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

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

The deposition of JAMES RICHARD SAVAGE, called by the Outboard Marine Corporation for examination, pursuant to notice and agreement 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, Chicago, Illinois 60601, on the 27th day of January, A.D. 1982, commencing at 11:00 o'clock a.m.

PRESENT:

MS. ELIZABETH STEIN,
(Pollution Control Section
Land & Natural Resources Division
Department of Justice
Washington, D.C. 20530),

appeared on behalf of the
United States of America;

PRESENT: (Continued)

MR. MICHAEL A. POPE,
MS. ROSEANN OLIVER,
(Phelan, Pope & John, Ltd.
30 North LaSalle Street
Chicago, Illinois 60602),

and

MS. JOANNA C. NEW,
(Martin, Craig, Chester & Sonnenschein
115 South LaSalle Street
Chicago, Illinois 60603),

appeared on behalf of Outboard Marine Corporation;

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

appeared on behalf of Monsanto Company.

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# I N D E X



# E X H I B I T S



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(Witness sworn.)

JAMES RICHARD SAVAGE,

called as a witness herein, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. OLIVER:

Q Would you state your name for the record?

A James Richard Savage.

Q Are you employed by Monsanto Company?

A Yes.

MS. OLIVER: Let the record show this is the deposition of James Richard Savage, taken pursuant to notice and agreement of parties and the Federal Rules of Civil Procedure.

BY MS. OLIVER:

Q Mr. Savage, where do you presently live?

A St. Louis, Kirkwood, Missouri, a suburb of St. Louis.

Q What is your business address?

A 800 North Lindbergh.

Q Is that Monsanto's main offices?

A Yes.

Q What is your present position with Monsanto?

A I am Director of Licensing with the Chemical

Intermediates Company.

Q What is your job as Director of Licensing?

A I am involved in the selling, licensing technology transfer associated with use by other companies of Monsanto processes.

Q Could you give me an example of what that means so I can understand it?

A As an example: A British company, British Petroleum is building an acetic acid plant at this time, using our process and I am involved in the contract for negotiating such a transaction and for seeing to it that our technical work is carried out.

Q When you say other customers or companies may use your processes, do you mean your products?

A No, processes for making products.

Q So you are involved in helping other companies --

A Make products.

Q -- make products?

A Right.

Q And they use Monsanto's technology to make products?

A Yes.

Q What are the types of products that are in the Chemical Intermediates Company?

A Chemical Intermediates Company produces basic raw materials, about half for other parts of Monsanto and about half for sale outside.

Q What type of products are in the group?

A Mostly basic petrochemicals, monomers, some industrial acids.

Q What are monomers?

A Monomers are the building blocks to produce plastics.

Q Are hydraulic fluids in the Chemical Intermediates Group?

A No, they are not. They are in the Industrial Chemicals Group.

Q How long have you been in the Chemical Intermediates Group?

A About six years.

Q How long have you been Director of Licensing in that group?

A I've had this title for one year.

Q Before joining the Chemical Intermediates Company, what was your job?

A I was in the Industrial Chemicals Company in the Specialty Products Business Group as Manufacturing Manager.

Q What period of years?

A Approximately 1970 to 1975.

Q How long have you been with Monsanto?

A Since 1957.

Q Before becoming Manager of Manufacturing for Industrial Chemicals, what was your job?

A I was at the Queeny Plant at St. Louis as General Superintendent of Technical Services and Laboratory. That was about three years.

Q For three years did you say?

A Three years, about.

Q Before that position at Queeny, what was your position?

A I was at the Krummrich Plant in Sauget, Illinois, as Superintendent of Technical Services.

Q For how many years or what period of time?

A For some time I also had the title of Group Leader but with very similar responsibilities between the job of Group Leader and Supervising Engineer and Superintendent. I was there for about three years.

Q I take it Superintendent of Technical Services is a formal title?

A Yes.

Q What were the responsibilities?

A At Krummrich?

Q Yes.

A Informally I was called a Group Leader. I had about a dozen chemical engineers, one mechanical engineer, one draftsman and our job was to do technical improvements in the plant.

Q In the product being made in the plant?

A The Krummrich Plant makes a large number of products. I had about one-fourth of those.

Q What product area were you involved in in Technical Services at the Krummrich Plant?

A Chlorine, Aroclor, nitrochlorobenzene, nitrochlorobenzene derivatives.

Q Are you a chemical engineer?

A Yes.

Q Do you have a degree in chemical engineering?

A Yes, University of Wisconsin.

Q What year?

A 1957.

Q I take it you joined Monsanto upon obtaining your degree?

A That's right.

Q Do you have any further degrees, other degrees?

A No.

Q Is that a Bachelor of Science Degree in Chemical Engineering?

A That's right.

Q Before taking over as Superintendent, Technical Services at the Krummrich Plant, what job did you have?

A Immediately before that I was called a Supervising Engineer in the same group.

Q You worked on the same products?

A No, at the time I was Supervising Engineer, I only worked on chlorine.

Q What type of work did you do with chlorine?

A We developed projects to improve the manufacturing operation, the chlorine-manufacturing operation.

Q I understand that chlorine is added to the process to manufacture the Aroclor product, or was?

A Yes, it is one of the raw materials.

Q So your involvement with improvements in methods in chlorine would also be related to your work with the Aroclors?

A Marginally.

Q The improvements you made in the techniques for chlorine would be used or could be used in the manufacturing process for Aroclors?

A Not really. The purpose of the chlorine

plant was to manufacture chlorine and caustic soda for use in a number of different operations in the plant.

The Aroclor Department essentially was one customer who took chlorine gas from a general distribution pipeline so the only interaction was that the chlorine plant supplied it. They were one of the users.

Q In this short period of time that you were Supervising Engineer for chlorine processes, was the chlorine plant in which you worked at the Krummrich Plant?

A Yes.

Q That was part of the Krummrich facility?

A Yes.

Q How long a period of time were you Supervising Engineer?

A About one year.

Q Correct me if I'm wrong, but we are in the period of about 1966 now?

A At the time I was Supervising Engineer, it would have been about 1964. By '66, I would have been Superintendent.

Q Before 1964, what was your position?

A I was at Anniston Plant. My last assignment at the Anniston Plant was that of Production Supervisor.

Q Did you hold several jobs at the Anniston Plant before leaving?

A Yes.

Q What other jobs did you have there?

A The first job that I had was as Technical Service Engineer, the first job at Anniston. That began in 1958.

It was in about 1961 that I became Production Supervisor.

Q Am I correct that you were Technical Service Engineer from 1958 to 1961?

A Yes.

Q From 1961 to 1964 you were Production Supervisor at Anniston?

A I was Production Supervisor for two years. It would have been late '63 when I left Anniston.

Q In 1961 what were the products being manufactured at Anniston?

A Parathion, Aroclor, Aroclor blends, biphenyl, terphenyl, chlorine, muriatic acid.

Q As Production Supervisor, what was your responsibility with respect to products being manufactured there?

A My initial job was as Supervisor of Chlorine

Department for a period of one year. After that I was also Supervisor of Aroclor Department as well as Chlorine Department.

Q Was the Chlorine Department the department which provided the raw chlorine, for example, to the Aroclor Department?

A Yes.

Q To make the Aroclor product?

A Yes.

Q What was your responsibility as Supervisor of those two departments?

A The Production Supervisor has responsibility for meeting the production schedule, for labor relations, for assuring that the product is of proper quality, for pollution control, for safety of workers; obviously for cost control.

Q From 1961 to '64 or '63 when you left Anniston, who did you report to?

A Carl Adelblut was my first immediate superior when I became a Production Supervisor. He was Production Superintendent.

Sometime during that period of time he was replaced by Bob Moody.

Q What were those gentlemen's titles?

A Production Superintendent.

Q Was there a Plant Manager --

A Yes.

Q -- the Production Superintendent would report to?

A Yes.

Q Who was that during that period of time?

A I am not sure. During the period that I was at Anniston, Ed Hosmer was first Plant Manager and later he was replaced by John McClain, but I don't remember when the change occurred.

Pardon me, I left one out, Bob Pohl.

Q Were you involved at all in the manufacturing specifications for the Aroclor, any of the Aroclor-bearing products?

A Product specifications?

Q Yes.

A It was my job to be sure that the products that we made satisfied the specifications.

Q Were you involved in development of those specifications for any of the products?

A No. Those specifications were older than that.

Q During the period of time when you knew products would be developed for manufacturing and marketing by

Monsanto, specifications would be prepared?

A Yes.

Q Were you involved in preparing any specifications during the period of time that you were at the Anniston Plant?

A No, not that I recall.

Q Your responsibility with respect to product specifications was to see that they were met?

A Yes.

Q What is parathion?

A Parathion is an organophosphorus insecticide.

Q That was manufactured at the Anniston Plant?

A Yes.

Q As Production Supervisor at the Anniston Plant, what responsibilities did you exercise with respect to pollution control?

A Our responsibility was to control any effluent from the plant and be sure that no discharges occurred that were not within our normal practice.

Q What was the normal practice of discharge at the Anniston Plant?

A As a Production Supervisor, at the time I was Production Supervisor?

Q The time you were there.

A Well, the plant had a number of different products and there were different practices appropriate to each of the departments.

Q Was there an effluent discharged from the Anniston Plant?

A Yes, we had sewers.

Q Was there any discharge into streams or rivers?

A Not directly, no.

Q What do you mean by not directly?

A As an example, the Parathion Department had a treatment plant and waste from it went to a city treatment plant, but that eventually did get into a river.

Q With respect to that discharge from the Parathion Department, what pollution control precautions or methods were in effect at the time you were at the Anniston Plant?

A Quite complicated: The waste included a number of materials that had a biological oxygen demand and it was necessary to control those quantities at a level that would not upset the treatment plant.

Q Was there a routine sampling procedure set up?

A Yes.

Q Effluent would be sampled on a routine basis?

A Yes.

Q To determine what was discharged?

A Yes.

Q Who was in charge of setting up that program or maintaining that program?

A The sampling program was administered by someone in the laboratory.

Q That was under your supervision?

A No, that was under the supervision of the chief chemist in the plant.

Q Did the chief chemist report to you?

A No, the chief chemist reported to the Plant Manager.

Q Were you made aware of what the discharge sampling data indicated?

A Pardon me, if you can clarify in which job.

Q I was talking about while you were Production Supervisor. One of your responsibilities as I understood you to testify was that you were concerned, one of your responsibilities was with pollution control at the plant?

A Yes.

Q So in the course of those duties, you would be made aware of what the sampling program was indicating?

A Yes.

Q My question a few minutes ago was what precautions of steps were taken to control pollution at the Anniston Plant and you were talking about the Parathion Department.

A Well, I was not a Production Supervisor in the Parathion Department. I was a Technical Service Engineer and that is why I was confused.

Q Are you aware of what the precautions were?

A In the parathion, certainly.

Q Can you tell me what they were?

A We would on the basis of data from the laboratory make various kinds of adjustments in the process to be sure that we were within whatever standards had been set.

Q Did the Parathion Department have a separate discharge system where only the discharges from the parathion manufacturing process would be sent?

A Yes.

Q What department were you Production Supervisor of?

A First Chlorine and then Chlorine and Aroclor.

Q As the Aroclor Production Supervisor, what precautions or methods were used to control pollution at the Anniston Plant?

A Speaking of water pollution?

Q First, water pollution.

A I would say they were the ordinary controls that are applied to any industrial chemical operation.

Q What are the ordinary controls?

A There are semester courses on that subject. I don't think I can answer that very simply.

Q Can you describe for me what the controls were that were used in the Aroclor and Aroclor Blend Departments to control pollution during the time you were Production Supervisor?

A We received data from periodic samples from the laboratory. The principal pollutant being controlled was HCL or dilute muriatic acid and if the samples indicated that an excess was being discharged or that we were close to the margin, then we would take corrective action to fix whatever equipment might be the cause of those numbers.

Q Was there a routine sampling procedure set up for the Aroclor and Aroclor Blend Departments at the Anniston Plant?

A Yes, there was.

Q Who was in charge of that sampling program?

A It would be the same person in the laboratory.

Q The head chemist, ultimately?

A Yes.

Q Who was the head chemist at the Anniston Plant?

A There were three different individuals who were chief chemist at Anniston during the time I was there and I don't recall when they changed jobs. Originally, Bill Dunlap; later, Weyland Klemme and finally, there was another person, but I don't remember the other person.

Q Do you know how it was determined that the chief or main parameter of concern was HCL?

MR. SCHINK: I object to the form of the question. I don't think he said it was the main parameter of concern. I think he said it was something he tested for.

BY MS. OLIVER:

Q Well, wasn't it the main parameter of concern?

A It was a known material in the waste we knew we had to control.

Q Were there any other materials that you knew were in the waste from your sampling programs?

A Not that I recall.

MS. STEIN: Could you read the question back that

was asked?

(Record read.)

BY MS. OLIVER:

Q Were you aware, Mr. Savage, at any time during the time you were at Anniston that there was a discharge of PCBs into the waste?

A No.

Q That was never brought to your attention by anyone at Anniston?

A No.

Q Do you know if PCBs were tested for by the laboratory during the time you were there?

A Not to my knowledge.

Q To your knowledge, they were not tested for?

A I don't know that they weren't. I don't remember that they were.

Q Do you know of any reason why they would not have been part of the sampling program conducted for the Aroclor and Aroclor Blend Departments?

A I think we had no reason to expect there would be any substantial amount of PCB in the waste.

Q You later learned, at least up to the present time you are aware there were significant, substantial amounts of PCBs discharged from the Anniston Plant, were

you not?

MR. SCHINK: I object to the form of the question. What do you mean by substantial?

MS. OLIVER: Well, as the witness used substantial in his answer, that is what I am asking.

BY MS. OLIVER:

Q Can you answer the question?

A I guess I can answer the question.

In my later job as Manufacturing Manager, I became aware there was PCB in the waste.

Q When you testified, Mr. Savage, that while you were at Anniston, there was no reason to suspect there was a substantial discharge of PCBs, what is the basis for your not having a basis to believe it?

A As a Production Supervisor, I was responsible for cost and the major component of cost is raw material consumption. It was possible to account very well for all of the raw material being consumed and therefore there was no difference to look for.

Q Was that the basis that was used by the Anniston Plant personnel in determining what was in their plant discharge or effluent?

A That would be one of the bases for deciding whether or not to look, yes.

Q What other bases were used for deciding whether or not to look for a chemical parameter in the discharge?

A There might be various reasons to suspect that there was a contaminant in the waste. In the case of parathion, if I can set an example, the waste had a distinct color.

Q To your knowledge, was there any suggestion during the time you were at Anniston that PCBs should be sampled for in the waste?

A Not that I recall.

Q Do you know when PCBs were first sampled for at Anniston?

A No. That practice began at the time when I had no responsibility for that operation. It was between the time that I was a Production Supervisor and the time I became Manufacturing Manager.

Q Sometime between 1964 and 1970?

A Yes.

Q Do you know how many chemists were employed in the laboratory at Anniston?

A No, I don't.

Q Was it more than ten?

A No, certainly less.

Q More than five?

A I don't know. The reason why I don't know is simply that I don't know how many of the people who worked in the laboratory were chemists. There were also technicians.

Q Did the laboratory at Anniston have the technical capability during the time you were there to find PCBs in the effluent if they had looked for it?

A Not that I know of.

Q Do you know that there was not the technical capability?

A I don't know there was not, but I was never aware of such a capability.

Q You don't know one way or the other, whether there was or wasn't?

A That's right.

Q Do you know what equipment was used in sampling the waste effluent from the Anniston Plant, what type of equipment was used?

A For the taking of samples?

Q For the analysis to determine what was in the sample.

A In generality. I am not expert in analytical chemistry.

Q Do you know generally what equipment was

available in the laboratory?

MR. SCHINK: Do you know what was available or what was used?

MS. OLIVER: What was used. What was available was used, I take it.

BY THE WITNESS:

A For the purpose of waste water analysis?

BY MS. OLIVER:

Q Yes.

A I don't really know.

Q Were you aware of any fish residue analysis done at the Anniston Plant?

A At that time?

Q Yes.

A No.

MS. STEIN: May we clarify the period of time?

MS. OLIVER: 1961-1964.

BY MS. OLIVER:

Q Do you recall during the period of time you were at Anniston that there were any pollution problems with the waste water that required steps by Monsanto to control pollution?

A Yes, in the Parathion Department.

Q What was the problem that came up with parathion?

A The waste water load from the department was larger than the municipal plant could tolerate. We had to take significant steps to correct that.

Q What happened as a result of that?

A We built our own treatment plant.

Q Did the parathion then spill out from the municipal treatment plant facility?

A The pollutant was not parathion. It was a by-product.

Q Did the pollutant spill out over into other waters?

A Not spill. What occurred was that it was difficult for the operators of the municipal plant to make the plant run right and they would not have good treatment.

MS. OLIVER: Could you read the question and answer.

(Record read.)

BY MS. OLIVER:

Q While you were at Anniston, did you learn there were problems with fish being contaminated with the parathion --

A No.

Q -- by-product?

A No.

Q How was the Aroclor Department set up for the production of Aroclors? How many employees worked at the Aroclor production of the company?

A There was a group of about 60 people who jointly operated the biphenyl/terphenyl Aroclor complex.

Q When you refer to Aroclor, what products are you referring to?

A Chlorinated biphenyl.

Q When you refer to biphenyl products, what are you referring to?

A Well, biphenyl is a specific term for a specific compound. When we spoke of the Biphenyl Department, we were speaking of production of both biphenyl and terphenyl.

Q In which of those two departments was the specialty fluids produced?

A The Aroclor Department was part of the specialty products business.

Q What I am asking, Mr. Savage, is what products came out of the Biphenyl Department.

A Biphenyl Department itself made biphenyl and terphenyl.

Q Which were then used in the Aroclor Department?

A Which were then used in the Aroclor Department as well as sold.

Q So the Biphenyl and Terphenyl Departments were part of the raw material processes?

A Yes.

Q That were then used in the Aroclor?

A Yes.

Q Would it be the Chlorine Department, the Biphenyl Department, Terphenyl Department which would all contribute to the manufacturing process in the Aroclor Department?

A That's right.

Q Were there 60 people who worked in the manufacture of the Aroclor products?

A At a given time, perhaps two-third of them were involved in Aroclor and perhaps the other third in biphenyl or terphenyl.

Q Do you know what percentage of production at Anniston came from the Aroclor/terphenyl/biphenyl part of the operation?

A No, I don't.

Q How many employees worked at the plant during the time you were there?

A About 200.

Q That would include the laboratory technical service?

A Yes.

Q And manufacturing?

A Yes. And the Maintenance Department.

Q Were you involved as Production Supervisor of the Aroclor Department in manufacturing forecasts determining how much should be manufactured?

A No, my job was to produce according to the schedule.

Q Who provided you with the schedule?

A I don't really know. It came from the General Office.

Q In the Aroclor Department, what steps were taken to prevent water pollution?

A In the Aroclor Department?

Q Yes.

MR. SCHINK: You are now talking about preventing Aroclors from getting into the waste water?

MS. OLIVER: Yes.

BY THE WITNESS:

A I would say the principal precaution was maintenance of equipment to prevent leaks.

BY MS. OLIVER:

Q Were there leaks in the equipment?

A Sometimes.

Q Would they occur during the normal course of using the equipment?

A Yes.

Q How were the leaked materials disposed of?

A We would use Floor-Dri compounds of some kind to adsorb the material, shovel it into drums. The drums were taken to a landfill.

Q Is that the only method that was used?

A Yes. Rags instead of Floor-Dri compound, where it was appropriate.

Yes, in general, that was the way.

Q How would any PCBs find their way out of the plant into the municipal treatment waters outside the plant?

MR. SCHINK: I object to the form of the question. He said he was not aware there were any at that time in the waste.

MS. OLIVER: He was aware since then that they had been found.

MR. SCHINK: But he didn't say he was aware since then they were in the waste at the time he was there, so there was no foundation.

BY MS. OLIVER:

Q Do you know how that could have happened, Mr. Savage?

MR. SCHINK: How what could have happened? I object to the question.

BY MS. OLIVER:

Q Do you understand what I am asking, Mr. Savage?

A Not really. You are asking me how something happened that I wasn't aware of and I don't understand.

Q You are aware today, are you not, that PCBs were discharged from the Anniston Plant and found their way into streams and municipal treatment plant sewers and waters generally outside the plant?

A Yes, I later became aware of that.

Q What I am asking you is from your knowledge of the production and the operation of the Anniston Plant and the Aroclor Production Department, how did that happen?

A I think based on our later study that we began to understand that that was even very small leaks which later one would be washed down or perhaps due to rainfall could create small concentrations of PCBs in the waste water which we eventually did learn to measure.

Q Let us start with the leaks. They were from

the production part of the operation, correct?

A Not routine, but they were due to malfunctions of production equipment.

Q Would you expect them to occur on occasion?

A Yes.

Q You said the materials could be washed down. What do you mean by that?

A As a matter of housekeeping, if the floors are cleaned from time to time.

Q The water, washed down with water?

A Yes.

Q Where would the water go?

A In the sewer.

Q Were there floor drains which would take the water from the floor?

A Of course.

Q And take it to a sewer?

A Sure.

Q Were there floor drains in and around the production facility?

A Let me ask you again as to what time period you are talking about. Are you talking about the time I was Production Supervisor?

Q Yes.

A At that time, yes, there were floor drains and sewers in various areas all over the department.

Q How often would the floors be washed down during the day?

A I don't think it would be every day. It was a matter of housekeeping, when they would get dirty.

Q When did you determine that the source of the PCBs being found in the discharge were these leaks being washed down and out of the plant?

MR. SCHINK: I object to the form of the question. He didn't say the leaks were washed down. He said the Floor-Dri was used to adsorb the material. It was shoveled into drums and landfilled. I object to the question. It mischaracterizes his testimony.

BY MS. OLIVER:

Q When did you make this determination of how the discharge occurred?

A I got into my job as Manufacturing Manager. There was at that time already in place a program of measuring discharges from the Aroclor Departments and it had been determined that -- I guess I shouldn't say determined. We had concluded that washing down floors must have been some of the source because we were not successful in identifying clearcut process sources.

Q Did you determine any other source of the discharge?

A Speaking in the time frame of Manufacturing Manager in 1970-1975, we discovered that there was a process water stream which could be contaminated with PCBs.

Q What was a process water stream? What do you mean by that?

A There was a step in which small amounts of HCL was removed from the product and that HCL stream was scrubbed with water. And at some point we discovered that that stream contained a small amount of PCBs.

Q And the HCL would be discharged into waters outside the plant?

A Yes.

Q As part of the routine process?

A The HCL did not leave the plant. It was first neutralized, but it was in the waste water leaving the department.

Q Whatever PCBs were there would go out in the waste water?

A Not all of it. Some of it would become trapped in the sludge of the neutralization process.

Q But you concluded that the HCL discharge was

a source of PCBs being found outside the Anniston Plant?

MR. SCHINK: I object to the question. His testimony was it discharged from this department to the treatment plant where these materials were treated. I don't think you're properly characterizing his testimony.

MS. STEIN: I don't believe he testified there was a treatment plant.

BY MS. OLIVER:

Q My question is simply, Mr. Savage, did you conclude at some time that the HCL discharge was a source of the PCB getting outside of the Anniston Plant?

A We concluded that it was a probable source.

Q Did you ever confirm that that was the source?

A I think sometime in the early '70s we did and analytical measurements that were done confirmed that.

Q Can you tell me when you concluded the HCL discharge was a source?

A No, I am sorry. I don't remember the time that well.

Q It was between 1970 and 1975?

A Yes.

Q Were there any other sources that you determined could be related to the PCB discharges?

A Not that I remember.

Q How did you first become aware that there were PCB discharges from the Anniston Plant?

A In entering my new responsibilities in 1970 as Manufacturing Manager, this was part of the understanding that I derived from my predecessor, was that there was some discharge.

Q Who was your predecessor?

A Bill Kuhn.

Q Did he tell you how he had learned of the discharge?

A I don't remember.

Q Did you discuss with Mr. Kuhn any steps that should be taken at the Anniston Plant?

A There was at that time a modest program under way, but I don't recall what it was.

Q Mr. Savage, if you had become aware in 1961 through '64 of a discharge of PCBs from the Anniston Plant, would you have recommended any steps to be taken?

A If I had been told there was a discharge of PCB from the department for which I had responsibility, I would be expected to try to prevent it, if I had the means.

Q Why would you have been expected to try to prevent it?

A Because I was a Production Supervisor and that would have been part of my responsibility.

Q What was your understanding of PCBs and why they should not be getting out of the plant?

A At the time that I was Production Manager, I had never heard of the term PCB and I was not aware of any special properties of PCB related to pollution.

Q So even as a person with responsibilities for pollution control, you would not have been concerned had you known that PCBs were getting out of the plant?

MR. SCHINK: I object to the form of the question. He previously testified that had he been told that he would have taken steps to prevent it, so he has already testified to his concern. I think you are mischaracterizing his prior testimony to the question.

I object to the form.

BY MS. OLIVER:

Q Mr. Savage, my question is did you have any information about PCBs in the period that you were Production Supervisor for the Aroclor Department that would have led you to be concerned if you had been told that PCBs were being discharged?

A Nothing specific.

Q Anything general?

A The Aroclors are industrial chemicals and just as a general common sense matter, one does not allow unnecessary emissions of chemicals.

Q You were aware that it was possible that PCBs that had leaked from the production operation were being washed into sewers and out of the plant, were you not?

MR. SCHINK: When?

MS. OLIVER: During the period of '61 through '64.

MR. SCHINK: He has already testified that he wasn't aware that there were PCBs in the waste during that time period.

I object to the form, no foundation.

BY MS. OLIVER:

Q You can go ahead and answer.

MR. SCHINK: Do you have the question in mind? Do you want her to read it back?

THE WITNESS: Would you repeat the question?

(Question read.)

BY THE WITNESS:

A The possibility was present, but I was not aware that it was in fact happening.

BY MS. OLIVER:

Q Did the possibility lead you to make any recommendations?

A Did it?

Q Or steps to prevent the occurrence?

A Not that I recall.

Q Do you know when Monsanto first learned that PCBs were being found outside the Anniston Plant?

A No, I don't know exactly.

Q Do you know if it was in 1967?

A No, I don't know that. I only know when I became aware of it.

Q You never learned when Monsanto first obtained the knowledge?

A No.

Q When you left the Anniston Plant, who was the Plant Supervisor?

A The Production Supervisor?

Q Plant. Is there a Plant Supervisor?

A You mean Plant Manager?

Q Plant Manager, I am sorry.

A I think it was John McClain.

Q When you left the Anniston Plant and went to the Krummrich Plant, you were involved as Technical Services Engineer for the Aroclor products?

A Not as a working engineer. I was a Superintendent for the engineers who worked for me.

Q Was your responsibility in part at least to be responsible for the manufacturing of the Aroclor products at Krummrich?

A The manufacturing itself was the responsibility of the manufacturing organization, production organization. We provided service to them.

Q What types of services would you be called on to provide?

A We would analyze process problems or definite projects to make improvements.

Q Improvements in what?

A In some cases, production capacities; in some cases, cost reduction; in some cases, pollution control, safety improvements.

Q At the Anniston Plant, I think you told me that one of your responsibilities was to provide for worker safety.

A Yes.

Q With respect to the Aroclor Department, what steps or recommendations did you make for worker safety?

A I don't recall any specific changes that were made during the time I was in charge.

Q Were there any handling precautions for the Aroclors?

A There were the normal precautions that we would apply to any product, meaning that we instructed our workers not to get the materials on them, not to breathe anything unnecessarily.

Q Did anyone inform you or advise you that any of the Aroclor products were toxic?

A Part of our department documentation at the time said that there was possibly a toxicity problem with the still residue, a by-product that was generated as part of the purification process.

Q What was that by-product that was generated?

A The purification step is a distillation. At the completion of distillation, there is a heavy material left in the distillation equipment that must be removed and discarded. That is the material I am talking about.

Q Does it have a name or did it have a name?

A Some of these versions were called Montar, but in general, it was called still bottoms or a residue.

Q What was the composition of that residue?

A We never did any analytical work on it. It was similar in composition to PCB itself.

Q Was Montar a product that was ever marketed by Monsanto?

A Yes.

Q What was the purpose of the product or what application did the product have?

A I don't know.

Q You don't know what it was sold for?

A I don't know. I'm sure I knew at one time.

Q Do you know how long Monsanto sold Montar?

A No, I don't know.

Q Do you know how it was similar to PCBs?

A It was a product of chlorinating biphenyl. It surely was PCB.

Q What was the difference, do you know?

A It had a higher boiling point, that part of the product that was being distilled and sold.

Q Do you know what information you were given on toxicity of Montar?

A I don't remember.

Q What were the precautions of the workers used in dealing or handling Montar?

A Our concern was that they not be exposed to the vapor so that when the material was hot, it was handled under a ventilation hood.

Q Is that the only precaution?

A That is the only special precaution. The material was quite hot when it was handled so there was

a thermal hazard that had to be accounted for.

Q As Production Supervisor at Anniston, were you given information from other sources in Monsanto on the products that you were supervising production of?

A Part of my indoctrination in the department was to be instructed in those things by my predecessor.

Q Did you review brochures on the products?

A No, I don't think we had any brochures.

Q Did you review any information from the Medical Department about the products?

A No.

MS. STEIN: I'm sorry, I did not get the answer.

THE WITNESS: No.

MS. STEIN: No information from the Medical Department?

THE WITNESS: No.

BY MS. OLIVER:

Q Were you given any information about the uses of products being produced?

A Yes, I knew what it was for.

Q How were you given information on the uses?

A I guess a principal vehicle was the specification because we knew that to satisfy customer requirements, certain qualities of the product were very important.

Q Do you know what customers used what products?

A In general we would be aware of that because we would know where shipments were going.

Q I take it the Aroclor Department at Anniston included in addition to the specialty products like Therminol and Pydraul fluids, dielectric and capacitor fluids?

A That's right.

Q Did Anniston manufacture all the Aroclor products that were sold by Monsanto?

A I am not sure. I think it is possible there were some products that were made only at Krummrich.

Q Do you know what products were made only at Krummrich?

A No, I don't remember.

Q Do you know why only some products or certain products would have been made at Krummrich?

A There were one or two products and which ones, I don't remember,which were made in such a small volume that it wasn't useful to make them in more than one place.

Q The period of time you were at Krummrich in the early 1960s --

MR. SCHINK: At Anniston?

BY MS. OLIVER:

Q Sorry, Anniston -- during the early 1960s, was Krummrich also manufacturing Aroclor products?

A Yes.

Q Do you know what the manufacturing volume at Anniston was for the Aroclor products?

A No, I don't remember.

Q Do you have any idea today as to the amounts that were manufactured during the time?

A I should think the order of magnitude should have been 30 million pounds per year, but I am really not sure.

Q To your knowledge, did Krummrich manufacture approximately the same amount of PCBs?

A The same order of magnitude, I think.

Q When you became Manufacturing Manager in 1970, do you know what the volume of PCB products manufactured was?

A That was a long time ago. The order of magnitude, I think, was 80 million pounds total.

Q To your recollection, the volume increased from the early 1960s to 1970 from 30 million to approximately 80 million pounds?

A Pardon me, the arithmetic is wrong. The

30 reflected my recollection of what Anniston produced. The 80 reflects a total.

Q Total, so 30 million pounds were manufactured at Krummrich, 30 million pounds manufactured at Anniston?

MS. STEIN: May I ask for clarification, are we talking about on an annual basis?

THE WITNESS: Yes.

MS. OLIVER: That is what I am referring to.

From the early 1960s, from approximately 60 million pounds of PCBs manufactured annually, the production increased to approximately 80 million pounds in 1970?

BY THE WITNESS:

A I think that's correct. There was some increase. Those are very rough numbers, of course.

BY MS. OLIVER:

Q After 1970, did the production decrease?

A Yes.

Q Do you recall what volume was manufactured in 1971?

A No, I don't remember those numbers.

Q Do you recall by what percentage production was increased after 1970?

A No.

Q As Manufacturing Manager in 1970, what was your responsibility?

A I was part of a Specialty Products Business Group and had the manufacturing responsibility reporting to Howard Bergen. The products of the Specialty Products Group were made at a number of different Monsanto manufacturing sites. The line production people at each of those sites reported through their own local administrations for this main line of supervisory control, but it was my job to provide the manufacturing input to the production people at each one of these sites in terms of what the business group needed from them.

Q With respect to the specialty fluids in 1970, what did the business group need from the production people?

A Specifically there was a production schedule that had to be met to satisfy sales requirements. I had to see to it that the plants were responding correctly to whatever the quality needs were. We had goals and cost control.

Q When you became Manufacturing Manager, you knew that there was a PCB discharge that had been found at the Anniston Plant, correct?

A I guess I should correct that and say I became

aware that that was an issue. I don't know at this time I was aware of any numbers, but rather a concern that we had to be sure that discharges were controlled from the manufacturing locations.

Q What was the basis for the concern?

A There had been articles in the technical literature describing discoveries of PCBs in surprising places and it had become apparent that this was a material that should be controlled.

Q Was it your understanding when you became Manager of Manufacturing in 1970 that Monsanto had not confirmed that PCBs had been discharged from its Anniston Plant?

A My recollection is that it was a subject of intense study, that there was a great deal of work going on to develop analytical methods and samples being taken, but I don't recall that we had reached a final conclusion on the subject.

Q When you became Manager of Manufacturing in 1970, was it your understanding that Monsanto had confirmed findings of PCBs in waters in the Great Lakes area and other places in the United States?

A I'm sorry, I don't remember. I do remember that at some point we concluded that this was correct,

but I don't remember at what time we reached that conclusion.

Q What was your involvement in this concern that was ongoing within Monsanto?

A The business group was a team and the Aroclors were an important product that our group manufactured and sold and it was as a member of the team that I was concerned.

Q When you referred to the Aroclors, you mean all the specialty products?

A No, the Specialty Products Group made a number of things that were totally unrelated.

Q What I am asking, Mr. Savage, is when you referred to Aroclors, are you referring not only to the product sold under the brand name, trade name Aroclor, but any of the other specialty products which included Aroclor?

A Oh, that's right. There were other products.

Q When you say the Aroclor products were an important part of the business group, what do you mean by that?

A They represented an important source of sales and profit.

Q In 1970, can you estimate for me what the

profit was?

A I have no idea.

Q What percentage of the profit from the business group came from Aroclors?

A No, I don't know.

Q Do you know what percentage of annual sales came from Aroclor products?

A No.

Q I take it all those statistics were compiled on a quarterly or biannual or annual basis?

A Yes, those were figures that were available to me at that time.

Q Who would be responsible for compiling those sales figures?

A Specifically the accounting organization.

Q They would provide reports on a regular basis to you as the Manufacturing Manager and to the other members --

A Yes.

Q -- of the business team?

A Yes.

Q When you became Manufacturing Manager in 1970, what steps were being taken by Monsanto at that time with respect to the PCB findings or reports?

A As I recall the activity at the beginning of my time in that job, the main effort was to try to confirm or refute the findings that were being reported, develop good enough measurement methods to be able to draw conclusions.

Q Was it your understanding that Monsanto did not have the capability before that time to determine whether PCBs were in the environment?

A I don't think I had an understanding of what other prior capabilities had been. The issue at the moment, the issue at that time was to develop figures in which we had enough confidence that we could draw conclusions.

Q When to your knowledge were you able to draw conclusions?

A I am sorry, I don't remember. It certainly occurred during the time I was Manufacturing Manager, but I don't recall exactly when.

Q What responsibilities were you given with respect to the PCB reports?

A During the period 1970, '71, '72, we developed various programs to provide surer control of our effluents to more routinely monitor laboratory programs for routinely reporting waste content. All during the time I was

Manufacturing Manager, these programs became more and more sophisticated..

Q Were those programs your responsibility?

A The implementation of them in the plant was a responsibility that I was part of. The people at the plants also had part of that responsibility.

Q When you became Manufacturing Manager, was there a program to control effluents from Monsanto's plants under way?

A Specifically Aroclor effluents?

Q Yes.

A As I recall there was some modest program, but I don't know exactly what it consisted of at that time.

Q Why do you call it modest?

A Because it got bigger as the years went by.

Q But to your knowledge and recollection there was some program?

A There was some program.

Q Being carried on?

A Yes.

Q Who would be the person who would know what that program was that was in effect prior to the time you became Manufacturing Manager?

A Possibly Mr. Papageorge.

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

BY MS. OLIVER:

Q Anybody else?

A I don't know.

Q When you became Manufacturing Manager, was there a program in effect at the time to monitor effluent for Aroclor or PCBs?

A Not that I recall because the work at that time was concentrated on being able to develop reliable numbers rather than routinely checking numbers.

Q Who was involved in the work to develop reliable numbers?

A The Research Department.

Q Dr. Richard?

A It was part of his responsibility, yes.

Q Were you advised by persons within Monsanto that the reports were not reliable?

MR. SCHINK: What report are you referring to?

MS. OLIVER: The reports about PCBs that Monsanto was trying to confirm during these years.

BY THE WITNESS:

A I don't recall anyone specifically saying that

to me. It was the other way around.

I asked, I was inquiring myself as to whether we had reliable figures on this and the answer was no.

MS. STEIN: Could you read the question and answer back?

(Record read.)

BY MS. OLIVER:

Q When you were referring to your inquiring with respect to obtaining reliable figures, what figures were you speaking of, reports in general or about Monsanto's own operations?

A My first awareness of the PCB problem itself was prior to 1970 when I read in some technical magazines about these reports. And naturally I was curious and entering the business group, asked whether we had data that would confirm that.

Q Was the response that the data Monsanto had was unreliable or the data on the outside was unreliable?

A The response was that no one's methods were good enough yet to draw a conclusion.

Q Was it your understanding that Monsanto had used certain methods and had conclusions but just were not sure they were reliable yet?

A I don't remember that.

Q Who would be the person that would know if methods to develop reliable figures as you call them were used by Monsanto?

A There were people in the Research Department whose job was methods development. Those are the people that I would look to for that kind of answer.

Q Who in the Research Department did you look to?

A Well, someone from Dr. Keller's group, but I don't remember.

Q Dr. Tucker?

A Yes, that was one person.

Q Anybody else?

A I think there were other people, but I don't remember who they were.

Q Dr. Tucker was providing you with information?

A He was a person that I had heard this kind of comment from, yes.

Q When you refer to this kind of comment, you are referring to the fact that there was a statement there may not be reliable information yet?

A Yes, yes.

Q What was the first reliable information you were advised of concerning PCBs?

A I have no idea.

Q Was your concern with the plant operations?

A That was my responsibility, yes.

Q Was it your responsibility to be involved with findings made by Monsanto at the customer's plant?

A No.

Q Your responsibility was to find out whether there were PCB discharges at Monsanto's facilities and take steps if necessary with respect to those findings?

A At that point the responsibility for finding out had been clearly assigned to the people in Research who were working on the methods. Once there were such findings, then it was my job to do what could be done.

Q You don't recall when you were advised that there were such findings in Monsanto's facilities?

A No.

Q Sometime between 1970 and 1975?

A Certainly.

Q During the period of time before there were such reliable findings in Monsanto's own facilities, did you recommend that any steps be taken at any of the plants with respect to PCB production?

A Not that I recall.

Q Did you consider recommending a reduction in

production during this period of time before you received findings?

A To reduce production?

Q Yes.

A No.

Q Did you recommend any monitoring or control steps during this period of time before you became aware of findings made and found reliable by the Research Department?

A Not that I recall.

Q Was there any consideration given by anyone with Monsanto to take any steps with respect to its own plant operations prior to being advised of these findings by the Research Department?

MR. SCHINK: Ms. Oliver, you are talking about steps in addition to the ordinary controls he testified were used?

MS. OLIVER: In addition to the controls he testified he could recall.

BY THE WITNESS:

A I did not recommend or implement any unusual control step other than the routine steps that were already in place.

BY MS. OLIVER:

Q In 1970 what were the usual control steps being taken for the production of the Aroclors?

A I think we considered the Aroclor Department at this time to be similar to any other industrial chemical operation and attempted to maintain good housekeeping practices, good maintenance practices.

I don't recall any special steps beyond those kind of ordinary good practices.

Q Were the steps in 1970 that you were aware of relating to good housekeeping the same types of steps that were being taken in 1961 through 1964 when you were at the Anniston Plant?

A No, I don't think there was anything different.

Q Were you aware of a PCB monitoring program that was begun in 1970?

MR. SCHINK: By whom?

MS. OLIVER: By Monsanto.

MR. SCHINK: Where?

MS. OLIVER: At its plants.

BY THE WITNESS:

A I am aware we began a monitoring program at our plants. Of course, what I am not aware of is when we began. I just don't remember.

BY MS. OLIVER:

Q Is it your recollection that this monitoring program would have begun after you were advised of the findings by the Research Department and that their conclusion of findings were reliable?

A Yes, that would be the sequence.

Q Do you recall whether there were any considerations? Was any consideration given by the business group to advise customers of any control or monitoring steps that should be taken with respect to PCBs before Monsanto had these findings from its Research Department that it considered reliable?

A Various things were done to advise customers that precautions should be taken with Aroclors such as changes in labeling and so forth.

What I cannot reconstruct at this time is what the sequence was or when we began this practice or how it related to our own findings.

Q If your recollection is that Monsanto didn't take any control or special monitoring steps relating to PCBs before it had findings from its Research Department that it felt were conclusive, do you have any reason to believe that customers were provided with information about special monitoring or control of PCBs before that same time?

MR. SCHINK: I object to the form of the question. It mischaracterizes the testimony.

BY THE WITNESS:

A As Manufacturing Manager, communications with customers were quite far removed from my area of responsibility, so I really wouldn't have any reason to know specifically what we did other than what we did in the area of manufacturing that would be visible to a customer, which is labeling.

BY MS. OLIVER:

Q You knew who the customers were and what products they bought?

A As a generality, yes, I did.

(Discussion off the record.)

(At 12:45 o'clock p.m., a lunch recess was taken to 1:15 o'clock p.m., this same day.)

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. | ) | |

January 27, 1982,

1:15 o'clock p.m.

The deposition of JAMES RICHARD SAVAGE resumed pursuant to noon recess at 200 East Randolph Drive, Room 5800, Chicago, Illinois 60601, before Thea L. Urban.

PRESENT:

MS. ELIZABETH STEIN,

MS. ROSEANN OLIVER,

MS. JOANNA C. NEW,

MR. JAMES H. SCHINK.

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JAMES RICHARD SAVAGE,

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

DIRECT EXAMINATION (Resumed)

BY MS. OLIVER:

Q Mr. Savage, were you involved in 1970 or thereafter with the decisions to substitute certain Pydraul fluids?

A Yes.

Q What was your involvement?

A Since I had the manufacturing responsibility, it was my job to institute production of the new products, phase out the old ones.

Q Who made the decision to substitute the products?

A It was a business decision above me, but I am not sure exactly at what level it was made.

Q Was your only responsibility with respect to the substitute PCB-bearing fluids to see they were manufactured?

MR. SCHINK: Excuse me, I don't understand the question.

BY MS. OLIVER:

Q To see whether they were manufactured according to specifications.

A No, I would say that my responsibility was a little broader than that because when substitute fluids were proposed, I participated in costing them out, responding as to how feasible it was for us to make them.

Q When did you first become advised or informed of the decision to substitute PCB fluids?

A We are speaking of Pydrauls?

Q Pydrauls.

A I don't know. We went through at least two such substitutions where we replaced the line with a new line and I don't know exactly when it occurred.

Q Were the decisions to go with substitute fluids made before you became involved?

MR. SCHINK: You are talking before 1970?

MS. OLIVER: Yes.

BY THE WITNESS:

A I don't know. I was well aware of the decisions when they were made, but I cannot reconstruct when it happened.

BY MS. OLIVER:

Q What was the first recollection you have of any involvement by you about a substitute Pydraul fluid?

A The first recollection was that it was proposed

by someone in Research that we reformulate the fluids to produce a line that was based on chlorinated terphenyl rather than biphenyl.

Q What was your understanding at that time of what a chlorinated terphenyl was?

A Well, precisely that, a product made by chlorinating terphenyl.

Q Instead of biphenyl?

A Right.

Q Replacing the biphenyl with terphenyl?

A Correct.

Q Do you know who made that proposal from Research?

A No, I don't know who first proposed it.

Q Do you know why terphenyl was suggested to be a replacement for the biphenyl?

A The principal reason was that a chlorinated terphenyl would be similarly fire-resistant and at that time and even subsequently, it is my understanding that there have not been other materials found that are more fire-resistant.

Q But the terphenyl to your understanding did not have the alleged unsatisfactory effects of the biphenyl?

A That's right.

Q In 1970 what did you understand an undesirable effect of biphenyl to be?

A The effects that had been described in the literature by various research engineers had to do with accumulation in the environment and the absence of biodegradation or very low biodegradation.

Q Was it your understanding that terphenyl would biodegrade?

A I don't recall that we had any data at the time.

Q Was the suggestion made that it would biodegrade or in terms of biodegradability, it would be more satisfactory to use a terphenyl?

A No, I don't think that was a criterion that I remember being quoted.

Q What were the criteria involved in the terphenyl replacement upon which Monsanto based its decision that the biphenyl should be replaced by terphenyl?

A My participation in that decision was fairly narrow. The questions that I could answer were whether we could manufacture the amounts required, whether we could control the quality properly; the costs would be reasonable.

The other criteria that were applied were the things that Research was concerned about. It was

my understanding that they included things like bio-degradability, but I did not participate in that aspect of it.

Q When you assumed the position of Manufacturing Manager in 1970, was it your understanding before 1970 Monsanto did no environmental testing of PCBs?

MR. SCHINK: I object to the form of that question. What do you mean by environmental testing?

MS. OLIVER: Testing for PCBs in the environment.

MR. SCHINK: For the presence of them?

MS. OLIVER: Yes.

BY THE WITNESS:

A I have no reason to know whether we had done that or not.

BY MS. OLIVER:

Q Did anyone tell you when you assumed the managerial position in 1970 that any testing for PCBs in the environment had been done by Monsanto?

A Samples had been taken and were being worked on in the laboratory at that time with the immediate goal of developing the methods.

Q Other than those samples that recently had been taken, were you aware of any other testing --

A I am not aware.

Q -- done by Monsanto with respect to PCBs --

MR. SCHINK: Let her finish.

BY MS. OLIVER:

Q (Continuing.) -- being present in the environment?

A Not by Monsanto, no.

Q Was it your understanding when you assumed the position of Manufacturing Manager in 1970 that Monsanto was going to replace the PCB fluids as substitute fluids became available?

A I don't remember when that decision was made.

Q Was it a decision that you know was made?

A That we would replace the PCB-containing Pydraul fluids?

MR. SCHINK: As substitutes became available.

BY MS. OLIVER:

Q As substitutes became available.

A Yes, a decision like that was made at some time.

Q Do you know when it was made?

A No, I don't.

Q Do you know who made it?

A No, above me in the organization. I heard the decision from Howard Bergen, but whether he was the

person who made it, I wouldn't know.

Q Was it your understanding in 1970 that Monsanto intended to phase the withdrawal of hydraulic fluids to coincide with the exhaustion of its inventories of PCB fluids?

A At the time that we replaced the PCB fluids with the terphenyl-based fluids, we had a very carefully organized phase-in/phase-out program so that our inventories and our customers' inventories would be smoothly depleted at the same time that the new fluids would become available.

Q Who is the person who was in charge of setting this program?

A There were a number of people involved. Several of us had responsibilities for different things. My responsibility was to assure that the products would be available and at a correct time.

Another gentleman named Earl Potter was in charge of keeping track of the inventories and making certain that what was left could last up until I could make the new materials available and so forth.

Q Do you know who made the decision within Monsanto to place the replacement of fluids, the substitution of fluids on this timetable to coincide with

the exhaustion of inventories of the PCB fluids?

MR. SCHINK: I don't think he testified that that was the program. Those are your words.

BY THE WITNESS:

A The urgent matter was to make the new fluids available and the production of the old ones were phased out in a way that inventories would be depleted by the time we could make the new ones available.

BY MS. OLIVER:

Q My question was whose decision was it within Monsanto to phase out the old inventories of fluids on the schedule?

A The inventory was not an issue of any great importance at the time because the products could be made up and blended on fairly short notice. And it was more a matter of discontinuing the old production at a time appropriate when the new production came on line to be sure that no one ran out as much as making sure there was no inventory.

Q Was it your understanding that the substitute fluids could be developed in a short time?

A That they --

Q That they could be developed in a short time.

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

It assumes that substitute fluids such as terphenyls were not already in existence. I think the witness testified he was making terphenyls back in 1963.

MS. OLIVER: I am talking about substitute fluids that were used in place of hydraulic PCB fluid.

MR. SCHINK: He testified that terphenyl was the substitute fluid used and he testified earlier that that product was made back in the early '60s, as early as 1963.

THE WITNESS: Terphenyl, itself.

BY MS. OLIVER:

Q The substitute fluid with the terphenyl was made for purposes of being sold as a hydraulic fluid in 1970 or '71?

A I don't remember the date.

Q In this period?

A Yes, that was the purpose of the new fluid, was to replace the PCB-containing fluid.

Q Was it your understanding that the development of this new replacement for the PCB fluid could be developed and manufactured and sold in a short period of time?

MR. SCHINK: I object to the form of the question. What do you mean by short period of time?

BY THE WITNESS:

A I have trouble with short period. The development of the new fluids involved a period of work by the people in Research during which they made up various candidate fluids and then tested them in various ways.

I am not intimately familiar of the exact procedures they went through, but I know it took, to me, what seemed a significant period of time.

BY MS. OLIVER:

Q Do you know when it began going through these procedures to try to come up with substitute PCB fluids?

A No, I don't.

Q Do you know if it was before you became Manufacturing Manager?

A No, I don't.

Q Is it your recollection that at some time after you became Manager of Manufacturing, you were advised there was a terphenyl substitute available?

A The first knowledge I had of a terphenyl-based fluid was in the form of a question from Research as to whether Manufacturing could provide a certain terphenyl base stock for blending and at that time, I made my comment about what would be involved in providing that material.

Q That was sometime after you became Manufacturing Manager?

A Yes, yes.

Q And when you made your comments, was it your understanding that the Research Department then went back and came up with a product made of terphenyls?

A Chlorinated terphenyls, that's right.

Q And that terphenyl product was then brought to you for your comment again on the manufacturing aspect of it?

A By the time they had completed the exact recipe of the new fluid, my comments were no longer relevant.

It was then up to me to institute the manufacture of it.

Q When we are talking about a terphenyl product, did you understand one of the terphenyl products to be called Pydraul A-200B?

A Yes.

Q Do you recall a product called A-200A?

A There was a proposed product called A-200A, but I really don't remember whether we made any.

Q Do you remember what it consisted of?

A I don't remember.

Q Do you know whether it was a terphenyl?

A I don't remember that either.

Q Do you remember why you dropped the manufacture or marketing of it?

A It was a false start for some reason, but I don't remember what the defect was.

Q Do you recall to whom that product was sold?

A I don't recall that it was sold. I know that it was proposed, but whether it was manufactured over a period of time, I don't remember.

Q Do you know if it was used as a pilot program by any customer of Monsanto?

A I don't remember. It was intended as a potential replacement for A-200, but --

Q Who would be the person that would know what A-200 consisted of?

A The Research people.

Q Dr. Richard and his group?

A Dr. Stark.

Q Do you recall being advised of the potential product, A-200A?

A I remember A-200A, that it was proposed.

Q That is the substance, the total of your recollection about it?

A Yes, because if it was made, it was not made for any extended period of time.

Q Do you know if there were any priorities with respect to customers in getting substitute fluids made available to them?

MR. SCHINK: You are talking now about for testing purposes or after full scale production began?

MS. OLIVER: I am talking about sale for actual use by customers.

BY THE WITNESS:

A It is my recollection that the phase-out of the old products and the phase-in of the new ones happened over a very short period of time and I don't remember that any one customer had priority compared to another.

BY MS. OLIVER:

Q Were you aware of any problems with respect to any customers in regard to the replacement of substitute fluids?

A I don't recall any problems that were brought to Manufacturing as something we should solve. No, I don't.

Q Do you recall any problems with customers that you might have heard about that was not something for

Manufacturing to solve, but you were aware of as part of the business team?

A The only kind of things that I heard about relating to Pydraul customers were ones of supply, being able to respond quickly to a requirement of the customer.

Q With the substitute fluids?

A I don't recall any specific problems with the substitute fluids. It was a sizable logistical job to phase out the old products and phase in the new ones and one we felt we had done pretty well at.

Q Other than what you have told us in regard to your responsibility for the manufacturing and production of substitute fluids, did you have any other involvement in decisions made with respect to substitutes?

A Substitute Pydrauls?

Q Substitute Pydrauls.

A Well, there were two generations of substitutes, at least two that I can remember, and we went through the same thing again with another generation of fluids and I had similar responsibilities again.

Q Other than the manufacturing and production responsibilities, did you have any other involvement --

A No.

Q -- in the production?

A No, that was my job.

Q Do you recall what the second round of substitutes involved?

MR. SCHINK: What was the substance that was used?

BY THE WITNESS:

A The one that I described as a second round, meaning the last one that I remember, was the one where we went to fluids that contained no chlorinated hydrocarbons at all and instead were based on the phosphate ester that we called an E and C series, I believe.

BY MS. OLIVER:

Q Did you learn at some time that the substitute fluid that was called A-200B had PCB in it as well as A-200?

A I recall learning that all the terphenyl-based fluids had a small amount of PCB in them, yes.

Q When did you learn that?

A It was sometime after the introduction of the so-called B series.

Q How did you learn that?

A I don't remember how it came to light. Someone had some analytical data, but I don't remember where it came from.

Q Was the decision made in Monsanto to substitute

terphenyl for another fluid without terphenyl or biphenyl?

A After it was discovered that there was some PCB in the terphenyl-based fluid, yes, we decided to develop a line of Pydrauls that was essentially all phosphate ester.

Q Do you know if that development process had been started with learning that the B series had PCBs in it?

A There was some development effort on all phosphate fluids that were started before that discovery, but it is my recollection that it was fairly low-key and not entirely successful.

Q Do you know how long that development process had been going on before?

A No.

Q Do you know whether it was going on before you became Manufacturing Manager?

A No, I don't.

Q As Manufacturing Manager, you also had responsibility for monitoring and analyses at the Monsanto Plant, is that correct?

MR. SCHINK: Excuse me, as Manufacturing Manager?

MS. OLIVER: Yes.

MR. SCHINK: I don't believe that was his testimony.

BY MS. OLIVER:

Q Were you involved in the programs or practices established for monitoring?

A I had broad responsibility for quality of the products, yes.

Q That included methods or means used to remove PCBs from effluent at Monsanto's own plants?

MR. SCHINK: He just testified he was responsible for the quality of the products.

BY THE WITNESS:

A Excuse me now. When she spoke of analysis, I assumed you were talking about analysis of product.

MS. OLIVER: I was talking of --

MR. SCHINK: Waste water discharge from the plant?

MS. OLIVER: Waste water discharge from the plant, yes.

MR. SCHINK: The question was was that your responsibility while you were Manufacturing Manager from '70 to '75.

BY THE WITNESS:

A It was not my responsibility to receive the daily reports and respond to what the figures were. I had a broad responsibility to oversee the people at the plant who were responsible for doing such things and

to take corrective action if I was not satisfied with what was going on.

BY MS. OLIVER:

Q Did you take any corrective action during the period of '70 and '75?

A During that period, the analytical methods became quite precise and quite reliable and we began to develop figures that did indicate that wastes were going on. PCB losses were going on and during that time we instituted a series of projects to try to control levels of PCB losses we would discover.

Q At what Monsanto facilities were PCB losses discovered?

A The two manufacturing plants.

Q Krummrich?

A Krummrich and Anniston.

Q Were these the only two places, to your knowledge?

A In the United States, yes.

Q It was determined there were PCB losses from the Krummrich Plant?

A Yes.

Q When was that determination made?

A I don't know. It would have been shortly after

the method development reached a satisfactory state, but I don't remember when that was.

Q Sometime in 1970?

A Yes.

Q What were the sources of losses from the Krummrich Plant of PCB?

A That was a very elusive problem to solve and at this point I can't say that I remember a clear definition of it. Even after the analytical methods were developed, it turned out that taking a sample, and in a way, the contents of the sample represented the stream in a valid way, turned out to be very tricky and in some cases we dealt with a potential source of loss just because it seemed to be a potential source of loss without ever getting into solid data. We had goals for the level of wastes lost per day or per month that we wanted to achieve and we substituted various small projects to try to reduce every conceivable source of loss.

We identified, I think I spoke earlier of a HCL stream which came from scrubbing. We did identify that that was a source of loss and we did some things to try to eliminate that as a source of loss, but because of the difficulty of measurement and difficulty of sampling,

even though we made progress, it was not always possible to say this change caused improvement.

Q Were you able to develop a technique to remove PCBs from the effluent?

A There were some methods developed in the laboratory. There was work with activated carbon, for instance, and some work with clay and at some point I believe we felt that we had methods that could be depended on.

At this point, I cannot remember what those methods were, just because I don't remember. People had a lot of different ideas that were tried in the laboratory.

Q Was there anybody within Monsanto that you know of whose responsibility it was to advise its customers of what Monsanto was doing with its own plant effluent and trying to control PCB losses?

A There was a point where some of the Marketing people asked me to describe the concepts that we had applied so they could report them to customers who wanted advice.

Q Who were the Marketing people?

A I am sorry. There are so many people involved and so long ago, I find this sort of hard to sort out.

Norm Johnson is one of them, but I'm sure there were some others, but I just can't sort out all the people in my mind now.

Q To your knowledge was there a practice in Monsanto by Johnson or anyone else from Marketing to advise customers what Monsanto was doing with respect to controlling its own plant effluent, even if customers didn't ask?

A I think at some point we did that.

Q Do you know when that was done?

A I don't remember when.

Q Mr. Johnson would be the person who would know, I take it?

A He might. He certainly would be one of the persons who discussed such things. Obviously some of the things that are appropriate to manufacture of PCBs are not appropriate to customers, but some might be.

Q What are the steps that might be appropriate to a user of Pydraul?

A The most important is the most obvious, to correct leaks. The next line of defense is to clean up those leaks that do occur, but this is still entirely within the realm of common sense good industry practice.

Q What about the method you developed, the

carbon adsorption methods that might be used to remove PCB from effluent?

MR. SCHINK: I object to the characterization of what was done with regard to development of methods. I think he said they looked into several different things. I am not sure he testified different methods were developed.

MS. OLIVER: I will accept looking into.

BY THE WITNESS:

A I really don't know what was told to the customers. I was not a party to any such conversation. I don't believe I ever met a Pydraul, representative of a Pydraul customer.

BY MS. OLIVER:

Q Do you know of any reason why the carbon adsorption steps that you were looking into would be something that a Pydraul user could not do?

A No, it's a very conventional way of removing organics from the waste water.

Q You were also involved to some extent in an incineration program?

A Yes.

Q Set up at Monsanto?

A Yes.

Q What was your involvement in that?

A The incinerator was located in our manufacturing plant at Krummrich, at least St. Louis, and was under the direct responsibility of the Production Department who also had charge of making Aroclor.

Q Was it your understanding that Monsanto did not intend to accept Pydraul fluids for incineration?

A No, we did accept Pydraul fluids for incineration.

Q Was it your understanding when the program was initiated that Pydraul fluids were not going to be encouraged to be returned to Monsanto for incineration?

A The primary purpose of the incinerator was related to the dielectric business which at that time we expected to be the only ongoing application of PCBs that would survive.

We never had a policy that I can remember as to whether we would or would not accept Pydraul because we expected that PCB-containing Pydrauls would no longer exist.

MS. STEIN: Could you read the answer?

(Answer read.)

BY MS. OLIVER:

Q What did you expect users of Pydraul to do

with the Pydraul they had and were using?

A I don't remember that I personally had any expectation about that one way or another. We did receive Pydraul and it was no surprise to receive Pydraul.

Q Were you aware of any directive from the Marketing Department or group to salesmen that they should not permit the customers to return any of the Pydraul fluid with PCBs?

A No, I don't remember that.

Q Were you aware that Pydraul fluid that was being used could be contaminated with dirt or oil, could no longer be used in whatever application the user had?

A Yes.

Q What was your understanding of what would happen to that Pydraul fluid?

A There was a small company called Findett at St. Charles which to my understanding was engaged in reclamation of fluid from these companies and could clean it up and send it back to them.

Q When did you first learn of Findett?

A Immediately upon entering the Manufacturing Manager's job because Findett did some small job manufacturing for us.

Q Before 1970 were you aware that Pydraul fluid

could be contaminated by dirt and oil and might get into the condition where it couldn't be used anymore by a customer?

A No.

Q You did not have that understanding until 1970?

A I had nothing to do with the hydraulic business in 19 -- until 1970.

Q You were not aware of what the Aroclor products would be used for before 1970?

A I was aware in my production supervisory capacity at Anniston that there were some hydraulic fluids based on PCBs, but I had no connection with the Marketing people or understanding of the use.

Q At the Krummrich Plant as the Technical Services Superintendent, you were not involved in the uses of the Aroclor hydraulic fluids?

A No, no.

Q At some time within the period of time when the incinerator was being used to burn PCBs, did you become aware of a problem with the burning of Pydrauls in the incinerator?

A I became aware that if the phosphate content of the feed to the incinerator got too high, there would be a visible air emission, that that was a problem that

was typical with Pydrauls.

MR. SCHINK: What was the problem that was typical?

MS. OLIVER: The phosphate condition.

MR. SCHINK: The question was did the Pydrauls that were returned for incineration have high phosphate contamination?

BY MS. OLIVER:

Q My question was was there a problem in particular with Pydrauls and the witness stated there was a problem about high phosphate level and I assume he is answering my question relating to that.

A Yes. Yes, the problem concerning high phosphate would have been a source.

Q That would have made it difficult to burn?

MR. SCHINK: Are you talking about Pydrauls that had high phosphate or all phosphates?

MS. OLIVER: I am talking about the Pydrauls that were returned for incineration that he had a problem with.

MR. SCHINK: There was no testimony that all Pydrauls that were returned for incineration had a problem. The question is misleading and ambiguous.

MS. OLIVER: Could you read the question?

(Question read.)

MS. OLIVER: That is an ambiguous question, I agree.

BY THE WITNESS:

A There was no problem in operating.

MR. SCHINK: There is no question pending.

BY MS. OLIVER:

Q Were there Pydrauls that were returned to Monsanto by customers that were rejected for incineration?

A Not that I remember.

Q Were all the Pydrauls that were returned by customers incinerated?

A As far as I know, they were.

Q Was there any policy decision in Monsanto with respect to returning of Pydrauls for incineration?

A Not that I know of.

Q Do you know how customers were informed that they could return their Pydraul fluids to Monsanto for incineration?

A No, I don't.

Q Do you know whether the customers were informed?

A Only on the evidence that we did receive Pydraul which we incinerated.

Q Do you know what percentage of the material that was incinerated was Pydraul?

A No.

Q Do you know if it was a small percentage?

A I am sure there was more dielectric fluid than there was Pydraul.

Q Did you also become involved as Manufacturing Manager in the reclamation proposal by Monsanto?

A I was involved to the extent of being asked to comment and advise on the proposal that was made.

Q And the proposal was made by Mr. Pogue?

A Yes, his project was to see whether such a program might be viable.

Q Do you know why he was involved in a project like that?

A No, I don't.

Q What were you asked to look at?

A Only to comment on whether I thought the costs projected in his proposal were realistic.

Q Did you provide him with your comments on costs?

A Yes.

Q Did you conclude that the project was realistic and feasible to be done from your point of view?

A I was very skeptical.

Q Why was that?

A Because large quantities of adsorbent materials

had to be handled and it appeared to me that the handling cost would be high.

Q Part of the program, reclaiming from plant pits and things like that, do you recall that part of the proposal?

A No.

Q You looked at the proposal in terms of what could be recovered from adsorbent --

MR. SCHINK: He just testified that was one of the problem he saw with it, the costs associated with that, as I understand it.

BY MS. OLIVER:

Q What do you recall the proposal to be? Maybe that is where I am confused.

A I must say I don't remember the proposal in detail. I simply remember that Don Pogue had a project like that and I was asked to review it and my impression was it was not very realistic because the costs would be higher than what he projected.

Q Do you know how he developed his data for his proposal?

A No, I don't.

Q In addition to what you testified about so far as Manufacturing Manager being involved in, to some

extent, the substitution of fluids and some steps for the removal of PCBs from plant effluent and monitoring steps taken at Monsanto Plants, a limited involvement in a reclamation proposal and incineration program, were you involved in the period of '70 to '75 in any other aspect of Monsanto's operations involving PCBs?

A It is very hard for me to answer that question because there were many, many things going on at that time. I did have some involvement in other efforts with dielectric customers to control their losses, for instance.

Q What was your involvement there?

A Only to provide our Marketing people with information about our manufacturing practices that might be relevant to the dielectric plant.

MR. SCHINK: You covered that before. Other than the things you covered, you said you talked to Marketing people, you mentioned Johnson as well. Are there other areas that we haven't discussed in the last several hours of substantial PCB involvement you have had between '70 and '75, things that come to mind?

If not, feel free to say so.

BY THE WITNESS:

A Well, nothing is coming to mind.

BY MS. OLIVER:

Q Let me go back a minute to your involvement with dielectric customers of advising the Marketing people with Monsanto what Monsanto Plants were doing with respect to controlling effluent.

To your knowledge, was the Marketing Group working with the dielectric people in attempting to help them control their plant effluent?

MR. SCHINK: I object to the question on the grounds of no foundation. He has already testified he reported to various Marketing people about Monsanto's efforts and he mentioned Mr. Johnson. He has also testified previously he wasn't involved with customers.

MS. OLIVER: He just testified he was involved with contacts made to dielectric customers.

BY THE WITNESS:

A In the case of dielectric customers, near the end of time I was involved in the products, we had visits to our offices by some people from dielectric customers. Those were technical people from large customers and at that time, I made a presentation to some of them about what were good manufacturing practices. This would have been fairly late in the time that I was Manufacturing Manager.

BY MS. OLIVER:

Q Do you recall any similar meeting or involvement with hydraulic fluid users?

A No.

Q Do you recall anyone in Marketing ever discussing with you that they were going to advise hydraulic fluid users of what Monsanto was doing with respect to controlling its own plant effluent?

A Yes, yes. That was the purpose of the conversations that we had.

Q With Norm Johnson and others?

A And others, yes.

Q That you don't remember.

A Yes.

Q Did anyone from Marketing, Mr. Johnson or anyone else, ever suggest to you that you should make a presentation and meet with any hydraulic fluid users to advise them directly of what Monsanto was doing with respect to its own plant effluent?

A No.

MS. STEIN: Could you please read that question and answer?

(Record read.)

BY MS. OLIVER:

Q I take it you relied on Marketing to come to

you and ask you for information if they needed information?

A Yes, it was outside my area of responsibility and it was just a matter of helping out.

Q Do you recall being advised of methods being studied to remove Aroclor from sediments?

A From sediment?

Q Yes.

A No, I don't remember that.

Q As Manager of Manufacturing, were you advised of developments concerning PCBs that were made by Monsanto on a regular basis?

A Yes. I received routine reports, monthly reports and so forth from various functions.

Q Were those reports received by you, monthly summaries for purposes of just your own information?

A Yes.

(Savage-OMC Deposition Exhibit No. 1 marked for identification, 1/27/82, TLU.)

BY MS. OLIVER:

Q Mr. Savage, I would like you to look at what we marked as Savage Exhibit 1 which is called Monthly Summary - December 1971, Specialty Products-Research, and

ask you if that is the type of report that you would receive on a regular basis?

A Yes.

Q Your name appears as receiving a copy on the list of distributees.

A Yes.

Q Much of this report has been deleted, but there is something on Page 4 which refers to Johnson Motors.

Do you recall having seen that notation about Johnson Motors?

A No.

Q When you would have received a report or a summary such as Exhibit No. 1, would you not be asked to do anything with respect to any specific customer?

A Only if some action from Manufacturing was indicated, but a comment like this would not indicate such action.

(Savage-OMC Deposition Exhibit No. 2 marked for identification, 1/27/82, TLU.)

BY MS. OLIVER:

Q Mr. Savage, Exhibit No. 2 is a memorandum from Dr. Richard dated September 1969 entitled Defense of

Aroclor.

Do you recall having seen that document before?

A No.

Q When you became Manager of Manufacturing in 1970, was it your understanding that Monsanto was taking or intended to take action to apply Monsanto clean-up methods to customer plants to clean up equipment and procedures?

A No, I'm not sure I know what it means.

MR. SCHINK: She is just asking you, while she happens to be quoting from a document, if that was your understanding at that time, and I think you answered the question.

BY MS. OLIVER:

Q I was asking if that was your understanding.

A No.

(Savage-OMC Deposition Exhibits Nos. 3 and 4 were marked for identification, 1/27/82, TLU.)

BY MS. OLIVER:

Q Mr. Savage, Exhibit No. 3 is a memorandum from Mr. Papageorge dated April 7, 1970 attaching a copy of a plan for managing the PCB problem.

In April of 1970, were you Manufacturing Manager?

A This date is almost exactly the time when I became Manufacturing Manager.

Q Upon assuming that position, did you see that document?

A No, I don't remember this document.

Q When you became Manager of Manufacturing, were you given any internal memoranda outlining plans of action or plans for managing PCB concerns?

A I don't remember being given a written assignment.

Q Have you ever seen any plans for managing or discussing or taking steps concerning PCBs within Monsanto?

A Yes. Each of the product replacement programs had some kind of a written plan.

Q That was related to the replacement fluids?

A Yes.

Q Have you ever seen any overall plan or outline?

A Not that I recall.

Q Did you attend meetings of the business group on a regular basis for PCB discussions?

A We had routine business group meetings for

general purposes, including that one.

Q Who would attend the meetings?

A Bill Richard, Tom Gossage, Howard Bergen, of course, often. Earl Potter, Bill Papageorge, I believe, would attend.

Q Were decisions on actions to be taken made at those meetings?

A The routine business group meetings were for the purpose of general information.

If a meeting was needed to make a specific decision, usually it would be called for that purpose.

Q Would the decision be made by Mr. Bergen?

A If it was a decision within his authority, yes. If it required capital expenditure, it might require a higher level decision.

Q Did the fluid replacements require capital expenditures?

A The second one did. The first one, I don't believe that the first one did, but I'm not sure.

Q Why is that?

A I think the B series, we were able to go into production simply by modifying conditions in manufacturing rather than major equipment installations. It is possible there were some small installations, but I don't remember.

Q I would like you to look at the monthly summary for May 20, 1970 which was marked as Exhibit No. 4, and I would just like to direct your attention to the second page of that exhibit which is numbered 20 which refers to Pydraul A-200A.

I would ask you to read that.

Does that refresh your recollection as to any information you may have been given or learned about A-200A?

A Well, yes. This sounds familiar.

MR. SCHINK: Do you remember, having now read it, do you remember something you did not remember before about A-200?

THE WITNESS: Frankly I don't recognize either of those blends that are mentioned as a product that we wound up making.

The second one is called Arobromoclor and we never made such a thing and I don't recall that we made the first one, although that is possible.

BY MS. OLIVER:

Q Does that refresh your recollection there were more than one version of A-200A?

MR. SCHINK: What do you mean by that: Were they existing, were they manufactured, were they sold? I

object to the form, ambiguous.

MS. OLIVER: That they developed and considered for sale to the customers.

BY THE WITNESS:

A In the development of these fluids, there was a certain Addisonian element and I'm sure that a number of versions existed in the laboratory at some time.

As to whether we manufactured either of those versions, I'm sure we didn't make the second one. I'm not sure whether we made the first one.

BY MS. OLIVER:

Q Do you know what TCB/5442 blend means?

A TCB is a trichlorobenzene. It is a material we used and had on hand because it is in some electric blends. 5442 represents a chlorinated terphenyl, 42 percent chlorine.

Q You mentioned earlier today that you were involved to some extent in a labeling change or a wording of a label that was considered for change?

A Yes.

Q What was your involvement in the labeling change?

A To put it into effect.

(Savage-OMC Deposition Exhibit No. 5 marked for identification, 1/27/82, TLU.)

BY MS. OLIVER:

Q Mr. Savage, Exhibit No. 5 is a copy of a memorandum concerning a change in labeling.

Is that the label change that you were involved in?

MR. SCHINK: I object to the form of the question. It assumes there was only one label change. I don't think he testified there was one.

BY MS. OLIVER:

Q Were you involved in that label change, let me correct myself?

A I think some of this looks like, to the best of my recollection, that is what we put out.

Q Do you recall any other label changes beside that?

MR. SCHINK: Are you talking about other products or wording in addition to that?

MS. OLIVER: Other wording in addition to this.

BY THE WITNESS:

A I don't remember that there was another wording. There were two means of putting this into effect as I

recall. In order to move rapidly, we used a sticker for awhile and then later on this text was on the label itself.

BY MS. OLIVER:

Q Do you recall that this wording was placed on Aroclor products for dielectric uses?

A It is my recollection that we put this on all products that contained Aroclor.

Q Was it your recollection that this wording was placed on products sold as hydraulic fluids?

A It is my recollection that our intention was it would be on all PCB-containing fluids, so I believe it would have been on Pydraul, although I don't have a specific recollection to that effect.

Q Who drafted this wording?

A I think it was Mr. Papageorge's responsibility. I am sure that he had advice from various people.

Q Did you make any comment in response to receiving this memorandum?

A I don't remember.

Q Did you suggest any changes in the wording?

A Not that I recall.

Q How was it your responsibility to see that the new labeling was implemented?

A Only to make sure that the production people followed through, put it into effect as quickly as possible.

Q There is a reference here to a product called Montar.

A Yes.

Q There is 1, 2, 3, 4 and 7?

A This letter only mentions 1.

Q I am sorry.

Does that refresh your recollection at all as to what Montar was, what type of product?

A The various Montars were all still residues, various manufacture of Aroclors, and the different numbers simply meant they were by-products of making different Aroclors. But I couldn't tell you what numbers go together.

Q Or what it was used for?

A No, I don't recollect.

MS. OLIVER: I don't think I have any other questions.

(Brief recess had.)

CROSS EXAMINATION

BY MS. STEIN:

Q Mr. Savage, in preparation for this deposition,

did you review any documents?

A No, I did not.

Q How much time did you spend preparing for this deposition?

A I only spent an hour or so with Mr. Schink before coming into this room.

Q Did you come in this morning?

A Yes.

Q Have you ever had your deposition taken with respect to any judicial proceeding involving PCBs?

A No.

Q Have you ever given testimony under oath anywhere in any judicial proceeding involving PCBs?

A No.

Q Have you ever given testimony in any kind of administrative proceeding involving PCBs?

A No.

Q Do you understand what I mean by administrative proceeding?

A You mean having to do with regulations?

Q Yes, any Federal or State or local agency.

A No.

Q I believe you testified this morning that you are currently employed in the Chemical Intermediates

Company.

Are the products with which you are involved in the Chemical Intermediates Company all organic chemicals or are there inorganic products as well?

A The products that I am involved with are all organic products.

Q I believe you said you started with Monsanto in 1957.

A Yes.

Q Do you recall the dates, say by month and year, when you went from one job to another within Monsanto?

A I can probably come close.

Q I would appreciate it if you would tell me the dates on which you held the various positions that you described this morning. Give me when you changed --

MR. SCHINK: Do you really care before he came with Aroclors? Is there some conceivable relevance that that has to this case, Ms. Stein?

MS. STEIN: Are you finished?

MR. SCHINK: Yes, that is my question.

BY MS. STEIN:

Q Go ahead and answer, Mr. Savage.

MR. SCHINK: Why don't you start with your first

PCB involvement.

BY MS. STEIN:

Q I asked that he start with 1957.

MR. SCHINK: And you would not have the courtesy of telling me or the Court what possible relevance that has other than protracting this deposition.

BY MS. STEIN:

Q Go ahead, Mr. Savage.

A I began in February 1957 at the Queeny Plant. I was a Technical Service Engineer.

Q At that time was Queeny making Aroclor products?

A Queeny never made Aroclor products. Queeny did some blending of Aroclor products for a period of time.

Q When was that?

A I have no idea when it began. It ended when the Aroclor-based Pydraul ended. I had nothing to do with it at that time.

Q I want to make sure I understand. There was blending of Aroclor products but not the manufacture of Aroclors themselves at Queeny?

A That's right.

MR. SCHINK: She wants to know the rest of the months.

BY MS. STEIN:

Q You started at Queeny in February of '57 in Technical Services?

A Yes. I stayed there until, I believe it was March of 1958 when I moved to the Anniston Plant, working on parathion and again as a Technical Services Engineer. That continued for about three years. I cannot tell you the month when I became a Production Supervisor, but it was sometime in the middle of 1961.

At that time I had only the Chlorine Department. It was about one year later, mid-'62, when I acquired the additional responsibility of the Aroclor Department.

In September of 1963, I transferred to the Krummrich Plant and moved to St. Louis as a Supervising Engineer, doing work for the chlorine plant and for some period of time, my precise title was not clear because I was really replacing someone who had not been moved out yet. And at some point it was acknowledged that I was a Superintendent.

At the time that I became the Acting Superintendent, I had 12 engineers and it was during that time that some of those engineers worked in the Aroclor Department.

In 1967 and I cannot tell you the month at all, I moved to the Queeny Plant as General Superintendent of Technical Services and Laboratory and I was there until it was April of 1970 when I moved to the General Office as Manufacturing Manager.

I was Manufacturing Manager until the reorganization in 1975 that disbanded the Specialty Products Business Group and I don't remember what month that was, either, but that could be figured out easily.

Q Thank you.

Have you had any kind of training or seminars during your employment at Monsanto relating to the manufacturing processes of organic chemicals?

A I don't know what kind of thing you are talking about.

Q Technical kinds of course work.

A Formal course work?

Q Yes.

A No.

Q I believe you testified that at various points in your career you have been involved in costing out certain projects. Did you have some training for these economic analyses that you conducted?

A Only to the degree it is a formal part of

chemical engineering curriculum.

Q This morning, you testified that while you were the Aroclor Product Supervisor, you had responsibility for, among other things, pollution control while you were at the Anniston Plant and you mentioned that you applied the ordinary controls that were applied to any industrial chemical operation.

Can you tell me to the best of your recollection what those specific measures were, what specific ordinary controls you recall were employed at Anniston at that time?

MR. SCHINK: He has already answered the question once in response to Ms. Oliver's question about what those were in 1970 and how they differed from what was in place in '63. If you want him to answer a third time, I would object to the question. It has been asked and answered.

MS. STEIN: My notes indicate there was not a direct response to that question and for that reason I am asking the question.

MR. SCHINK: Would you answer.

BY THE WITNESS:

A The ordinary manufacturing controls one applies include good housekeeping practices, good maintenance

practices.

BY MS. STEIN:

Q I guess I am asking for a specific example of good housekeeping or specific examples of good maintenance practices.

A In the maintenance area, there are various approaches to maintaining equipment. If one waits until there is a breakdown, then there will probably be a leak at the time of breakdown.

If one does some planning and practices preventive maintenance, then the problem can be corrected before it occurs. That is what I mean by good practice and maintenance.

Q How about housekeeping practices?

A That has to do with cleaning up a spill if it does occur, properly disposing of material which has been dumped, keeping the place from getting dirty. Housekeeping, I think, means the same sort of thing in a plant as it does in a house.

Q Did housekeeping also include worker hygiene?

A No, I would consider that a somewhat different category of responsibility, but worker hygiene would include the category of safety and worker protection.

Q This morning when you were talking about the

HCL stream as a possible source of PCBs at Anniston, you mentioned that if there were some PCBs in the HCL stream which you came to suspect was a potential source of PCBs in the discharge of the plant, some of the PCBs would be trapped in sludge.

Could you explain to me the chemistry or the mechanical aspect of this trapping and what would be done, first. And second, what if anything was done with this sludge?

MR. SCHINK: I object to the form.

You may answer.

BY THE WITNESS:

A The HCL stream which was very dilute had to be neutralized before it was discharged and that was done by passing it through a bed of crushed limestone.

Limestone is not a pure chemical. Obviously there is some reactive material in it and that material forms a sludge and if there were any PCBs in the HCL stream going into the limestone bed, the potential was that the Aroclor would be trapped in the particulate matter in the sludge.

BY MS. STEIN:

Q When you neutralized the HCL stream at the Anniston Plant using crushed limestone and the sludge

was generated, what was done with the sludge?

A It was dug out of the pit periodically and put in a landfill.

Q Was the process the same at Krummrich for making Aroclors as it was at Anniston?

A Essentially the same.

Q Did the Krummrich Plant also have an HCL stream?

A Yes, the same stream existed.

Q Was the neutralization process the same at Anniston?

A I can't recall that it was. I don't remember what it was.

Q In response to some questions from Ms. Oliver this morning regarding if you had been aware PCBs were in the discharge, would you have taken any steps, I believe you testified that when you were Production Supervisor you had never heard the term PCBs.

A Right. I recall the product Aroclor.

Q Did you know what the chemical composition of Aroclor was?

A Certainly.

Q Do you know when Monsanto first became aware that PCBs had been found outside the Anniston Plant or that Monsanto had discovered?

A In the area?

Q Yes.

A No, I don't know when that was discovered.

Q When did you first learn of it?

A It would have been during my time as Manufacturing Manager.

Q This morning in response to questions relating to the documentation at Anniston regarding Aroclor manufacture, you mentioned there was some department documentation relating to the possible toxicity with a by-product of the distilled residue. You then went on and there was some discussion about Montars.

A Yes.

Q This possibly toxic by-product, was this actually the Montars themselves or was there some sort of chemical impurity that was the substance of concern in that documentation that you referred to this morning?

A I don't recall that I had any information that it was that precise. The advice in our department documents was to avoid having workers exposed to the fumes.

Q Was there any chemical mentioned by name that you remember?

A No.

Q In response to a question from Ms. Oliver, I believe you stated that as Manufacturing Manager, communications with customers were not your responsibility and you wouldn't know specifically what was done with regard to the measures taken regarding PCBs in the late '60s and early '70s except for labeling.

If you don't know specifically what was done, do you have a general idea what was done in terms of Monsanto communications with customers regarding PCBs?

A It was my understanding that we were informing our customers of what we learned about the environmental effect of PCBs as soon as we were confident of the information that had been developed.

I certainly cannot comment on precisely how and when that was done.

Q Would this have been done during the time of your Manufacturing Manager responsibility?

A Yes.

MS. OLIVER: What is this, his understanding?

MS. STEIN: Yes, his understanding.

BY THE WITNESS:

A That is the period I am talking about.

BY MS. STEIN:

Q With regard to a business decision to substitute a chlorinated terphenyl in Pydrauls for chlorinated biphenyls, I believe you said the decision was made at a level above you. Could you tell me who in addition to Mr. Bergen was above you in this business group who would have had responsibility for that decision?

A Mr. Bergen was Business Director and he reported to a person, I believe with the title of General Manager or Assistant General Manager at various times. At one time that was John Mason. Another time, that was W. R. Cory, and another time that was F. J. Fitzgerald.

As to when each of those was his boss, I couldn't reconstruct.

Q In your communication with the Research Department regarding reliable methods, I assume you were talking earlier about for detecting levels of PCBs. Is that what you were referring to earlier?

A Analytical methods for measuring the amount of PCB, I believe is what we were talking about.

Q Can you tell me the year in which you were informed that Monsanto believed that it had developed reliable methods for detecting levels of PCBs?

MR. SCHINK: In what?

BY THE WITNESS:

A In the waste water?

BY MS. STEIN:

Q In the waste water.

A No, I just can't reconstruct the sequence of events that way. There was more than one such event anyway because we reached a part per million capability one time and then a part per billion capability, and maybe by now even better yet, I don't know.

Q Was this during the time you were Manufacturing Manager?

A We certainly reached a part per million capability while I was Manufacturing Manager, yes.

Q Did you ever discuss these analytical methods or Monsanto's research processes as Manufacturing Manager?

A Not that I recall.

Q In response to a question by Ms. Oliver, you stated that Monsanto learned that all of the terphenyl fluids which replaced the biphenyl fluids had small amounts of PCBs.

Do you recall whether it was soon after the introduction of these terphenyl fluids that Monsanto became aware of the PCB component of these terphenyl fluids?

A I don't know how soon. I think it was within

a year.

Q Do you know whether Monsanto informed customers of this information?

A No, I don't know.

Q Would it be the Marketing people who would know that?

A Certainly.

Q Other than Mr. Johnson's name, do you recall the names of any of the other people who were in marketing of Pydrauls from the time you became Manufacturing Manager until you left that job?

A I am sorry, I worked with so many people, I don't think I could isolate.

Q Did you also work with sales representatives who went directly to customers?

A Once in awhile.

Q Did you ever work with Mr. Damiani?

A I know him, but I don't believe that I worked with him during that time.

Q How about Mr. Weyland?

A No.

Q Did the Manufacturing Manager also have the responsibility for overseeing the Aroclor blending operations that went on at the Queeny Plant?

A Yes.

Q Did it ever come to your attention at the time that you were Manufacturing Manager there were any PCB losses in the waste water from the Queeny Plant?

A At some point when the methods became good enough we instituted a sampling program at all of the plants, including Queeny. I don't recall our ever finding any significant amount of PCBs in the Queeny Plant waste.

Q What do you define as a significant amount?

A An amount that was at the level of confidence of the method.

Q At the time that Monsanto had an incinerator of PCBs operating at the Krummrich Plant, who was the Production Superintendent in charge of Aroclor who was also responsible for the incinerator?

A Art Leisy.

Q Could you spell that?

A L-e-i-s-y.

Q Were hydraulic fluids used in manufacturing equipment used to produce Aroclor?

A I don't think so.

Q In response to a question involving incineration, you talked about phosphate content of certain

Pydrauls that would cause visible emissions. Which Pydrauls were you referring to that would have phosphate content that would cause visible emissions?

A All the new generations of Pydraul.

Q You are talking about the E and C series?

A The E and C series. I believe there were phosphate esters in some of the earlier ones, although I am not sure of that.

Q In regard to a question from Ms. Oliver regarding whether or not you were ever given any PCB management plan, I believe that you responded you don't recall ever having received a written assignment.

Did you ever receive any kind of oral assignment with regard to a PCB management plan of some sort?

A Certainly. There were certain aspects of the PCB program that were my responsibility and, of course, someone had to tell me, this is what we are going to do so that I could carry it out.

Q And these related to the product substitution aspects, is that correct?

A Among other things.

Q And the labeling?

A Yes.

Q Were there any other things that it related to?

A The incinerator. Some capital project related to dielectric.

Q Those would be in conjunction with customers, these capital projects?

A In the case of dielectrics, we made a product modification that required a different piece of equipment. That is what I am talking about.

Q Were you involved in the use of recovered Aroclor 1242 for the use in Pydraul blends at any time?

A Recovered Aroclor 1242?

Q Yes.

A I don't remember recovered Aroclor 1242 as a material that we worked with.

(Savage-USA Deposition Exhibit No. 6 marked for identification, 1/27/82, TLU.)

BY MS. STEIN:

Q Mr. Savage, I will show you a document that is marked as Savage Deposition Exhibit No. 6 which has the Kirkland & Ellis No. 1512 on the bottom. The date is April 8, 1970 from Mr. Stark to you, and I ask you if you can read this document and tell me whether or

not it is at all familiar to you and you recall it.

A I don't remember this letter specifically, but I do remember now that recovered Aroclor 1242 is or was, this was material --

MR. SCHINK: There is no question pending. She just asked if you remember the document and you said no.

BY MS. STEIN:

Q Does that refresh your recollection as to the use of recovered Aroclor 1242?

A Aroclor 1242, recovered Aroclor 1242 is a material that was left over at the dielectric as part of a dielectric manufacturer's process which he had no further use for and it was brought back to use in Pydraul.

Q Do you recall whether in fact it was used in Pydraul?

A No, I don't remember.

Q Your name is on it. Would you have received this in the ordinary course of business at Monsanto?

A I should think so, yes.

Q This would have been prepared by Mr. Stark in the ordinary course of business of Monsanto?

MR. SCHINK: Objection, no foundation. He doesn't remember the document. How can he recall --

MS. STEIN: Well, he certainly recalls the kind of procedures that were used.

MR. SCHINK: By Mr. Stark in preparing documents? You haven't laid a foundation for that.

BY MS. STEIN:

Q Go ahead and answer, Mr. Savage.

MR. SCHINK: Do you know what Mr. Stark's procedure is in preparing documents I guess is the question.

BY MS. STEIN:

Q No, the question is did you have communications with Mr. Stark.

MR. SCHINK: That is another question.

BY THE WITNESS:

A Yes.

BY MS. STEIN:

Q Would he normally have communicated with you in this fashion?

A Either that or by telephone, yes.

Q Do you recall how many years the Aroclor incinerator operated at Krummrich?

A No, it was shut down after I got out of the Aroclor area.

Q Would that have been 1975?

MR. SCHINK: What was, when he left the area or

when it was shut down?

MS. STEIN: When he left the Aroclor area.

MR. SCHINK: He already testified about that.

BY THE WITNESS:

A 1975.

MS. STEIN: I have no further questions.

MS. OLIVER: I have none.

MR. SCHINK: Thank you, Mr. Savage.

(Witness excused.)

FURTHER DEPONENT SAYETH NOT. . .

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. | ) | |

I hereby certify that I have read the foregoing transcript of my deposition given at the time and place aforesaid, consisting of Pages 1 to 122, inclusive, and I do again subscribe and make oath that the same is a true, correct and complete transcript of my deposition so given as aforesaid, as it now appears.

_____
James R. Savage

Subscribed and sworn to
before me this ____ day
of _____, A.D. 1982.

_____
Notary Public.

Thos. L. Urban
Certified Shorthand Reporter
[illegible] South LaSalle Street
Chicago, Illinois 60603
312 - 782-5352

UNITED STATES OF AMERICA )
NORTHERN DISTRICT OF ILLINOIS )
EASTERN DIVISION ) SS:
STATE OF ILLINOIS )
COUNTY OF COOK )

I, Thea L. Urban, a notary public in and for the County of Cook and State of Illinois, do hereby certify that JAMES RICHARD SAVAGE was by me first duly sworn to testify the whole truth and that the above deposition was recorded stenographically by me and was reduced to typewriting under my personal direction, and that the said deposition constitutes a true record of the testimony given by said witness.

I further certify that the reading and signing of said deposition was not waived by the witness and his counsel.

I further certify that I am not a relative or employee or attorney or counsel of any of the parties, or a relative or employee of such attorney or counsel, or financially interested directly or indirectly in this action.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my seal of office at Chicago, Illinois, this _____ day of February, A.D. 1982.

_____
Notary Public, Cook County, Illinois.
My commission expires May 31, 1983.