which is, as I recall, the Department of Commerce, Fisheries Laboratory in which they reported the sensitivity of shrimp in the streams with PCBs in relation to the chlorinated PCBs.

The only other information I recall was the results of Monsanto's sponsored studies with chickens.

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Q Leghorn?

A Leghorn chickens in which the lower chlorinated PCBs affected the ability of leghorn chicken to reproduce properly.

Q Did reports come to you roughly contemporaneously or were they spread out over a point in time?

A They both occurred in 1970. I don't recall the spread of time between the two.

Q Did the Gulf Breeze Laboratory study arise because of the incident at the Monsanto plant in Pensacola as far as you know?

A I don't know.

Q What was the effect on shrimp as far as you remember that was referred to by that report?

A It was lethal to the young shrimp.

Q What about with respect to Aroclor 1242?

A Yes.

Q Do I understand you to say that the report also indicated it was not lethal with respect to the higher chlorine content PCBs?

A No, it was lethal as well.

Q Did they just do the study on the lower chlorinated as far as you recall?

A As I recall, they tried several of the PCBs

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and they were all equally effective.

Q As far as you know, has that study been duplicated since?

A No.

Q Has anyone attempted to?

A Not to my knowledge.

Q As far as you know, are its conclusions valid today?

A As far as I know.

Q Was that report referred to Monsanto before the internal report on chickens was prepared?

A I don't recall the sequence which we received that information.

Q The study on chickens had already been completed in any event?

A Yes.

Q Prior to receipt of this Gulf Breeze Laboratory report?

A Yes.

Q Can you just briefly summarize for me the findings of the Commission's report on the chickens as it affected its hatchability. Is that what was adversely affected?

A Yes.

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MR. SCHINK: You are asking for the file results of that report when it was completed, or are you asking for interim reports he may have received in or near 1970 when he got the Gulf Breeze report?

MR. POPE: Why don't we start with the interim report, the first report.

BY MR. POPE:

Q That is what you were referring to, wasn't it, the interim report?

A No, that was the conclusion of the study with chickens.

Q Maybe you could tell me what you recall.

A I don't recall.

Q Excuse me for interrupting you. Is that the Industrial Bio-Test study?

A Yes.

Q Can you tell me what your recollection is of the results?

A Those are the final results as I recall them. The lower chlorinated PCBs as represented by the 1242 had an effect on the eggs and their ability to hatch and thinness of their shells, the thickness or thinness of the shell.

The higher chlorinated as represented by

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Aroclor 1254 did not have this effect.

Q I take it when you refer to an effect, you are referring to an adverse effect?

A Yes, I am sorry, a change from normal. That is the overall impression I have of the results of that study.

Q When either or both of these reports were received by Monsanto, did you send out to the customers a letter advising them of these reports with respect to the lower chlorinated --

A As a general mailing?

Q -- hydrocarbon?

A Specific customers, a general mailing similar to the February 9, 1970 letter, no.

MR. SCHINK: Your question was with respect to, Mr. Pope, as I understand, those specific results, a specific general mailing with respect to those specific results, is that right?

MR. POPE: Let's do it another way.

BY MR. POPE:

Q Was there ever a point in time at which Monsanto advised its customers that there had been reports that had come to its attention, adverse effects on animals from lower chlorinated Aroclors?

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MR. SCHINK: Now, there you are asking lower chlorinated as opposed to all Aroclors, is that right?

MR. POPE: I think that is what I said, Mr. Schink.

MR. SCHINK: If there had been a letter with respect to Aroclors generally advising them of general findings of harm, would that be included within your question or not?

MR. POPE: It would not be included with my question if it came after February 9, 1970.

THE WITNESS: All right.

BY THE WITNESS:

A I don't recall such a mailing.

BY MR. POPE:

Q After receiving either or both of these reports, what action did Monsanto take with respect to the lower chlorinated Aroclors, if any?

A It was certainly involved in a decision to withdraw from the marketplace those uses that could conceivably end up in exposures. That was certainly a part of the decision.

Q That decision was not made until those reports were received, is that correct?

A The decision was made in early '70, yes, it

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was part of the input into the decision.

Q So you had already received one or both of these reports at the time the decision was made to withdraw from the market for the lower chlorinated Aroclors, is that correct?

A That is correct.

Q In withdrawing from that market, was there a letter to customers advising them either specifically or generally of the results of those two studies?

A I don't remember reference to those studies.

Q Do you know Dr. Gunning, G-u-n-n-i-n-g?

A Dr. Gunning, I am familiar with the name.

Q Are you familiar with him as a Professor of Tulane University?

A I thought it was another university.

Q Which?

A I thought it was University of Mississippi, but I'm not certain.

Q In what context are you familiar with Dr. Gunning?

A He was involved with another professor in a study of natural waters or the water systems around the Anniston Plant.

Q Was that Dr. Reimers who was his associate?

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A I don't recall that name.

Q Could you tell me what you know about that study, how it came about and what they were attempting to do?

A I don't remember an awful lot. I remember they took samples of fish, water and sediment.

Q Near Anniston?

A In the Anniston area, yes.

Q Downstream of Anniston?

A I don't think so. And that's all I really know at the moment. It was conducted by the plant, at the plant, under the plant's sponsorship.

That's all I remember.

Q Did Monsanto supply Dr. Gunning and his team with water sample analyses from the years 1965 through 1970 at Anniston?

A I don't know, not to my knowledge.

Q That would be the period of time that you were the Plant Manager, would it not?

A Yes.

Q Were there discharge analyses that would show presence of PCBs in the discharge for those periods of time that were recorded?

MR. SCHINK: You are asking while he was Plant

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Manager?

MR. POPE: Yes.

MR. SCHINK: The reason I asked, you said '60 through '70.

MR. POPE: I understand. That is a little overlapping.

BY THE WITNESS:

A I don't recall any analyses in the plant discharge during that period of time.

BY MR. POPE:

Q Were the records that were kept during that period of time sufficient to permit one to go back and determine whether there was the presence of PCBs in the discharge, so far as you know?

A No.

Q Were there any records kept when you were Plant Manager at Anniston relating to studies of water itself?

MR. SCHINK: Excuse me, what water are you referring to?

MR. POPE: The water to which the Anniston Plant discharged.

MR. SCHINK: I think the testimony was the Anniston Plant discharged to a sewer system. You are talking about

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studies of a sewer?

MR. POPE: I would be happy to.

BY MR. POPE:

Q Mr. Papageorge, you described your understanding of what Dr. Gunning was doing as studying the water around the Anniston Plant, is that right?

A Yes.

Q Was he also studying the sediment so far as you know?

A Yes.

Q What records were maintained at Anniston when you were Plant Manager that would permit someone to go back and study them for purposes of PCB content, either in the water or in the sediment?

A I must confess confusion. In the time that I was at the plant, the capability for determining the PCBs in water was not available to the plant just like everyone else.

The water discharged to the City system was analyzed and as I said in my earlier remarks, this report was sent to the State authorities monthly.

Since PCBs were not analyzed in this water, certainly there were no records that anyone could go back and determine what had happened in the past.

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I don't know how to respond to your question other than that.

Q As part of Dr. Gunning's work, there are published accounts of Monsanto making available information prior to the time that he began his work at Anniston.

A Yes.

Q My question was what reports were maintained as to Anniston in doing an analysis for the presence of PCBs prior to the time the contract was let?

A The only reports I know are those copies of what was sent to the State.

Q Were there any studies while you were Plant Manager of the ground itself in the area of the plant for the presence of PCBs?

A No.

Q Were there any studies when you were Plant Manager of ground water for presence of PCBs?

A I suspect your definition of ground water is different than mine.

Q I suppose yours is better than mine.

A No.

Q What do you mean by that?

A Ground water is water below the surface of

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the ground.

Q That is what I have reference to.

A There was no study.

Q While you were Plant Manager, was there any study of fish in the areas of Anniston Plant for presence of PCBs?

A No.

Q You earlier said there was no study of sediment when you were Plant Manager for the presence of PCBs.

A Not to my knowledge.

Q Do you know what results Dr. Gunning achieved in his study?

A No.

Q Were they made available to Monsanto, do you know?

A They were made available to the plant, I believe.

Q The Anniston Plant?

A Yes.

Q Who at Monsanto would have knowledge with respect to that study, who would have most knowledge as far as you know?

A Who, most knowledge?

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MR. SCHINK: You don't have to guess. If you know.

BY THE WITNESS:

A I don't know.

BY MR. POPE:

Q If you wanted to determine information about that study, who would you contact?

A I would start with the Plant Manager in charge at that time.

Q Who would that be?

A Mr. Gene Jessee.

Q Do you know when in point of time this study was begun?

A It is either the Summer of '70 or '71.

Q Did the request or the authority to commission this report come across your desk in St. Louis?

A No.

Q Was one of the purposes of the study to determine whether PCBs might be found to be degrading?

A I don't know.

Q During this period '70 to '71, were there PCB studies being commissioned by Monsanto that you didn't have direct knowledge of?

A I believe I had knowledge of their being placed. That does not mean I got them all.

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Q How did the work progress with Dr. Gunning's project, for example?

A I can only tell you what I knew. I was informed -- no, I was approached as to a thought that a study might be appropriate, that a group out of Mississippi had approached Monsanto looking for work for summer students and proposed to study PCBs in the general area. And I was approached and as to my thoughts and I said, "Well, it might be a good project."

And that is the last I heard until later I heard the program was active and under way. That's all I really know at the moment.

Q As far as you know, were people who did that study permitted by Monsanto to publish their results or were there some restrictions on their work?

A I recall discussions about publication. I do not recall the final decision.

Q Was it your understanding that Monsanto had to give permission for such results to be published?

A That is my understanding, yes.

Q Were there any other studies done in the 1970, '71, '72 period at individual plants with respect to PCBs, such as this one you just referred to?

MR. SCHINK: This one wasn't done at the plant

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itself, as I understand. The testimony was it was done in the area.

BY MR. POPE:

Q Was that done in the area of any of the PCB-producing plants?

A Not that I know of.

Q As far as you know during this period of time, 1970 to 1971, with the exception of Dr. Gunning's study, what other outside scientists were commissioned by Monsanto to do a study relating to PCBs besides Industrial Bio-Test?

MR. SCHINK: I am not sure it is fair to characterize the Gunning study as one commissioned by Monsanto.

MR. POPE: I thought that was Mr. Papageorge's reference.

MR. SCHINK: You are talking about studies now that Monsanto pays for?

Are you talking about studies where Monsanto provided the investigator of a sample of Aroclor?

MR. POPE: Well, Mr. Schink, whether we use the term commissioned or sponsored or assisted with, I mean something other than simply providing somebody with a sample of Aroclor.

BY MR. POPE:

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Q I understand that was going on at a fairly regular basis during those days, is that correct?

A Yes.

Q Let us set those aside lest we be here tomorrow talking about those. Let us just talk about studies by outside parties that dealt with the effects of PCBs, presence of PCBs and I mean to exclude also Industrial Bio-Test because we have talked about them.

A At what point in time?

Q 1970, 1971, if that is a fair point in time for you to focus on.

A The only other study I can recall is a study conducted in Wales at the University. I have forgotten the investigator's name and he was studying the degradation of PCBs by bacteria.

Q Did that study result in a report?

A I received written information. I don't recall the form it was given to me.

I received a summary of the findings.

Q Are there any others that come to mind, any other reports during that period or any other studies?

A I don't recall any other.

Q That was Bangor University?

A Yes.

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Q Why don't we have the reporter mark this document as Papageorge Exhibit No. 31, being a 3-page document entitled Monsanto Chemicals, Ltd. Research and Development Department, Ruabon, Confidential. It appears to be dated March 9, 1970.

(Papageorge-OMC Deposition
Exhibit No. 31 marked for
identification, 8/31/81, TLU.)
(Mr. Phil Witt entered the
deposition room after which
there was a discussion off
the record.)

BY MR. POPE:

Q Have you had a chance to look at that Exhibit 31?

A Yes.

Q The question is whether you received a copy of that memorandum on or about the date it bears, March 9, 1970 or shortly thereafter?

A I don't remember the specific ones, but it is typical of the kind of reports I was getting at that time.

Q Would the interdelineations and notes indicate this was a copy that went to you as far as you could tell?

A The underlining of my name indicates this is a

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copy to me. The fact that Mr. Bergen's name is in the upper corner would indicate that my secretary made a copy for Mr. Bergen.

Q And this copy presumably came from his files?

A And the notes, the handwriting in the margin and all are Mr. Bergen's.

Q Would the bottom paragraph on the first page indicate a report as to some degradation studies of another substance?

A Yes.

Q What are bromochlorobiphenyls?

A It is a group of chemicals that are, I would describe them as sort of cousins to the chlorobiphenyls and instead of chlorine, bromine was used.

Q Was work under way at the same time to study biodegradation of that substance?

A Yes.

Q Was that being done by the same people who were studying the degradation of polychlorinated biphenyls?

A Yes.

Q The other question is is this the study you referred to a moment ago with respect to the people in Wales conducting a study on biodegradation?

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A Yes.

Q Can you read the note to Mr. Bergen on the side on the second page, the left-hand side?

A It appears to say, "Caution, do not discuss this outside at this time."

Q Outside is underlined?

A Yes.

Q That is the same reference we saw last week relating to the amounts of chlorinated dibenzofurans in other products not manufactured by Monsanto?

A It is the same Institute and about the same time, so it appears to be.

Q Can you read their handwritten note on the right-hand side of the same paragraph?

A It says, "We are alerting Bayer and Prodelac and Caffaro."

Q That is a reference to the publication of a report by somebody in Holland, is that right?

A Yes, sir.

Q Or the anticipated publication?

A Yes.

Q With respect to the action plan on the third page, do you know what is deleted here under No. 2?

A No, I don't remember.

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Q No. 4 refers to, "Continue to advise customers on disposal procedures and support them where necessary with analytical data and information on techniques."

Under 4 of the Action Plan, I take it that refers to the Action Plan in Europe, is that correct?

A That is correct.

Q Was that same process in place on March 9, 1970 in the United States?

A Yes.

Q Monsanto was advising customers on disposal procedures?

A Yes.

Q And they were supporting customers with necessary analytical data and information on techniques, is that right?

A Yes.

Q What types of techniques?

A Laboratory, analytical methods.

Q Analytical methods, is that right?

A Yes.

Q What was the reference to disposal procedures, what does that refer to in the context of March 9, 1970?

MR. SCHINK: Are you asking what the author of

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that document meant when he used that term, or are you asking --

MR. POPE: I am asking in the United States with respect to disposal procedures as he has testified.

MR. SCHINK: I object to any question with respect to what the author of that document meant by the term disposal techniques unless you can lay a foundation.

MR. POPE: I have no intention of asking what the author of the document meant. The author didn't know anything about disposal techniques in the United States.

The question was what was in place in February and/or early March 1970 with respect to advice to customers on disposal procedures in the United States.

MR. SCHINK: You are asking what Mr. Papageorge meant by the term disposal techniques?

MR. POPE: Disposal procedures actually in place.

MR. SCHINK: All right.

BY THE WITNESS:

A You may recall we discussed this previously about the high level of good maintenance, prevention of leaks and spills; if they were occurring, contain them and by containing, I mean do what is appropriate to reduce the amount of leakage or prevent spillage; build a dyke or put a bucket under the leak so it doesn't get

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out of hand; clean up, use any absorbent material that is handy, such as if it is small, use a rag. If it is a larger amount, you might use commercial oil absorbing material, sand will do a good job, dirt will do it.

Then carefully collect this contaminated absorbing material, put it in a steel container, dispose of it in a chemical landfill; in order to make all of this more manageable you avoid introducing water because water makes the problem more complex. It makes the material move into the environment more easily, and is more difficult to contain.

Once it gets in water, it is difficult to separate and so on.

That is why we say avoid water. It creates problems. I believe that covers the important features of the control and disposal advice we gave.

BY MR. POPE:

Q By March 1970 were Monsanto's Marketing people advised to instruct customers with respect to those procedures that you have just described?

A Yes, it is my understanding, yes.

Q With specific reference to Pydraul products, is it your understanding that by March 1970 Norm Johnson had advised his people to instruct Monsanto's customers

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with respect to those procedures?

A Yes.

Q How did you get that understanding?

A Primarily in a face-to-face discussion.

Q Did you ever see anything in writing that went out to the salesmen that made reference to those procedures or any of them that you have just described?

MR. SCHINK: You are talking generally such as the February 9 letter or specifically, each one of those items, Mr. Pope?

MR. POPE: I am talking about that refer to any of those items.

MR. SCHINK: In general or specifically?

MR. POPE: Sure, sure, Mr. Schink.

BY THE WITNESS:

A I saw several such documents. I don't recall if they were Norm Johnson's.

BY MR. POPE:

Q These documents went to whom?

A To the salesmen, Marketing, field people.

Q Did they make specific reference to the procedures you have just described?

A Yes, along the lines I talked about.

Q Specific, not just general references to keep

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your plant clean, it made specific references to the type of disposal procedures such as you have just described?

A Yes.

Q You don't know whether those instructions went to Norm Johnson's group?

A As I indicated earlier, Mr. Johnson informed me that these instructions went to the group. I have no way of knowing, I don't recall anything in writing out of Mr. Johnson's group. I do recall writings out of some groups; I don't know which at this point.

Q And you are not having reference, are you, to the documents attached to Papageorge Deposition Exhibit 28 for identification, the questions and answers?

A It's that kind.

MR. SCHINK: Why don't you let him take a look at that.

MR. POPE: Certainly.

BY THE WITNESS:

A There is reference representative of the kind of documents that I recall being put together and issued out of St. Louis to the field, and this exhibit does show.

BY MR. POPE:

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Q You are talking about the format of the questions and answers, is that right?

MR. SCHINK: You are talking --

BY THE WITNESS:

A No, no. It is the information in the question and answer attachment to this exhibit that contains the kind of things that I talked about earlier and the kinds of information that would appear in written form of some sort, whether it be question and answer or a narrative or a memorandum, they were on some regular basis being put together and sent to the field.

BY MR. POPE:

Q The format that you recall seeing was in a question and answer, was it just a straight instruction or what was it?

A It was all of those. I recall, I have memory, recollection of a memorandum. I have recollection of just Q and A.

Q Can you tell me in the question and answer segment attached to Papageorge Deposition Exhibit 28 for identification whether there is any reference to the instruction you referred to earlier; namely, to keep PCBs away from water?

MR. SCHINK: You are talking about his testimony

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of avoiding introducing PCBs to water?

MR. POPE: Yes.

MR. SCHINK: Or water to the PCBs, I guess it was.

MR. POPE: Whatever it was, Mr. Schink.

MR. SCHINK: You are asking him water specifically, not contamination generally?

MR. POPE: That's right.

BY THE WITNESS:

A I do not see any specific reference to the suggestion that water be avoided in this attachment.

BY MR. POPE:

Q My question then is is it your testimony that there is some other document wherein Monsanto salesmen were instructed with respect to advising customers to avoid introducing water to the PCBs?

A Yes.

Q What format did that document take?

A I don't recall, I don't recall.

Q Can you give us some handle, some way of identifying it? When did you see it or in what context do you recall seeing such a document?

A I recall seeing the document. I do not recall whether it was in memorandum form, letter form, sales bulletin form. I do vividly recall discussing it orally.

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Q Mr. Papageorge, was that a document that went out solely with regard to dielectric fluids or electrical transformer use?

A I don't recall that. No, I don't believe so.

Q It is your recollection that this document went out to salesmen for passing on to customers of the broad uses of the PCBs, is that right?

A No. My recollection is not that crystal clear.

Q Are you able to give us a point in time at which this was sent to the Monsanto salesmen?

A During 1970.

Q Latter part of 1970 as opposed to the early part?

A I don't remember.

Q You do remember such a document being sent, is that right?

A Now, these are several approaches used by the individual Marketing groups to convey the message.

Q I understand.

MR. SCHINK: There was no single mailing to everyone.

BY MR. POPE:

Q You do recall that a document went to salesmen

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with that general language in it, is that right?

A Yes, yes.

MR. SCHINK: We already have at least five of them, three of them, as exhibits in other depositions.

BY MR. POPE:

Q In what form did they take?

MR. SCHINK: They have been marked as exhibits. I remember them well, predating 1970 as well.

BY MR. POPE:

Q Mr. Papageorge, I'm going to hand you a document that has previously been marked as Bergen Deposition Exhibit 4 for identification and ask you to take a look at it and tell me if that is in fact a copy of a memorandum you sent on or about March 30, 1970.

A This appears to be a document I prepared in March 1970.

Q You are referring not only to the memorandum but also the 12-page exhibit attached thereto, is that right?

A Yes.

Q Can you indicate to me how many places something has been whited out from this copy as far as you recall?

A Oh, I can't do that based on recall. I see

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some blank spaces here which I don't know represent a blanking out or whether it was just part of the rough draft approach.

Q Initially under Objectives, it was not your normal technique to start out with No. 2, was it?

A That's true, that's true.

Q And similarly for Action Plan, there is a lot of space on 4 and 5. It wasn't your normal approach to start off with No. 2, was it?

A Right.

Q Can you tell me what was the purpose of the preparation, the rough draft of the management plan on polychlorinated biphenyl environmental problem?

A The intent was to develop a program for managing the PCB situation which we could recommend to our upper management in Monsanto for their approval prior to implementation.

Q That was one of your functions, to coordinate the preparation of the management plan, is that right?

A Yes.

Q Is this document that appears before you, Bergen Deposition Exhibit 4 for identification, the first draft of that management plan?

A I don't know.

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Q Did you prepare the first draft of that plan?

A Yes.

Q Are you able to tell me whether The Problem as it appears in the first page of that rough draft has additional lines missing at the end?

A I don't recall. All I can note is that there is a one-inch blank at the bottom of that section. I don't know what that represents.

Q Was it your understanding from the time you accepted the job in January 1970 that Monsanto's overall objective was to manage the Monsanto PCB pollution problem to prevent it from adversely affecting the Functional Fluids and Plasticizer Groups while maintaining the corporate image of responsibility as a reliable and respected member of industry worldwide?

A That was the intention.

Q That was not something that came up later in March, was it? I take it that remained the objective while you were in this position through 1970 and 1971, did it not?

A Yes.

Q Can you tell me what the first objective was that is deleted from this copy?

A I don't recall.

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Q Does a review of the other seven objectives supporting the overall objective refresh your recollection as to which one is missing?

A No, they do not.

Q Did it have something to do with sales or profits?

A I don't remember.

Q Under No. 3 on Page 3 under Objectives, supporting the overall objective would be the reference to developing products to replace the Aroclors.

Is that a reference to developing products to replace products which were using Aroclors 1254 and 1260?

A Certainly those two Aroclors are included in the concept.

Q At the time you prepared this memo, I take it it was on or about March 30, 1970, had Aroclors 1254 and 1260 been demonstrated to be harmful to the environment?

Why did you use that language under No. 3?

A Well, the language in No. 3 refers to demonstrated harm. The replacement of Aroclors 1254 and 1260 was based on another concept: They are present, if they

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can be replaced, let's do so. That is over and above the intent of No. 3.

Q What if anything with respect to Aroclors had been demonstrated to be harmful to the environment as of March 30, 1970?

A Nothing.

Q In terms of No. 6 on Page 4 of the objectives supporting the overall objective, what was the reference to reviewing off-grade fluids? What would that refer to?

A As I remember at that time there was a thought that perhaps some fluids recovered from such applications as dielectric because they reached a point in their quality which makes them unacceptable for electrical use. Whether they might be acceptable for use in a heat transfer system without any further refining or reclaiming, rather than just disposing of them, could we find another use in another system.

Q For the fluids themselves?

A For the fluids themselves, yes.

Q Does the objective supporting the overall objective, to inform customers of the PCB problem and the importance of preventing environmental pollution but at their plant or by their products at the date the

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Action Plan had been prepared, had that been accomplished?

MR. SCHINK: You are talking about within the United States?

MR. POPE: Yes.

BY THE WITNESS:

A To the best of my knowledge, yes.

BY MR. POPE:

Q As of the date this had been prepared, had your customer been informed that Aroclors had been demonstrated to be harmful to the environment?

A No.

Q I take it the means of informing customers of the PCB problem and the importance of preventing environmental pollution but at their plants or by their products was the Exhibit 28 you referred to earlier, the Norm Johnson memo and the two attached letters, is that right?

MR. SCHINK: Go ahead. You are specifically excluding from it the question and answer, Mr. Pope, among other things? The Exhibit 28 consists of questions, answers, plus two letters plus a covering memo.

MR. POPE: Well, it also includes a couple of articles and an article in Chemical Week.

MR. SCHINK: Those are attached to the letters.

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Now, are you including that?

MR. POPE: Questions and answers don't inform anybody of anything. The letters go to the customers. The questions and answers do not.

MR. SCHINK: Are you asking me?

MR. POPE: Yes.

MR. SCHINK: I don't know. I am not the witness, but my question to you is for clarification with respect to reference in your question to Exhibit 28.

Were you including the entire exhibit or just a portion of the exhibit in your question?

MR. POPE: I am not the witness either, Mr. Schink.

MR. SCHINK: I am asking you to clarify.

BY MR. POPE:

Q The question is, Mr. Papageorge, when you say that all customers had been informed as under 2, was the method of informing them the sending of the two letters that were identified in Exhibit No. 28?

A That was one of the ways we used to inform.

Q What other ways had been accomplished by March 30, 1970 to inform customers of that information?

A There are other letters and written documents. There is the very important oral transmission.

Q From whom to whom?

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A By the sales representatives and their superiors on occasion directly to the customer.

Q Anything else?

A I think that covers it.

Q And that has been accomplished, is that right, by the time of this --

A Most of it had been accomplished and it was ongoing. It was never finished; constant.

Q Were customers in Canada handled by a different means?

A No.

Q I take it they had not been informed as of the date of this memorandum, March 30, 1970, is that correct?

A They eventually were covered when we covered the rest of the world, ex U.S.

Q Why was Canada dealt with differently?

A I think it was just a matter of ability to react quickly enough to cover everybody and we had to start somewhere and it took awhile to get to the rest of the world after we initiated our actions in the United States.

Q On Page No. 6 of Bergen Exhibit No. 4 for identification, there is reference to developing of new

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products to replace Aroclors for those uses in which Aroclors had been demonstrated to have been harmful to the environment and cannot be prevented from escaping into the environment, correct?

A Yes.

Q Is this a correct list of those substances which were understood to be a replacement fluid in or about March 30, 1970?

A Let me read it.

Yes, this is correct as of March 30, 1970.

Q And in fact one of the Pydrauls that was substituted subsequent to this at Johnson Motors was a blend of chlorinated terphenyl with lower chlorinated biphenyls, is that correct, as far as you know?

A As far as I know, yes.

Q That was one of the fluids being referred to here under the status report?

A Yes.

Q Who was charged with the responsibility for work on the chlorinated terphenyl blend as a replacement?

MR. SCHINK: Now you are using the term blend. I don't believe you referenced it before.

MR. POPE: I referred to blend.

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MR. SCHINK: But you didn't use that term. You said wasn't it a fact that Johnson Motors was later sold a lower chlorinated terphenyl with lower biphenyls. You didn't use the term blend. There is a difference between a blend and chlorinated terphenyl with chlorinated biphenyl. That is the distinction I am urging on you, Mr. Pope.

BY MR. POPE:

Q Who was responsible for developing the fluid which ultimately became A-200, a Pydraul which was, I am told, a blend of chlorinated terphenyls?

MR. SCHINK: Are you representing that?

MR. POPE: Is that wrong?

MR. SCHINK: I don't know. I haven't heard any testimony about that in this case. Is the question to Mr. Papageorge?

BY MR. POPE:

Q Do you understand the question?

A I am rather confused at the moment.

Q What substance was ultimately substituted at Johnson Motors for A-200, to your knowledge, Pydraul A-200?

A I don't know what was ultimately substituted.

Q What was substituted first? Was it A-200B or

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A-200A?

A I don't know that.

Q Are you familiar with those two terms?

A Yes.

Q Was one of them chlorinated terphenyl or were both of them?

MR. SCHINK: Did they contain as one of their ingredients or was it formulated in its entirety with chlorinated terphenyl? What is the question?

MR. POPE: Either one.

MR. SCHINK: He cannot answer both questions. Put one question to him so I understand which question he is answering.

Mr. Pope, would you please restate the question.

MR. POPE: Come on, Mr. Schink. I don't know what was in the stuff. He does. I understand there was a chlorinated terphenyl. If that is wrong, the witness can tell me.

MR. SCHINK: What was in it or what it was formulated with?

MR. POPE: What's the difference?

MR. SCHINK: What is your question?

MR. POPE: I don't understand the difference. If

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there is no difference, how am I to pick out one or the other?

MR. SCHINK: What is the question to the witness?

BY MR. POPE:

Q What was the substance that was A-200, replaced A-200, do you know?

MR. SCHINK: Where?

BY MR. POPE:

Q Mr. Papageorge?

A I am confused.

Q I don't mean to confuse you and I don't mean to ask you an unfair question.

I am trying to determine what the reference on this exhibit is, what ultimately turned out to be a product that was used at Johnson Motors.

MR. SCHINK: I don't know that this gentleman knows what products were ultimately used at Johnson Motors. I don't think you have established that.

BY MR. POPE:

Q It is my understanding, Mr. Papageorge, that A-200 was replaced with a different fluid at Johnson Motors, Pydraul A-200. Is that your understanding as well?

MR. SCHINK: Do you want to know if that is his

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understanding?

BY THE WITNESS:

A I don't know personally which Johnson products, Johnson Motors purchased, which of the Pydraul series.

BY MR. POPE:

Q Were any of them formulated with chlorinated terphenyls?

MR. SCHINK: Were any of the Pydrauls?

MR. POPE: Pydraul reformulations, right.

BY THE WITNESS:

A I don't know personally. I was told that they eventually got the reformulated Pydrauls that contained as one of the ingredients the chlorinated terphenyls.

BY MR. POPE:

Q As one of the ingredients. What were the other ingredients?

A I don't remember the formulation.

Q All right.

Was that product a result of the work that was under way in March of 1970 that you referred to earlier in this memorandum on the PCB Action Plan?

A That is my understanding.

Q Who was developing that product?

A Dr. William Richard was responsible for that.

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Q And as part of this plan that was prepared on March 30, 1970, was he instructed to accelerate his efforts to develop an acceptable substitute product?

MR. SCHINK: Now, are you talking about for Pydraul A-200 or for certain other products, Mr. Pope?

MR. POPE: I am not here to answer questions, Mr. Schink. If you have an objection to make, make the objection.

MR. SCHINK: I made the objection as to form. It is ambiguous.

MR. POPE: No, you haven't until just now.

Do you need the question read back, Mr. Papageorge?

MR. SCHINK: I would like you to clarify what you are referring to, Mr. Pope.

Would you read the question back, please.

(Question read.)

MR. SCHINK: Substitute for what, Mr. Pope? Would you clarify that, please?

MR. POPE: If Mr. Papageorge tells me he does not understand the question, I will be happy to clarify it.

THE WITNESS: I would appreciate some clarification.

MR. POPE: All right.

BY MR. POPE:

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Q There is a reference on Page 6 of this exhibit under your Action Plan, do you see that?

A Yes.

Q The action contemplated was to accelerate efforts to develop acceptable substitute products, is that right?

A Yes.

Q I take it that is a direction to Dr. Richard, is that right?

A Yes.

Q What acceptable substitute products was he instructed to accelerate his efforts on?

A Primarily the industrial fluid applications and at the same time, the other applications.

Q Would that include the Pydraul fluid?

A Industrial fluid application includes the Pydraul fluids.

Q Would this be the fluids that contained the higher chlorinated Aroclors, is that what we are referring to here under No. 3 of the Bergen Deposition Exhibit 4 for identification?

A We are referring to those as well as all others.

Q So under Objective 3, you refer to all products Monsanto made that contained PCBs, is that correct?

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A Yes.

Q Is the purpose of this document with respect to each of the objectives that support the overall objective to set a date at which time the person responsible is to come up with that action?

A That was the intent.

Q And on Page 6 under Objective 3, there is a reference to a date, major needs by year end. Can you tell me what that means?

A Well, as I understand it, we were to develop by December 1970 some acceptable alternates for the industrial fluids, paper coatings primarily, as well as others for those products that were defined by the objective as having been demonstrated to be harmful and also cannot be prevented from escaping into the environment.

Q Is that what major needs we are referring to?

A That was the intent of that document.

Q That would include the hydraulic fluids, is that right?

A Yes.

Q Would those be the so-called open systems as opposed to closed systems by the users of the product?

A Yes, if we all have the same definition of

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those two systems.

Q Why don't you define that. I see that in some of the documents. It was a terminology that was used with respect to the use of Monsanto products, was it not?

A That is correct.

MR. SCHINK: When?

MR. POPE: In 1970.

BY THE WITNESS:

A In 1970 that was the terminology describing the two broad types of uses of PCBs.

BY MR. POPE:

Q Will you give me what your definition is of each?

A By open, we meant those systems that in a practical way did not lend themselves to acceptable control.

Q Would hydraulic fluids be included in that?

A Yes, we determined that the hydraulic fluids in a practical way could not be totally controlled.

Q They would leak from time to time?

A Yes.

Q They weren't within a closed system like the dielectrics were?

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A That is correct.

Q What do you define as a closed system?

A A closed system was one in which the system was hermetically sealed, such as in a capacitor or a transformer, and we understood the application was one where any leakage could be properly controlled and we chose the word closed system to describe that type of application.

Q That included heat transfer, did you say?

A It depends on the time frame.

Q In 1970?

A In early 1970, yes.

Q That later was changed?

A Yes.

Q Would it be fair to say that as of the date that report was prepared on or about March 30, 1970, the primary emphasis of this development was on these open systems? Is that correct as you have defined them?

A Yes.

Q On Page 7 of the same exhibit, there is an objective supporting the overall objective, No. 4, and it is to develop reliable analytical procedures for determining PCB content of liquids, gases and solids. The status and the action, were they accurate as of

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March 30 as referred to there?

A Yes.

Q For determining PCB content of liquids, gases and solids?

A Yes.

Q To the best of your recollection, was the responsibility and the action met as of the date set there, July 1, 1970?

A Pretty close.

Q So by July 1, 1970, you were confidently dealing with these substances in the parts per billion area?

A Yes.

Q The next objective, No. 5 refers to methods for effectively disposing of wastes containing PCBs without contaminating the environment.

When did work on that objective begin, as far as you know?

A The biodegradability studies were started before I arrived on the scene, so that would be before 1970.

Q Were those studies being done simply to study, to understand whether products degraded or were the studies also intended to assist in elimination of such

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substances?

A Both.

Q All right.

A Incineration studies started in 1970.

Q Had they been begun by the time of this memorandum, March 30?

A Yes.

Q What is the reference to studies are being conducted on removal from the water solution?

A Where?

Q That reference.

A There were some studies being -- I recall the studies attempting to use activated carbon and sand to determine if PCBs could be removed from dilute solutions in water.

Q Was that being conducted in-house in Monsanto?

A Yes.

Q Did those studies ultimately prove successful for removing PCBs from water?

A As I remember they showed promise in reducing, but I don't recall that any of them demonstrated removal down to parts per billion and parts per trillion level.

Q They were doomed as the analytical work was getting more sophisticated, is that right?

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A Yes.

Q Page 9 of this report, there is a reference to di- and trichlorinated biphenyls. What was that a reference to, what does that mean?

A In each of the commercial mixtures which we referred to by trade name and number, for example, Aroclor 1254, there are many, what we call isomers of chlorinated biphenyls present. And the expression isomer is used to describe a member of a family of chemicals and all members containing the same numbers of chlorine are considered to be members of that isomer subgroup and such so that an Aroclor 1254 would contain some single chlorobiphenyl and 2 chlorobiphenyl and 3, 4, 5, 6, 7 and 8. And when we referred to the mono-, di- and trichlorobiphenyls as we have in that paragraph, we are talking about those commercial entities that make up the commercial mixture which is described as Aroclor 1254.

Q The reference there is that 2 chloro and 3 chlorobiphenyls degrade and the other, the 6 other substances go up as far as 8?

A No, they go up to 10 and then the variations give us 209 possible PCBs.

Q The reference that you have there on Page 8

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is to the two of those, the early reports indicated and the balance of 9 --

A Yes, but keep in mind, this particular set of conditions.

Q What were those set of conditions?

A I have forgotten the totals, but regarding other chemicals present, temperature, presence or absence of sunlight and the type of bacteria that was studied.

Q That is the study under way at Ruabon, is that right?

A Yes.

Q What was going on at the St. Louis River regarding tests for --

MR. SCHINK: I think you mischaracterized the reference in that it is in the St. Louis River.

MR. POPE: I didn't mean the studies were going on in the river.

Studies were going on elsewhere in St. Louis with respect to river water, is that right?

BY THE WITNESS:

A Yes, that's right.

BY MR. POPE:

Q Where was that water taken from?

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A It was taken from a river in Missouri which is a fishing and sport canoeing, boating way river away from, in other words, industrial localities. And the PCBs were added to determine if they would degrade in that type of water.

Q Who was in charge of that study?

A Dr. Scott Tucker.

Q That is one where PCBs were added to the water rather than being detected in the water?

A That is correct.

Q And the incineration studies that were under way, was that done by the outfit out of Tulsa?

A Yes.

Q What was the name of that, do you remember?

A The John Zink Company.

Q Did they ultimately build an incinerator for you?

A They ultimately designed the incinerator. I don't know who built it.

Q Where was it built?

A I don't know where it was built.

Q Is it in Illinois?

A I am sorry. The unit was erected and constructed in Illinois. I don't know who built the

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incinerator.

Q That was at Sauget?

A Yes.

Q There is a reference in the next paragraph to MRC at Dayton. Was there a laboratory, MRC?

A That is the Monsanto Research Corporation, a subsidiary of Monsanto.

Q Is there a laboratory at Dayton?

A Yes.

Q I take it it was there in 1970?

A Yes.

Q Is that a specialized laboratory within the Monsanto corporate umbrella?

A I need some help on the word specialized.

Q Why don't you tell us what its purpose was and what kinds of research it did.

MR. SCHINK: In 1970?

MR. POPE: In 1970, as of 1970.

BY THE WITNESS:

A That laboratory, as I understood it, had a high degree of sophistication in its ability to conduct various research programs, and in 1970 was in the business of soliciting business from Government and industry and also from within Monsanto to conduct special studies.

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BY MR. POPE:

Q Did that laboratory operate under Dr. Richard or independent of him?

A No, that was independent of Dr. Richard.

Q Can you give me some approximation of the size of the laboratory in 1970, either with respect to employees or physical layout?

A I never knew the number of employees and physically it consists of, as best I recall, about a half a dozen or so buildings on about 10 or 15 acres.

Q Is that area solely devoted to research?

A Yes.

Q What was the ultimate results of their work referred to here, the recovery of Aroclors from dilute water solutions, do you recall?

A This refers as indicated earlier that we could reduce the amount, but we could not get it down to the non-detectable level, as I recall.

Q The reference to the work that was undergoing at Page 8 of W. G. Krummrich Plant, was that with respect to use of incineration as a device of removal of PCBs?

A That was the intent.

Q Who was in charge of that responsibility for

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this research work we have been discussing?

A That is Dr. Richard.

Q And his date for completing that work was set as October 1, 1970, is that right?

A Yes.

We are looking at a rough draft.

Q I understand.

A I don't recall what the final draft was.

Q Are you able to tell us what is missing on Page 9?

MR. SCHINK: If anything.

BY THE WITNESS:

A No, I can't.

BY MR. POPE:

Q Who is this Findett referred to here on Page 9 of Bergen Deposition Exhibit 4?

A Findett was a small company in the business of either reclaiming chemicals or they had some limited ability to manufacture chemicals on a contractable basis.

Q What were they doing for Monsanto?

A I don't know everything they did for Monsanto, but at one point in time we were considering them for a reclaiming idea that we had.

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Q What do you mean by reclaiming as it implies in this context?

A To take a material that has been in use and its properties have altered while in use and do what is necessary to restore it back to as near as we can to its original quality, composition, performance.

Q Would that include a hydraulic fluid which has been swept up with sawdust and various material?

A No, that would be impractical.

Q That was never under consideration at that time, was it?

A No.

Q So what you are referring to was a fluid basically unmixed with other substances but which had been used and was not as useful for its original intended purpose as it had been originally, is that right?

A Yes.

Q The idea was it would be restored more or less to its original condition and for resale, is that correct?

A Or reuse by the original owner.

Q I see.

As a service to the customer, the idea was to treat it in such a fashion that the owner could reuse it, is that right?

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A Yes.

Q And that also was Dr. Richard's responsibility to analyze that?

A Yes.

Q He was originally to report on May 1st, is that correct?

A Yes.

Q And then the reference on Page 10 to select and modify as necessary the required equipment at the W. G. Krummrich Plant, does that refer to the reclamation project?

A Yes.

Q What types of equipment are we referring to there?

A The selection of that equipment depended on what Dr. Richard's group found.

Q So the methodology that he would recommend to do this reclamation would then dictate what kind of equipment would be installed at the Krummrich Plant, is that right?

A That is correct.

Q At this point in time was the Krummrich Plant where PCBs were being manufactured?

A Yes.

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Q Was it also a blending plant, a place where PCBs were being blended?

A Yes.

Q In March of 1970?

A Yes.

Q No. 7 is a summary of the work that was under way at that time with respect to toxicity studies, is that correct?

A Yes.

Q Page 11 at the top, there is reference to results to indicate liver enlargement in male rats at 100 parts per million, is that right?

A Yes.

Q Is that a reference to some of the preliminary work that Industrial Bio-Test did for you?

A No, this is in reference to the ongoing studies. It is a status report of the observations.

Q But the reference to that result would be in one of the studies that Industrial Bio-Test was doing, would it not?

A Yes.

Q As opposed to something done in-house?

A That is correct.

Q Do I correctly understand that that is a

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reference to liver enlargement in male rats who were fed 100 parts per million of some form of PCBs over a period of time?

A Yes.

Q Then similarly the third reference under results to date, rat reproduction effected. I take it that means affected?

A Yes.

Q By 100 parts per million Aroclor 1242 or Aroclor 1254.

Does that similarly refer to adverse effects being experienced upon the feeding of 100 parts per million of those two Aroclors over a period of time to rats?

A Yes.

Q Does Page 11 refresh your recollection that by March 30, 1970, the results we referred to earlier on the leghorn chicken being adversely affected by lower chlorinated Aroclors was available?

MR. SCHINK: Are you talking about final results or interim results?

MR. POPE: Either.

BY MR. POPE:

Q There is a reference there, and I was wondering

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if that was the same one we were talking about before.

MR. SCHINK: There is also reference to continuing studies under way at which time these things were going on.

BY MR. POPE:

Q Was that an interim report on the leghorn chicken, the reference we were just reading?

A That was the interim which was the same finally, the results were consistent.

Q That is the report we were referring to earlier this morning on the leghorn chickens and the adverse effects from lower chlorinated Aroclors?

A Yes.

Q Is it true, at least as to the preliminary report, they were known by Monsanto on March 30, 1970?

A Yes.

Q The reference to studies on fish, I take it these were the reports that we referred to last week involving Industrial Bio-Test that had to be aborted because they were not able to do the test?

MR. SCHINK: I don't think he testified they were reported.

MR. POPE: I said aborted.

MR. SCHINK: I thought you said the Industrial

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Bio-Tests that were reported.

MR. POPE: I will withdraw the question.

BY MR. POPE:

Q The reference here to studies done on fish, are these the studies that we talked about last week that were initially undertaken by Industrial Bio-Test but later aborted because they were unable to do the studies?

A Yes.

Q Were they ever resumed as it refers there on Page 11?

A Yes.

Q Who were they ultimately conducted by?

A Industrial Bio-Test.

Q Were they successfully completed?

A No.

Q They undertook them a second time and were not able to finish them?

A That is correct.

Q When was that done?

A In 1970.

Q Is that the point at which you formed the opinion they were incompetent to do fish studies?

A Yes.

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Q Did Monsanto ever commission another laboratory to conduct fish studies on PCBs?

A No.

Q In the final objective on Page 11, that was to establish and maintain basically favorable public relations, is that right?

A Not only public but governmental support.

Q The responsibility indicated is all personnel. Was that one of your prime functions as well?

A Yes.

Q The draft you did, did it have the costs that do not appear on Page 12 here, this copy?

A I don't remember. I may have asked the Accounting Department to pull those together for me. I don't remember if I got the numbers at that point in time.

Q There were numbers that had actually been budgeted as of the preparation of that document though?

A Yes.

MR. POPE: Why don't we take a break.

MR. SCHINK: Yes.

(Brief recess had.)

BY MR. POPE:

Q Mr. Papageorge, I hand you a document which

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we marked earlier as Bergen Deposition Exhibit 5 for identification. I would like you to look at that and tell me what that is.

A That is a copy of a memorandum that went out over my signature to the key managers of the Functional Fluids Group, Plasticizer Group and the Organic Chemicals Division, and attached to it is --

MR. SCHINK: I think the last two pages are a different exhibit.

BY THE WITNESS:

A (Continuing.) -- a 9-page document describing a plan for managing the PCB situation.

BY MR. POPE:

Q That went out on or about April 7, 1970 under your signature?

A Yes.

Q Is that a revised draft of the draft that you have just been reviewing which was also the management plan for managing the PCB problem?

A It appears to be a revision of the earlier proposed draft.

Q Would it be fair to say, Mr. Papageorge, that that includes revisions by the various people to whom the earlier draft was sent, Bergen Deposition Exhibit

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No. 4 for identification?

A Yes.

Q Did those persons on that list refer to comments they had about the earlier draft to you to collate the revisions?

A That's one way they did it. As I remember though, we had a meeting.

Q And in fact on that draft, management reports, Bergen Deposition Exhibit No. 5 for identification, there is some handwritten notes, is there not?

A Marginal notes.

Q Marginal notes?

A I see some, yes.

Q Is that Mr. Bergen's writing?

A That appears to be his writing.

Q Do I understand you correctly that there was a meeting between the time the March 30 draft was prepared and the time that the April 7 draft was prepared?

A Yes, sir.

Q I take it that is the meeting you referred to in your memo on April 2.

A Yes.

Q It was held on or about April 2?

A Yes.

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Q And the draft was circulated, is that correct?

A Which draft?

Q The March 30 draft that had already been circulated by April 2nd?

A Yes.

Q And people came in equipped to discuss it and make comments, is that right?

A Yes.

Q Were those people in attendance here listed in the March 30, 1970 draft: Mr. Bergen, Mr. Farrar, Mr. John, Dr. Keller, Mr. Olson, Mr. Paton, Mr. Wheeler, Mr. Springgate, Mr. Park and Dr. Richard?

A No, sir. I can't say all were. I don't remember.

Q At these task force meetings, would Mr. Wheeler attend sometimes and Dr. Kelly other times as representatives of the Medical team?

A Yes, or they would both attend.

Q I notice that your circulation list for the April 7 draft has a different number of people being circulated. Why is that?

A The April 7 draft went to managers of the -- the top managers of the Organic Chemicals Division that were involved with PCBs, whereas the previous went to

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members of the task force.

Q I see.

So the draft of April 7, 1970 basically contains the views of the task force and it was now time to go to the next level of management, is that a fair characterization?

A Yes.

Q You called the meeting then for Friday, April 10, 1970, is that right?

A Yes.

Q With the circulation of the April 7 draft?

A Yes.

Q The idea was to discuss this management plan at this meeting, is that right?

A Yes.

Q This group was not the Corporate Management Committee, was it?

A No, sir.

Q That is another group above them, is that right?

A Yes.

Q So the idea with Bergen Deposition Exhibit No. 5 was to discuss this management report in this form with the managers at the meeting on Friday, April 10, 1970, is that correct?

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A Yes.

Q Was that in fact done?

A Yes.

Q As a result of that meeting, was a revised draft of the management plan prepared?

MR. SCHINK: You mean in a written form like this, Mr. Pope, or in a series of concepts --

MR. POPE: No, I mean a written form like the first two were or the other two.

BY THE WITNESS:

A As I recall, the plan described in the April 7 submission to the management of the Organic Chemicals Division was basically adopted by that management and I got approval to present it to the Corporate Management Committee.

BY MR. POPE:

Q Without change?

A I don't recall if any changes were made or not. I just don't remember.

Q As far as you recall, in essence the plan was approved by those people in the meeting on April 10, is that right?

A Yes, yes.

Q Does a review of Bergen Deposition Exhibit No.

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5 for identification refresh your recollection as to what the first objective was on Page 2 under Objectives?

A No, I can't remember.

Q I take it on Page 3 in the original draft, you had listed what the Action Plan was with respect to that first objective, whatever it was, is that right?

A I don't know.

Q You don't recall?

A I do not.

Q Were the budget figures listed at the time you prepared this report?

A I don't remember. Let me see.

Q Let me ask you this:

Would you go in and talk to managers for their approval of this plan without any idea of how much it was going to cost?

A It's possible because of the time frame here, things were moving very rapidly.

Q During this meeting on April 10 with the managers where you sought their approval with this PCB plan, was there any discussion of the amount of the sales or revenue that was involved?

A I've never been present at such a discussion.

Q I see.

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Mr. Schink, I would like to ask you again to give us the original of this document unedited. It may force Mr. Papageorge to another deposition.

I take it you are not inclined to grant our request?

MR. SCHINK: No.

BY MR. POPE:

Q With the approval of the managers at the April 10 meeting, you went to the Corporate Management Committee, is that correct, to present the plan?

A Yes, yes.

Q And whether you used exactly this April 7 draft or a similar draft slightly changed, you presented the plan to them, is that right, to the members of the Corporate Management Committee?

A Yes.

Q Did you circulate the draft ahead of time to them?

A No.

Q Is there any reason for that?

A Not that I recall. It wasn't customary.

Q Who told you that?

A My superior, Mr. Bergen.

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Q That was to be your first Corporate Management Committee meeting that you were to attend?

A Yes.

Q Mr. Bergen told you not to circulate ahead of time their plan, is that right?

A Right.

Q Did you bring copies for the members of the Corporate Management Committee to the meeting?

A I don't remember. I don't remember.

Q Would it be fair to say that the whole purpose in pulling from the original draft stage the management plan was to reduce your ideas to writing first and get everyone else's approval for purposes of presenting the plan to the Corporate Management Committee?

A Yes.

Q Can you tell us what took place at the Corporate Management Committee meeting while you were present?

A Their usual questions were asked by the various individuals in the room so they could get a better understanding of what I was presenting.

Q The usual, I am sorry to interrupt you. The usual questions, the same type of questions that customers

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had asked or other people had asked you at other meetings?

A That was a poor choice of words. Questions were asked by people in the room to help them better understand some of the remarks that I was making. I recall some dialog taking place from the floor and directed to me at the podium.

I had, as I recall, some information that I used that I had on transparencies that were projected on a screen.

Q What types of information was that?

A I believe, as I remember, they were very similar to the items listed in the April 7 --

Q Objectives, status, action?

A Yes, in fewer words but highlighting each objective and I discussed it and went on to the next one.

Q I take it that it included Objective No. 1?

A Yes.

Q You don't recall what that is now at the time you made the presentation?

A No. After I finished my presentation --

Q Excuse me, I'm sorry to interrupt you.

Your presentation would basically be in

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short fashion, the management plan we have been discussing?

A Yes, paraphrased maybe, but the intent was to convey that message to the Corporate Management Committee.

Q This is what you prepared, this is what the managers had approved?

A And I was recommending their approval.

When I finished, I and several others from the division were excused from the meeting and Mr. Minkler who was -- I have forgotten his title, the top individual responsible for PCBs, was asked to remain in the room.

Q Is Mr. Minkler Vice President?

A I believe he was a General Manager. I don't believe he was a Vice President. It's been awhile.

And that is all I personally know about that discussion.

Q What questions were asked of you, do you remember?

A I don't remember them specifically, but they were the kinds that I could have been accustomed to hearing or getting from an audience that weren't as close to the subject as some of us were, ranging from

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basic chlorobiphenyl, PCB chemistry to the types of uses, some speculations in questions about how they are getting into the environment.

Q What response did you make with respect to how PCBs were getting into the environment?

A At that point in time I could only speculate, frankly, in terms of, first of all, the validity of the information and I recall personally that I could not explain why they were found in Arkansas as an example. I could not explain that and why there were PCBs off the shore of California.

I could not answer their questions, though nothing seems to stand out regarding the kinds of questions they asked. They were quite general.

Q As to your answers to the questions of how PCBs got into the environment, what did you tell them aside from the fact there were a couple of instances you could not explain?

A I told them that if improperly handled, I suspect you are apt to find them near industrial areas. If improperly disposed of, you may find them in improperly managed dumps, open dumps and that kind of thing.

As I recall, the whole theme of how did they get into the environment centered on improper

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disposal, improper control.

Q Did you make a reference in that meeting to the fact that Monsanto itself had experienced leaks such as the instance in the Pensacola, Florida situation?

A Yes, that was discussed, yes.

Q As of the time of that meeting, had you conducted or requested that the conduct of an investigation regarding the California findings of Dr. Risebrough as to where the source of those PCBs may have come from?

A The investigation was started and it really started with our Marketing Department in terms of what can you tell me about our products in that area, who are the users and how did it get out into the islands and into the ocean.

As I recall, nothing came up that made any sense to us at that point in time.

Q Did you ultimately get some information to explain the presence of PCBs in the species that Dr. Risebrough had been investigating?

A No, I never did get the source of those PCBs.

Q At the meeting in April with the Corporate Management Committee, you were presenting a fairly significant plan that you wanted them to accept, is that

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right?

A Yes.

Q Would it be fair to say that you did assure those gentlemen that there were in fact PCBs being found in the environment?

A Yes.

Q And including in those places where you couldn't explain where they came from but by focusing on leaks or other industrial uses?

MR. SCHINK: Wait, we have not used the term leak as synonymous to discharge to the environment in this examination. Are you using it now?

MR. POPE: We referred earlier, I think, Mr. Papageorge referred earlier to findings of PCBs in places removed from industrial sites.

MR. SCHINK: Right.

MR. POPE: Okay, that is the reference.

MR. SCHINK: But you also used the term leaks.

MR. POPE: You will find leaks in industrial sites, I suppose.

MR. SCHINK: But a leak is not the same thing as being found in the environment. That is a linking together of leaks and other findings in the environment, I would object to that.

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MR. POPE: Certainly that is one means of getting into the environment, Mr. Schink.

MR. SCHINK: I don't know if the term has been used that way in this deposition.

MR. POPE: Do you think you can find the question, Miss Reporter?

(Question read.)

BY MR. POPE:

Q By a particular leak or by the fact that they were used in industrial settings, is that a fair statement as well?

A Yes.

Q Who were the members of this committee, who was present at this Corporate Management Committee meeting?

A I will try to recall. I am certain I won't recall all of the members.

There was the Vice President, Edward Bok; President of Monsanto, John Gilles, G-i-l-l-e-s; Monte Throdahl, T-h-r-o-d-a-h-l. There was John, I believe, Ehlers, E-h-l-e-r-s. He was the Secretary of the meeting.

I can't recall the others.

Q Was there any discussion when you were there

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of the effect this plan would have on the sales or earnings at Monsanto?

A I remember the question was asked and the specific numbers were not available, but the conclusion was that yes, this would affect sales.

Q Up or down?

A Downward.

Q Was any area of magnitude discussed of the effect?

A I don't remember that. It was considered to be significant, but I don't recall the magnitude.

Q I take it the question was asked of you, what the effect would be.

A No, it was asked of the others in the room who represented the upper management in the Organic Chemicals Division.

Q Who else was present in the room besides the members of the committee?

A As I remember, there was Howard Minkler, Charles Smith, Howard Bergen, James Springgate.

I don't recall any others.

Q Was this the first time the subject of what the effect of the PCB plan would have on sales or revenue was raised in your presence?

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A Yes.

Q At the time you made that presentation, did you have the budgeted figures that appear in blank on the last pages of the March 30 draft and the April 7th draft?

A Yes.

Q Can you give me an approximation of what that budget was?

A No, I don't remember.

Q You are not able to approximate?

A No, I can't.

Q Do you know what title Mr. Gilles had?

A I don't know if this is the official one, but I thought of him as the Vice President of Marketing.

Q How about Mr. Throdahl?

A Mr. Throdahl was the Vice President concerned with Research and Technology. I do not know his official title.

Q And Mr. Ehlers?

A Mr. Ehlers was the individual who served as Secretary.

Q Of the company?

A No, no. He was the working secretary for the Corporate Management Committee and prepared the

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minutes of the meetings and arranged for their meeting place and facilities and timing.

Q As far as you know, did he not have another function in Monsanto in terms of management function, responsibility for the other division?

A Mr. Ehlers is an attorney.

Q Oh, that explains it. He probably didn't do any work at all.

A He had duties in the Legal Department in addition to this.

Q Who is Charles Smith?

A Charles Smith is one of the two Assistant General Managers of the Organic Chemicals Division. He reported to Howard Minkler.

Q What was Mr. Minkler's title?

A General Manager, Organic Chemicals Division.

Q Was he in effect Mr. Bergen's boss?

A No, I believe at that time Mr. Bergen reported to John Mason. I have forgotten to mention John Mason. He was a President also. He was the second General Manager.

Q How did it work, Mr. Bergen reported to Mr. Mason?

A Yes.

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Q And Mr. Mason reported to Mr. Minkler?

A Yes.

Q Your request to this group in effect was partially to enforce some actions that had already been taken, would that be fair to say?

A Yes.

Q For example, some customers had been notified --

A Yes.

Q -- to some extent, is that right?

A Yes.

MR. SCHINK: Are you referring to the item that all customers had been informed, is that Item No. 2?

MR. POPE: That's what it says here, Mr. Schink. I'm sure that wasn't the case, but that is what it says.

MR. SCHINK: Well, you are referring to Item No. 2, is that correct?

MR. POPE: There may be other things here.

BY MR. POPE:

Q Were there any other things that had already been accomplished at the time of this presentation?

MR. SCHINK: Now you referred to some customers informed to some extent. I don't believe that characterizes the second objective. You asked him about that at considerable length.

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MR. POPE: I didn't want to get involved in characterizing what was transmitted by way of information to any customer, Mr. Schink.

BY MR. POPE:

Q Were there any other things that had already been accomplished by the time you had already met with the Corporate Management Committee?

A Well, certainly.

MR. SCHINK: Would you like to look at this again?

BY THE WITNESS:

A Certainly we had our toxicity program under way.

BY MR. POPE:

Q So you were asking really for their approval of that work which had already been under way, is that right?

A Right. We had, of course, the research work, looking for alternates, ways to incinerate, ways to remove from water, biodegradation studies. All those were under way. We had started dialogs with customers. We had a relationship with the governmental agencies established. There were many things already under way.

Q It was both a reporting then on what had already been undertaken as well as seeking approval for

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additional steps, is that correct?

A That's right.

Q In connection with the third objective we talked about earlier, did you tell the members of that committee that on certain uses, Aroclors had been deemed to be harmful to the environment?

A No, I did not because I did not have that information.

Q Did you tell them under certain uses Aroclors could not be prevented from escaping into the environment?

A Yes.

Q Did you tell them that those were the uses that you proposed primarily seeking replacement fluids for as a matter of first priority?

A Well, the use of replacement fluids, replacement materials of all kinds.

Q You advised them with respect to replacement materials those were the uses that were going to get first priority in terms of replacement products, is that right?

A Yes.

Q Calling your attention to Page 5 of the April 7 draft of this report, I note that the date for a

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replacement of some of the Pydraul fluids was set as of September 1970. Do you see that?

A Yes.

Q And some other Pydrauls, the date was set as December 1970, is that right?

A Yes.

Q Who made those determinations that those would be the appropriate dates?

MR. SCHINK: Do you mean development of replacement? You used the term replacement. It says actually develop.
BY MR. POPE:

Q Be finished by then, is that right?

MR. SCHINK: The development?

MR. POPE: Right.

BY MR. POPE:

Q Were you going to be finished with the development of replacement fluids by September 1970 for Pydraul AC, Pydraul AC Winter Grade and Pydraul 625? Is that right, isn't that what this means?

A In this context, develop means that there is a known alternative to the researcher. It does not mean it is commercially available.

Q Let us go back and look at that.

What you were talking about here in

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this April 7 report on Page 5 was to both develop an acceptable substitute and have a selective phaseout of Aroclor-containing industrial fluid, is that right?

A Yes.

Q I take it that means selectively phase out of your current products which contained PCBs, is that right?

A Yes.

Q Would it be fair to say that the plan was to both develop an acceptable substitute and get rid of inventory or whatever it was that was currently on hand with respect to Aroclors that were being replaced?

MR. SCHINK: By those dates?

MR. POPE: Yes. I was going to focus on what the objective was first, Mr. Schink, so we don't get too complicated.

MR. SCHINK: Are you asking him in the context of this memo, what those dates mean, or are you asking without regard to the memo whether the overall plan was at that time all he did?

MR. POPE: The other way around. I am asking him the question without regard to the date.

MR. SCHINK: But in the context of that memo?

MR. POPE: Yes, right.

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BY THE WITNESS:

A It is my best recollection that the dates included under that part of the Action Plan refer to the Research Department having an acceptable alternative by those dates and the Sales Director would then have the selective phaseout based on availability on a commercial sale of that alternative.

BY MR. POPE:

Q So the Sales Director according to this plan was not to begin a selective phaseout until after the acceptable substitutes were available, is that right?

A He couldn't otherwise.

Q He couldn't what?

A He couldn't phase out until he had an alternate in hand.

Q Why not?

A There are many reasons. There are systems throughout that depend on fire-resistant fluids.

Q We are talking now about the Pydraul, is that right?

A Yes, we cannot arbitrarily stop supplying that need without creating some serious safety problems, for example.

Q Was that a decision that was made by Monsanto?

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A Yes. You cannot just abandon the customer whose system is full of a fire-retardant, fire-resistant fluid and give him no alternative that retains the fire-resistivity. So until that material is available and in a commercial quantity, you cannot phase out.

Q Is it your testimony that as of the preparation date of this memorandum, April 1970, there was no commercially available replacement for Pydraul AC?

MR. SCHINK: With the same fire-resistant properties?

MR. POPE: No, I didn't say that. That is your question, not mine.

BY THE WITNESS:

A It is my understanding there was no equivalent fluid which had all the properties of Pydraul AC available.

BY MR. POPE:

Q Were there other fluids that were on the market for the same general purpose for Pydraul AC?

A Yes, mineral oils.

Q Sold by other companies?

A Yes.

Q How about Pydraul AC WG. Were there other

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fluids available from a supplier other than Monsanto at this point in time?

A There were other fluids, but none of them had the fire-resistance.

Q How about Pydraul 625. Were there other fluids sold for the same general uses as Pydraul 625 was sold?

A They were available, yes.

Q How about Pydraul F-9. Were there other fluids sold on the market for the same general purposes as F-9?

MR. SCHINK: You keep talking about general purposes. I don't quite understand that.

Are you talking for the same level of fire-resistivity?

MR. POPE: No.

MR. SCHINK: Then what do you mean by the same general purpose, because Pydraul was being sold as this witness testified as a fire-resistant product with particular properties.

MR. POPE: Mr. Schink, so there is no confusion --
BY MR. POPE:

Q Mr. Papageorge, the question is what is F-9 used for? Are there other customers that use it that

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would go to other manufacturers in 1970?

A Not if they are seeking fire-retardancy.

Q Were there any other hydraulic fluids that were sold by other manufacturers for the same types of purposes that F-9 was used by customers?

A With the same level of fire-resistance in it?

Q No, without regard to fire-resistant qualities.

MR. SCHINK: The problem is that the Pydraul products, as the witness testified, were sold for that purpose.

MR. POPE: I understand.

MR. SCHINK: And he said there were no other fluids.

MR. POPE: Since that he also made a decision that no other fluid is a suitable substitution. And I am asking if there were any other fluids on the market for the same general use, even though it may have less fire-resistant characteristics with regard to F-9.

MR. SCHINK: If you disregard fire-resistivity, that is a different question.

MR. POPE: I didn't disregard it. I said even less fire-resistant capability.

MR. SCHINK: What do you mean by that, how much less?

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MR. POPE: Come on, what do you mean by less.

BY MR. POPE:

Q Mr. Papageorge, do you understand my question?

A If you disregard the need for fire-resistivity, there are many liquids that will operate the equipment, but a responsible manager runs the risk of repeating the fire at the Oldsmobile Automatic Transmission Plant in Livonia, Michigan that burned to the ground because they used a flammable transmission fluid in their plant. That is the risk that always happens over all of these uses.

Q That is the reason that Monsanto decided they had to come up with a replacement fluid before it could phase out these particular products listed on Page 5, is that true?

A We felt that obligation, yes.

Q Now, the question, and I take it the same answer would be given with respect to A-200, there were other fluids on the market for the same general use but they were not as fire-resistant as A-200?

MR. SCHINK: He didn't say that. He said if you disregard fire-resistivity, there are other fluids.

MR. POPE: Why don't you read back my question and tell me if it is true or false, Mr. Papageorge.

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MR. SCHINK: I object to the form of that question in the context of other fluids.

MR. POPE: Your objection is accepted.

Read the question, please.

(Question read.)

BY MR. POPE:

Q Is that true or false?

A True.

Q And would it be true with respect to Pydraul 540 that there are other fluids on the market for the same general uses. They were not as fire-resistant as Pydraul 540?

A Yes.

Q With respect to those six fluids, who made the decision that the date September '70 should be applicable to the first three and the date December should be applicable to the second three?

A Dr. Richard.

Q Do you know the basis which he used to assign those two dates?

A No.

Q In any discussion that you participated in at Monsanto, was the thought expressed that the second three Pydraul fluids were less toxic or less of a problem

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in the environment than the first three?

A I've never been present at such a discussion.

Q Have you ever been present at a discussion where the thought was expressed that the first three would be easier to replace, develop replacement fluids for than the second three?

A I don't recall such a discussion.

Q Is it your testimony that Dr. Richard picked these dates and you never participated in any discussion where they were discussed?

A Well, I was present when the dates and the terms were discussed, but I do not recall any time the reasons for the selection. It was his option, he was responsible. He has the technical people and the resources to do the work. It is his call as to what he does.

Q Were the customers involved with the first three fluids more important to Monsanto than the customers involved with the second three fluids?

A I do not know.

Q With respect to the Aroclor content of these six fluids, do they all, as far as you know, contain the same Aroclor content in terms of lower Aroclors versus higher Aroclors?

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MR. SCHINK: Do you want to refer back to the earlier letter or do you know the application?

This is the same problem we have been talking about before, Mr. Pope.

MR. POPE: If you want to refer him now to the February 1970 letter, do you want to point out any specific part to him, Mr. Schink?

MR. SCHINK: Yes, "In addition to 1254 and 1260 are contained Pydraul 625, Pydraul AC, Pydraul AC Winter Grade and Pydraul F-9, A-200 among others are not formulated with Aroclor 1254 and 1260."

MR. POPE: Excellent.

BY MR. POPE:

Q Now, Mr. Papageorge, with your recollection refreshed --

MR. SCHINK: I have done nothing to refresh his recollection.

BY MR. POPE:

Q (Continuing.) And Mr. Schink pointed your attention to that letter, would it be fair to say the reason for the difference in dates on those six fluids relates to the Aroclor content of each?

A Yes, in terms of type of Aroclor, not quantity.

Q Yes, that is to say the presence in the first

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three of Aroclors 1254 and 1260 and the presence in the second three of the lower chlorinated Aroclors.

Is that a true statement?

A Yes.

Q At this meeting of the Corporate Management Committee, did you advise those present that there were some preliminary reports indicating that the lower chlorinated Aroclors were adversely affecting some species of animals?

A Yes.

Q Was the subject raised at that time of replacing the lower chlorinated Aroclors which were presently being used in open systems?

A I don't recall that coming up at this specific meeting. I don't remember.

Q Would it be true to say that the plan to replace the higher Aroclor content fluids with lower Aroclor content fluids had been developed prior to the time that Monsanto was aware that there were reports that the lower chlorinated Aroclors were producing adverse effects on certain species of animals?

A Yes.

Q At the time that Monsanto became aware of reports of adverse effects from the lower chlorinated

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Aroclors, did you consider withdrawing the lower chlorinated Aroclors from the market as to those open uses we referred to?

A Yes.

MR. SCHINK: By lower Aroclors, you are talking about Aroclor 1242?

MR. POPE: I guess we never really did define. I am talking about 1254 cutoff point when we were referring to lower chlorinated or not, Mr. Papageorge?

MR. SCHINK: I am having a problem with a term and relative term and apparently 1242 is lower than 1254, but in light of some earlier testimony, there were some Aroclors even lower than 1242.

MR. POPE: Do you want the question read back?

THE WITNESS: I thought I answered it yes, we did.

BY MR. POPE:

Q You did consider it?

A We did consider and come up with a subsequent plan.

Q That is the April 7, 1970 plan or a plan subsequent to this one?

A There was a plan subsequent to this that addresses that.

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Q Would it be fair to say that the plan you presented to the Corporate Management Committee arose at a time when you became aware of those new tests and yet had not changed your plan with regard to replacement fluids for open systems?

A That's right, at that point in time.

Q When did this subsequent plan evolve or get reduced to action that you have just referred to?

A It evolved within a week of the presentation to the CMC and was presented to the CMC as an alternate proposal and as I remember, it was accepted by the CMC early in May of 1970, a week or 10 days after our presentation of April 20.

Q Was that revision made as a result of these preliminary indications about the lower chlorinated Aroclors being found in the environment and perhaps producing some adverse effects on certain species of animals?

MR. SCHINK: You have two things there, Mr. Pope. I don't think we had testimony of lower Aroclors being found yet.

BY MR. POPE:

Q Is that correct?

A That is correct.

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Q We are basically talking about the preliminary results of the leghorn chicken, is that correct?

A That is correct.

Q Is it a fair statement to say that this revision following the April meeting, the revision to the plan was made because of those preliminary findings?

A That was one of the items that was considered, yes.

Q It was your thought and the thought of the people that you worked with that because of those results, there should be some change in the company's approach to the replacement fluids that were 1242, for example, is that right, that then were going to be used in the open systems?

MR. SCHINK: I think he said that was one of the things.

MR. POPE: All right.

BY THE WITNESS:

A Yes, and it was reflected even in the original with the reference to some of the Pydrauls.

BY MR. POPE:

Q Which ones? Where is the reference you are talking about?

A On Page 5 of the April 7 memorandum attachment.

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Q The December uses or the December dates there?

A Yes.

Q From January 1970, it had been a plan of Monsanto to ultimately replace all PCB-bearing hydraulic fluids, had it not?

A Not to my knowledge.

Q It was not your testimony last week that the original plan was to first lower the chlorine content in some of these fluids and then ultimately to replace them?

MR. SCHINK: I don't think he testified, however, that that was a plan which was adopted in January.

BY MR. POPE:

Q From the beginning --

MR. SCHINK: I don't think that was his testimony as witness the February letter.

MR. POPE: I don't think that answer pertains to anything.

BY MR. POPE:

Q Am I wrong, that that was not the plan in January of 1970?

A The plan was to start with those that had 1254 and 1260.

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MR. SCHINK: Remember, we got into the discussion of first step. You used the term first.

MR. POPE: Absolutely, and the testimony was that they were both going on at the same time and that was in January of 1970, wasn't it, Mr. Papageorge?

THE WITNESS: I am sorry, what was going on?

BY MR. POPE:

Q Research regarding the total elimination of PCBs in hydraulic fluids.

A No.

Q It didn't have first priority but it was going on, is that right?

MR. SCHINK: I think he testified there was research always going on looking for better fluids and that that research was continuing at all times.

BY THE WITNESS:

A I may have misled you. When I thought of research, I am thinking of the full group. Those involved with Functional Fluids placed all their attention only to those with 1254 and 1260. They had no time to consider the others just yet.

In the meantime, the individuals involved with dielectric applications are working out of 1260, out of transformers, and in January, 1254.

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MR. SCHINK: January of '70?

BY THE WITNESS:

A (Continuing.) January of '70 so wherever there were people with expertise to do these uses, they were applying those, first addressing 1254 and 1260, and as need and instruments and laboratory space and others were available they would start looking into the other PCB uses, and at that time if there was any indication of an adverse nature, we would be ready to introduce the alternative.

That was the thinking in January.

BY MR. POPE:

Q And those steps were accelerated when there was some report of adverse nature from the 1242, is that right?

A Yes.

Q Did you receive minutes of a portion of the CMC meeting in April 1970?

A Yes, eventually I got a copy.

MR. POPE: I am going to ask the court reporter to mark as Papageorge Deposition Exhibit No. 32 for identification, a 2-page document, a portion of which has been made available to us with some spaces entitled CMC Minutes 4-20-70 Meeting.

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(Papageorge-OMC Deposition
Exhibit No. 32 marked for
identification, 8/31/81, TLU.)

BY MR. POPE:

Q Mr. Papageorge, would you take a look at that document and let me know whether that is a copy of minutes that you received in that meeting?

A They appear to be, yes.

Q Were those deletions with regard to sales figures on the first page, were they in fact deleted from the copy you were given or did they have numbers there?

A I don't remember, I don't remember.

Q Read that over, please, and tell me if that is a true and correct summary of the discussions that took place while you were present.

MR. SCHINK: I don't see how he can say that. He said he doesn't remember all the discussions in detail. He only remembers a couple of them generally. I don't see that he has a basis for giving that kind of conclusion and testimony. I object. There is no foundation.

I further object: Under the heading of Conclusions, I think the witness testified after he made his presentation and after some questions, he left

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the room. I don't think there was even any showing he was present when the committee engaged in whatever deliberations were stated as conclusions in the meeting minutes.

There is a further objection, no foundation.

BY THE WITNESS:

A As best I recall, this covers some of the points covered in the session while I was there.

BY MR. POPE:

Q Did you discuss with the committee members any proposed levels from the FDA regarding PCBs in milk and/or food?

A Yes. That was part of the presentation I had.

Q How was that information conveyed to you, the FDA's proposed plans?

MR. SCHINK: You mean the contemplation of FDA?

MR. POPE: Yes.

BY THE WITNESS:

A This was a result of discussions with members of FDA, both in my presence in also directly with Mr. Wheeler, who in turn discussed it with me.

BY MR. POPE:

Q Do you know where the numbers came from, .5

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parts per million milk and 5 parts per million food?

A FDA.

Q Do you know where they derived those as standards?

MR. SCHINK: Are you asking about some person in the employ of FDA or some official proclamation?

BY MR. POPE:

Q Were the numbers that were derived from what, a publication, study or somebody dreamed it up on their own?

A In my presence and my understanding, the analogy was drawn with DDT.

Q That was they were similar numbers?

A At that time DDT had these numbers and FDA was contemplating just adopting those numbers as first approximations.

Q Was the technology available to the food industry for the detection of DDT transferable to the detection of PCBs at that point in time?

A The DDT analytical methodology had to be revised to make it specific for PCB analyses. The same instrument is used and the same kinds of steps, but the sample preparation is different and the interpretation of the graph is different.

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Q At this meeting in April 1970, was there any discussion of how the adoption of such limits by the FDA would affect Monsanto?

A I didn't get the first part.

Q At the meeting was there any discussion of what effect the adoption by the FDA of such limits would have on Monsanto?

A No. When the item was raised, it was concluded that from our perspective as industrial chemical producers, we could not associate ourselves as being involved with food in this fashion, so we could not relate directly except as a use by potential customers of our products and how it might affect the food.

Q Was it discussed as an indirect adverse effect on Monsanto if the FDA were to adopt such limits?

A Yes.

Q Did you advise the Corporate Management Committee that a program had to be established to curtail discharges from Monsanto plants?

A Yes.

Q Did you advise them that the program had reduced levels by 90 percent?

A I don't remember the number.

Q Was that number, 90 percent, a fair estimate

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of what had been affected by way of production at that point?

A It was in the high 90s as I recall, even better than 90 percent, but I don't remember the number.

Q Do I correctly understand that is reducing PCB levels by 90 percent?

A Yes.

Q I take it that is reducing PCB levels in the effluent by 90 percent from Monsanto plants, is that correct?

A Yes.

Q Which plants are we talking about?

A That would be the three U.S. plants: W. G. Krummrich Plant, Anniston and the John F. Queeny Plant.

Then we had the facility in Wales at Newport, Wales, and we also were working with the partnership in Japan with that plant.

Q You were lumping all five of these plants together in terms of work that had to be done to curtail the discharges of PCBs?

A Yes.

Q Specifically what steps were taken at Anniston to reduce PCB discharges in the plant effluent?

A At Anniston it was a matter of reviewing the

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program already in place which was a very effective program, so the reduction there was not as dramatic. It was almost in place.

Q When you were still there?

A Yes, in late '69, yes.

In Krummrich, the Krummrich Plant, we installed special pavements with curbing and we installed a receiving basin underneath a department to catch any spills.

Q Underneath the what?

A Underneath the department, the operating unit. It is called a catch basin; in event there are any spills of a major type the curbing would not contain it.

Q Under which unit?

A The PCB-producing unit at Krummrich, the Krummrich Plant.

Q Where was the curbing installed?

A On the periphery of the concrete pavement that was underneath the producing equipment.

Q Again, PCB-producing equipment?

A Yes.

We also provided such a pavement and curbing where we loaded tank cars and trucks in case

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there are any spillages as distinguished from leakage, and spillage, accidental kinds of things.

Q I take it the curbing and receiving basin were not set up throughout the whole of the Krummrich Plant?

A No, they were just for the PCB facilities.

Q Just for the PCB manufacturing facility and the place where it was shipped, is that correct?

A Yes, correct.

Q Was there anything further that was done at Krummrich, so far as you know?

A Well, it all depends on what period of time. We had already started this improvement on how we took samples, how we caught leaks under containers, buckets, if necessary, or pans, under pumps.

MR. SCHINK: I think what you are asking is in addition to the in-place programs that he testified were there in the '50s and '60s that we talked about last Thursday.

You want to know about additional things that were done in early 1970?

MR. POPE: He has just talked about a sampling program.

MR. SCHINK: I don't know.

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You weren't sampling for PCBs, were you, in 1969 in Krummrich?

THE WITNESS: Yes, we sampled all units --

MR. SCHINK: You are talking about quality control?

THE WITNESS: Yes. And there we provided devices that would catch any dripping from the sampling nozzle after the sample was taken so that no matter how we shut it off, there would always be some losses. So we improved on that which turned out to be a source of PCBs for the U.S. plant. We just took another look at what we were doing and in other words we just tightened up and approved that procedure.

BY MR. POPE:

Q I take it you also began sampling the effluent at Krummrich for PCB content?

A Yes, once this started in 1970 when our laboratory, Dr. Tucker's laboratory felt that they could confidently come up with some good numbers.

Q When in 1970 was that started?

A Quite early.,

Q January?

A In fact it may have been in place before that in terms of Dr. Tucker getting samples to help develop his method.

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Q What steps were taken at Queeny to reduce the levels of PCBs in the plant effluent?

A The same kinds of things that were addressed to the unit that did the blending of Pydrauls.

Q Did you put a receiving basin in place for the blending of Pydrauls that took place?

A No, that did not lend itself to such an installation because the Pydrauls were not made there continuously. There were other materials there, some of which had water associated with them that had to be flushed and drained from the units, so there it was a matter of a lot of emphasis on high maintenance, good level of maintenance to decrease leakage and spills from pipes and hoses, tanks.

Q The reference here to program has reduced by 90 percent, the PCB discharge, this is by the beginning of April, I take it, the results had been passed on to you?

A Yes, yes.

Q And the reduction by 90 percent, was that from that standard?

A I don't recall the starting point, the base point.

Q Was it from the beginning of the measuring

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process, the first reduction by 90 percent from the first time these PCBs were measured in the effluent?

A I'd have to guess. That would be the logical starting point, but I don't recall.

Q Do you know who was in charge of reporting this data?

A That would have come from the Manufacturing individual in that point in time, probably.

MR. SCHINK: You don't have to guess. If you recall, who gave you the data?

BY THE WITNESS:

A It came from William Kuhn, K-u-h-n.

BY MR. POPE:

Q What was his title?

A Manager, Manufacturing Technology.

Q Prior to going to this meeting, he gave you this data so you would accurately portray to the Corporate Management Committee what your results had actually been, is that right?

A Yes.

Q At that time did he maintain records in his office or under his supervision as to what the PCB discharges were in your plants?

A I don't know if he maintained them. He had

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access to them.

Q At this point of time at the end of April 1970, were there any steps undertaken by Monsanto to measure PCBs in the effluent from its other plants, other than Queeny, Krummrich and Anniston?

A At about this time, we were.

Q Other plants in this country?

MR. SCHINK: Where it might have used a PCB product?

BY MR. POPE:

Q Presumably that is what you had been looking for, but you know, ambitious little critter, it could be anywhere.

A We were, of course, ready and able at this point in time to do this for any of our plants.

Q As of April 20, 1970, were any of your other plants in the United States measuring their effluent for the presence of PCBs?

A Not to my knowledge.

Q Did there come a point in time when those plants began doing this?

A Yes, certainly.

Q When was that?

A Fairly recently with permitting with the EPA

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for plant discharges, commonly known as NPDES Permit.

Q When you say fairly recently, are you referring to 1976 and subsequent?

A Yes.

Q Prior to that time, the other Monsanto plants did not as a regular matter analyze their own effluent for the presence of PCBs, is that right?

A That is true, to my knowledge.

Q A reference at the Corporate Management Committee meeting to nondegradable Aroclors, is that a term that you used?

A I have used that word, that expression, yes.

Q What does that refer to?

A That refers to the chlorinated biphenyls with the five chlorines and some of the four chlorines and higher.

Q Would it be fair to say that your recommendation to the committee with respect to the continued sales of various uses of PCB products had three phases to it: The first being the termination immediately or virtually immediately of certain products such as pesticide extenders; medicinal, dental and cosmetic; cutting oils; a second phase with regard to industrial fluids which was going to be phased out of business

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within a year, and the third phase with regard to transformers and capacitors and perhaps heat transfer units which were going to be continued for the foreseeable future.

Would that be a fair characterization?

A Yes. Generally at that point in time it was a fair characterization.

Q Following your presentation and the answering of certain questions, I understand you left the meeting, is that right?

A Yes.

Q And most of the other people left with you that were not on the committee, such as Mr. Bergen, Mr. Springgate, Mr. Mason; those people?

A Yes.

Q Was there a point in time at which the decision of the committee was communicated to you?

A Yes.

Q When did that take place and who communicated it to you?

A I believe it was either that day or shortly thereafter. Mr. Bergen informed me that the CMC had told Mr. Minkler what they had heard and as far as the presentation was concerned, it was very good but in

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their opinion in some areas it didn't move fast enough and they asked the Organic Division representatives to come back with a more specific program and some revised dates where appropriate and to do so within a month.

Q The request was that the dates be revised making them sooner?

A Sooner.

Q Rather than later?

A Yes, tighter.

Q Did you and Mr. Bergen have any further discussion other than him simply conveying that fact to you?

A Yes.

Q Such as how are we going to do that or something like that?

A Correct, how and when and how are we going to do this.

We decided for the two of us that we should do it quickly; in other words, even though we had a month to do it, we shouldn't take that long.

We were anxious to get approval. In the meantime, several of us were scheduled to go to Europe and get information from that part of the world.

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Q That is your visit to Stockholm that you anticipated taking in May?

A Yes. We were scheduled and we were going to leave within a week, as I recall, so we certainly didn't have time between the three of us: Dr. Keller, Elmer Wheeler and I to work up a revised plan. As I recall, Mr. Bergen agreed that he would discuss this with Mr. Mason and he would certainly play the lead role in my absence as far as the Functional Fluids Group was concerned.

That was the gist of that discussion.

Q Were you able to accomplish anything further with regard to that request from the Corporate Management Committee prior to the time you left for Sweden?

A Did I personally? Not that I recall.

MR. POPE: Let us have the reporter mark this 4-page document, first page of which has a little note, "From the desk of Mr. Minkler, W. B. Papageorge," and in the lower right-hand corner there's the numbers 0001543.

MR. SCHINK: Is that the same document that was marked as Exhibit 32 with the exception of the little buck slip in the sense that it has the same words and excerpts from that same meeting?

Do you want to mark both of them?

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MR. POPE: Yes, sir.

(Papageorge-OMC Deposition

Exhibit No. 33 marked for

identification, 8/31/81, TLU.)

BY MR. POPE:

Q Mr. Papageorge, I would like to hand you Exhibit 33 for identification and ask you to take a look at it and tell me if you have ever seen that before.

A Well, I have looked it over and it appears to me to be identically worded to the previous exhibit.

MR. SCHINK: The question is have you ever seen it before, Exhibit 33.

BY THE WITNESS:

A I don't recall this one because my name is misspelled on it.

BY MR. POPE:

Q You would have recalled that. So Exhibit 33 is the one that has a note from Mr. Minkler, is that right, is that his handwriting? Do you recognize that, Mr. Papageorge?

A I don't know Mr. Minkler's writing.

Q So Exhibit 33 is not identical to Exhibit 32 insofar as it has your name misspelled and it seems to

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typed up in a different format, is that right?

A It appears to be, yes.

Q For example, it is on three pages as opposed to being on two pages, is that right?

A Yes.

MR. SCHINK: I think the words, however, are the same.

MR. POPE: Mr. Schink, I would terminate this line of inquiry if you can tell me why we've gotten two different formats of the same basic language.

MR. SCHINK: I would be glad to.

To the best of my knowledge, Exhibit 32 is the official minutes and 33 is, I guess, excerpts from the minutes in a draft form and that has a spelling error on Mr. Papageorge's name, which was corrected in 32.

I have looked at the two of them. They appear to me to have all the same words.

BY MR. POPE:

Q Let me ask you this, Mr. Papageorge:

We are still focusing on Exhibit 33 for identification -- was that submitted to you in draft form for you to review before the final official form of the minutes was prepared?

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A I recall Mr. Ehlers discussing it with me.

Q The Secretary of the meeting?

A Yes, sir. I don't recall what pieces of paper I looked at.

Q The bulk of roughly more than half of the exhibit relates to your presentation, does it not?

A Yes.

Q You don't remember whether you reviewed a draft of these minutes before they became final, do you?

A No, I do not.

MR. POPE: Do you want to break for lunch here?

MR. SCHINK: Fine.

(At 1:15 o'clock p.m., a luncheon recess was taken to 2:00 o'clock p.m., this same day.)

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