Haley v. Monsanto
May 17, 1984

MR. DAVIDSON: No questions, Your Honor.

THE COURT: Mr. Cubitt.

RECROSS-EXAMINATION

BY MR. CUBITT:

Q. Dr. Willett, you don't mean to characterize the university study as reproduction studies?

A. No.

Q. They were not reproduction studies?

A. I'm not characterizing them as that.

MR. CUBITT: I have no further questions.

THE COURT: Mr. Jungerheld.

MR. JUNGERHELD: Nothing further with Dr. Willett.

THE COURT: Mr. Davidson?

MR. DAVIDSON: Nothing further, Your Honor.

THE COURT: You may step down.

MR. JUNGERHELD: Your Honor, we'd like to call Mr. Wiliam Papageorge.

WILLIAM B. PAPAGEORGE,

was thereupon called as a witness on behalf of Defendant Monsanto, and having been first duly sworn, testified on his oath as follows:

MR. JUNGERHELD: Your Honor, I don't anticipate using any more overhead transparencies. Would you like me

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to remove those sheets?

THE COURT: If you don't mind.

DIRECT EXAMINATION

BY MR. JUNGERHELD:

Q. Would you give us your name please, sir?

A. William B. Papageorge.

Q. And Mr. Papageorge, what is your date of birth, sir?

A. September 7th, 1922.

Q. Which makes you how old?

A. Sixty-one.

Q. And are you married?

A. Yes.

Q. Do you have children?

A. Yes.

Q. How many?

A. Two.

Q. And what do they do?

A. The son is a medical doctor; the daughter is an attorney.

Q. And where do you live, sir?

A. Suburb of St. Louis, Missouri.

Q. Mr. Papageorge, did you graduate from high school?

A. Yes.

Q. And did you attend college?

A. Yes.

Q. Where was that?

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A. Washington University in St. Louis, Missouri.

Q. Did you obtain a degree from Washington University?

A. Yes, I did.

Q. When was that?

A. I have a Bachelor's of Science degree in chemical engineering in 1943 and from the same institution a Master of Science degree in chemical engieneering in 1947.

Q. Okay. Between the stints there at Washington University, what did you do if anything?

A. I was in military service.

Q. And when did you get out of military service?

A. 1946.

Q. What branch were you in, Mr. Papageorge?

A. The Army.

Q. And after obtaining your Master of science in chemical engineering degree in 1947 what did you then do in terms of employment?

A. I was employed by the Phillips Petroleum Company in Bartlesville, Oklahoma.

Q. What years did you commence employment with them?

A. 1947.

Q. How long did you work for Phillips Petroleum?

A. Until 1951.

Q. Could you tell the Jury what work did you do while working with Phillips petroleum?

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A. For about half of that period that I was with the petroleum company I was in their Research Department and did research involving the more efficient techniques for recovering oil from underground formations. The final half of that period I was involved with designing new petroleum refinery equipment.

Q. And what -- you said you were involved with that. What aspect of it were you involved with?

A. Which part?

Q. The design of refinery equipment. What did you do with that?

A. I would be given the assignment for determining the type of equipment required to perform a particular separation of petroleum materials into useable products.

Q. And Mr. Papageorge, what was your involvement with this area of research in terms of recovery of oil from underground formations? What did you do in connection with that?

A. We would study different materials that could be added to water that is returned into the formation and these materials would help release the oil which is entrapped back in the pores of the underground formations and the water in turn would be under pressure and push this oil to another well from which the usable oil is recovered.

Q. I believe you indicated you worked with Phillips until 1951. Did you change your employment then at that time?

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A. I did.

Q. Where did you go then?

A. I joined the Monsanto Company.

Q. When would this be, now, that you joined Monsanto?

A. November of 1951.

Q. And were did you join Monsanto? Where did you go to work for them, in other words?

A. My first assignment was in the St. Louis area at a plant located there, which is called the John F. Queny Plant.

Q. What were your responsibilities with the Queny Plant?

A. Initially I continued this type of work that I left the petroleum company with. That is the design of equipment to process chemicals.

Q. Is this what you had been doing then at the end of your work with Phillips?

A. Yes.

Q. And how would you characterize this type of equipment you were working on to design?

A. It was primarliy distillation equipment.

Q. When we talk about distiallation, what do you mean? How does that process work?

A. It's a device which will take a material, normally a liquid and the material is heated until it starts evaporating, boiling. The vapors are introduced into a device and as these vapors work their way up the device, a separation

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takes place and the vapors are eventually cooled until they become a liquid again. So instead of one stream we now end up with two or more streams, liquid streams, which have different properties and they contain different components then the origianl stream did.

Q. Mr. Papageorge, how long did you have that kind of job responsibility with Monsanto?

A. AS best I recall a couple of years.

Q. And after that time, which I guess would be approximately '53, what happened in terms of your employment?

A. I was assigned to become a supervisor of departments which manufactured chemicals.

Q. Where was that then?

A. The same plant.

Q. And your job duties in connection with that employment, then, would be what, sir?

A. Be primarily of management, administrative nature, which I supervised the work groups, the work teams, and they cover the day and night shifts and operated the equipment to produce the products.

Q. When you were at the Queny Plant was there any PCB fluids in use at the plant?

A. Yes.

Q. And how were they used?

A. They were present in electrical equipment, air compressors,

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some hydraulically operated equipment such as elevators, and in some of the paints used throughout the plant.

Q. Would the employees in the plant have occasion to be in contact with any of the PCB fluids?

A. It depeneded on their assignments.

Q. Did any of this equipment require the fluids be changed periodically?

A. Yes.

Q. Would that bring the employees in contact with the fluid?

A. A certain group of employees. Those assigned to that particular job.

Q. How about if the equipment containing PCB's malfunctioned, would that occasion any employees to be in contact with it?

A. There was a potential for this malfunctioning to result in a leakage and a careless employee might find themselves exposed. But that was not a common occurrence.

Q. Under the practices of the plant when you were there in a supervisory capacity would you be informed of any employee health problems in connection with such exposure?

A. For those employees that are assigned to my department?

Q. Yes.

A. I would be informed, yes.

Q. During the time that you have had the job that you talk about, that is commencint in 1953, and the supervisory end of it, were you made aware of any claims made by any of the

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employees under your jurisdiction due to health effects from being exposed to PCB fluids?

A. No, I was not.

Q. Mr. Papageorge, how long were you in that particular job?

A. About three years. My memory isn't quite clear but I think it's about three years.

Q. So would that take us to approximately 1956, '57?

A. That's close, yes.

Q. All right, sir. Did you then have a change in your job responsibilities?

A. Yes, I did.

Q. What was the change?

A. I was assigned to become a maintenance supervisor.

Q. And where?

A. Same plant.

Q. What were your duties as a maintenance supervisor?

A. I was assigned a portion of the plant as being my area of responsibility and I was to maintain the equipment and facilities in that area using, of course, the proper craftsmen, foremen, to help me. And on occasion I would be assigned the responsibility for constructing new facilities, or additions to existing facilities.

Q. Approximately how much of the plant were you in charge of?

A. About a fourth of the plant?

Q. Now, with reference to the use of PCB fluids in the plant,

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what was the situation, then, when you were in this particular job capacity?

A. Under that latest assignment I was directly supervising those individuals that would be assigned to repair the malfunctioning equipment or to drain, flush and refill the equipment containing these PCB materials.

Q. Again, under the standard practices of that plant would you as a supervisor and of maintenance personnel be made aware in the event of health problems of employees under your supervision from exposure to these fluids?

A. Yes.

Q. And were you ever made aware of such a problem?

A. I was not informed of any problems of that type.

Q. Mr. Papageorge, how long were you in that job capacity?

A. About two years. Year and a half, two years.

Q. And what happened then in terms of your employment responsibilities?

A. I was appointed the maintenance superintendent for the plant.

Q. Is this still the Queny Plant?

A. Yes.

Q. Are you talking about the entire plant now?

A. Yes.

Q. Now, what, then, would be your duties in this particular job?

A. I was now responsible for the maintenance of the entire

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plant and all maintenance supervisors reported to me.

Q. In this capacity, Mr. Papageorge, how many people were working under you, so to speak?

A. About 400 craftsmen, about 10 or so, maybe a dozen, supervisors, and about 20, 25 foremen.

Q. Again, Mr. Papageorge with reference to your job responsibilities as the maintenance supervisor for the entire plant, was it the practice of the plant, the standard practice of the plant, such that if there were problems relating to the health of the employees under your jurisdiction, you would be informed of it?

A. Yes.

Q. Were you ever made aware of any health problems of the employees under your jurisdiction as it related to any kind of PCB exposure as you previously outlined?

A. I was never made aware of any problems.

MR. WOODWORTH: Excuse me, Counsel.

Your Honor, I don't have a year for when this was. This last supervisory capacity. Two years after the other one?

THE COURT: What was the year?

MR. WOODWORTH: '58, '59.

THE COURT: What year did he start as superintendent?

MR. JUNGERHELD: Can you answer that question?

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THE WITNESS: The best I remember it was about 1956 or 1957.

MR. WOODWORTH: I guess that's where my confusion is. I thought we talked about that and we had the same type of questioning back on -- he was there in that position about two years.

MR. JUNGERHELD: Let me back up just a bit.

Q. (By Mr. Jungerheld, continuing:) Mr. Papageorge, it's my understanding in about '56 or '57 you transferred to become maintenance supervisor of approximately a quarter of the plant, is that correct.

A. That is correct.

Q. Then you had that position for how long?

A. About a year and a half or two.

Q. And that takes us into approximately what year?

A. About 1958 or 1959. That's the dates I should have mentioned earlier for this. Maintenance superintendent assignment.

Q. And then when you became supervisor of maintenance over the entire Queny Plant would that be in '58 or '59?

A. Very close, yes. As best as my memory will permit me to recall.

Q. And how long were you in that capacity? That is maintenance supervising the whole plant?

A. About two years which I think takes us to about 1961.

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Q. and did your job responsibilities change in 1961?

A. Yes.

Q. What was the change?

A. I was then assigned to become a superintendent in our plant Technical Services Department.

Q. Was that the same plant?

A. Same plant.

Q. What were your job responsibilities in that job?

A. This was back to engineering design of equipment for many of the processes in the plant. Many of the departments of the plant.

Q. All right. And did that particular job involve you or any employees directly under you with PCB contact in any significant way?

A. No.

Q. And you were in that capacity, then, Mr. Papageorge, for about how long?

A. Until about 1963 or '64.

Q. And did this type of work you were doing here with the -- related to the design of equipment, did that relate to the similar kind of work you had done previously for Monsanto and for Phillips?

A. It did related to similar work. However, this particular assignment I was the supervisor rather than the person who actually did the designing. I had engineers reporting

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to me.

Q. Now, following this particular job responsibility of superintendent in the plant Technical Services Department did your employment responsibilities change once again?

A. Yes.

Q. And what happened then?

A. I was assigned to another plant. The W.G. Crumerick Plant of Monsanto located in Sauget, Illinois, as a general supervisor of manufacturing.

Q. Was there a period of time when you were general superintendent of the Queny Plant?

A. No.

Q. Now, with the Cumerick Plant -- is that how it's pronounced?

A. Yes.

Q. What were your duties with the plant?

A. I was assigned the general management of about a third of the plant and I'm now back in the manufacturing or the production of the operation.

Q. And your duties or your title with the Cumerick Plant was what?

A. General Superintendent in Manufacturing.

Q. All right. What did this plant make? What products?

A. Oh, I don't think I recall all of them but --

Q. Well, did it make PCB?

A. Yes, they did. And they made --

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Q. And when you took this job that you're now describing to us did your area of responsibility include the PCB Manufacturing Department?

A. No.

Q. Was there a different superintendent that had control over that particular department?

A. Yes.

The thought struck me, I forgot an assigment at the Queny Plant. I was in error when you asked me about whether I held a general superintendency at the Queny Plant. There was an assignment there.

Q. And when, approximately, would that be?

A. The years aren't going to add up here properly but it was between the Technical Services superintendent assignment and the assignment to the W.G. Cumerick Plant.

Q. This would be a period of about how many years when you were general superintendent of the Queny Plant?

A. Again, about two years.

Q. And as general superintendent of the Queny Plant your duties would consist of what?

A. I was general superintendent of several functions including the utilities, shipping and distribution. And also, I had a unit that was responsible for blending chemicals to form an end product and packaging those products ready for shipment.

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Can you tell us whether or not your responsibilities included supervision of warehousing in that plant?

A. Yes. I forgot that one.

Q. With reference to any PCB contact with the employees of that particular department, first off, dealing with the warehousing group, did any of those people have any contact with PCB's?

A. Yes. Some of them received drums of the material from the two plants in Monsanto that manufactured the PCB's and stored them in the warehouse until they were ready for use in the plant.

Q. And were PCB fluids used in the plant in any capacity at all?

A. There were two types of uses. One is as materials in the department operating in the plant. The type of equipment I described earlier.

Q. In the Queny Plant?

A. In the Queny Plant. We're still at the Queny Plant.

Q. All right.

A. The other use is as an ingredient used by their facility I just mentioned that blended various chemicals to produce end products. PCB's were used at this unit to manufacture hydraulic fluids.

Q. Was there a potential for exposure to the workers in that application?

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A. Yes.

Q. Was there potential for exposure to the workers dealing with the PCB fluids in the same capacity you talked about earlier in the plant?

A. Yes.

Q. And Mr. Papageorge, with your responsibilities as general superintendent of the plant did the plant practices call for you to be informed if there were any particular health problems with the employees in the plant?

A. Yes.

Q. During your tenure in that particular job, that being of general superintendent, were you made aware of any health problems with the employees of that plant relating to contact with the PCB or PCB fluids?

A. I was never aware of any problems there.

Q. Does that bring us to your job at the Cumerick Plant then?

A. Yes.

Q. And again, the Cumerick Plant was located where?

A. In Sauget, Illinois.

Q. Where is that?

A. Just south of East St. Louis, Illinois.

Q. Is that on the other side of the Mississippi River then, from St. Louis?

A. From St. Louis, yes.

Q. I believe you have indicated that your area of responsibility

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did include PCB manufacturing as part of it, is that it?

A. That is correct.

Q. And as your work in that particular plant dealth with PCB's would it be in the same context as earlier with the other plants?

A. Yes. Other than my employees were operating equipment, not maintaining or using the PCB's in the end product for blending purposes.

Q. Were your employees, then, operating equipment containing PCB fluids?

A. Yes.

Q. And would your area of responsibility, then, at the Cumerick Plant and with the standard practices of the Cumerick Plant call for you to be informed of any health problems of employees under your jurisdiction?

A. Yes.

Q. And during the time you had the job we're now talking about at Cumerick were you ever made aware of any health problems of the employees related to PCB?

A. I was not.

Q. How long did you continue in that capacity with Cumerick?

A. Until 1965.

Q. Then did your job responsibilities change in '65?

A. Yes.

Q. And what occurred?

A. I was transferred to the Anniston, Alabama Plant.

Q. What was your job duty there?

A. I was the plant manager.

Q. And did that occur in '65, the same time you left the Cumerick Plant.

Q. What were your duties, then, at the Anniston Plant?

A. The management of all activities associated with that plant.

Q. Did that plant's products include PCB?

A. Yes.

Q. And did the Department of PCB enter through you, so to speak, as the manager of the plant?

A. Yes.

Q. In this capacity, that is the manager of the Anniston Plant, were the practices of that plant such that you would be informed if there were any health problems in any department in the plant including that manufacturing PCB?

A. Yes.

Q. When you joined that plant, by the way, as plant manager, did that plant have a plant physician?

A. Yes.

Q. And did you have a policy of meeting with that physician?

A. Yes.

Q. How frequently would you have occasion to meet with him?

A. Almost daily.

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Q. Were you ever made aware of any particular health problems among the employees in the PCB Department of the plant? We'll concentrate on that.

A. I was made aware of some health problems, yes.

Q. And what were those?

A. Oh, that the types of problems that one would run -- come across with any fairly large population of people. Serious illness, such as heart attacks. Injuries that may have occurred off the job.

Q. How about --

A. The general kind of health matters that a plant physician would be knowledgeable of.

Q. And with reference specifically to the department that manufactured PCB's, Mr. Papageorge, were you ever aware of any particular health problems that related to PCB's?

A. No.

Q. Was there a seniority system in that plant?

A. Yes.

Q. How did that work in terms of which employees would work where and when?

A. The openings in my position in the plant that were available to the work force are assigned through a bidding process in which individuals interested in that job will sign a list designating that interest and unless there's some physical reason or very strong reason, generally, or

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always the senior individual, the one with the most years of service to the company, would be given that assignment.

Q. Now, Mr. Papageorge, where did the PCB Department Manufacturing Department of the Anniston Plant fall into the scheme of things versus the seniority and the job bidding and that sort of thing?

A. It was the preferred assignment in the plant.

Q. And what was the result of that in terms of longivity of the employees in any department in the plant?

A. That department had the most experienced employees in it. The long-time employee, and would end up, really, with almost all of the retirees coming out of that department. It would be, in most cases, the ultimate assignment in the plant.

Q. During the time that you were at the Anniston Plant, Mr. Papageorge, were there any steps that Monsanto took, or any equipment that Monsanto applied to the PCB worker?

A. Yes.

Q. And would you outline for us what sort of things would be done in that particular situation?

A. I don't think that we had anything unique to the PCB Department. All employees in the plant would be entitled the hard hat, the safety spectacles, the safety shoes, and had access to changes of clothing, underwear and work clothes, and also had available to them other devices, such as

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respirators to protect their breathing fumes, gloves of all types that they could use to protect from getting their hands exposed.

Q. With reference to the workers in the PCB Department of the plant were they any different than the other workers in connection with the type of garments that were provided to them?

A. No.

Q. Were they required to wear like this space suit-type stuff we see?

A. No. Not in that department.

Q. And with reference to the -- I think you indicated the company provided work clothes, is that right?

A. Yes.

Q. What kind of materials were these made out of?

A. Well, I'm not a textile expert. I would define it as sort of a khaki or denim coverall-type of material. Shirts and trousers.

Q. Why were these types of clothing made available to the employees?

A. I think for two reasons. One, it just makes good common sense to have the employees wear work clothes on the job that they can discard as they leave and go home without taking any chemicals home that the wife has to launder their clothes or anything of the kind. And I think the second

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reason is it was part of the labor negotiations. This was one of the benefits that was negotiated many years ago.

Q. You mentioned the availability of respirators. Why would these respirators be available? In other words, what type of processes or procedures?

A. Wherever there is a possibility that fumes might be in the work area, or dusts might be in the area, the employee had access to a respirator they could put on and he had to use his judgment as to how serious the situation, or how severe the dusting, or fuming problem was and he'd make the decision to put on the mask. Of course, he would have training prior to that on how to apply this respirator and what types of conditions to look for.

Q. Any particular special requirements about the use of respirators in teh PCB Department?

A. I don't know if I would call it a requirement. Individuals were cautioned not to breathe the fumes and if their job exposed them to fumes they should put on a respirator and complete the job and avoid breathing those fumes.

Q. Mr. Papageorge, you mentioned hard hats, safety glasses. I think you said work shoes, something like that?

A. Yes.

Q. And were those required throughout the plant?

A. Yes.

Q. And why hard hats and safety shoes? What are safety shoes,

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first off?

A. They are a -- generally a heavy shoe designed with steel tipped toes and they are designed really, to prevent damage because of falling objects, or jagged edges on flooring and the like. They are designed to protect the foot in an industrial environment.

Q. How about the hard hats and safety glasses, why would those be issued?

A. The hard hat is provided, again, to protect from falling objects or bumping in low structures.

Q. The steel structures do have some low spots and prevent some bumping accidents. The spectacles are designed to protect the eyes from many surprise flying objects, materials, or events of that type.

Q. Were vent fans used in the plant?

A. Yes.

Q. Would this be just the PCB area, or would it be throughout the plant, or where would it be?

A. It depended not so much on the area but on the conditions within that area. If there were possible fume releases or dust, we would provide the necessary exhaust fans. On occasion we might even just have a circulating fan to bring in fresh air into the work area for comfort as well as fume removal.

Q. Mr. Papageorge, was there anything unique in the PCB unit

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regarding either safety equipment built into it, in to that unit, or garments worn by employees in that unit?

A. I don't recall anything that I would call unique, no.

Q. Did you develop an understanding of what the process was to make PCB?

A. Oh, yes.

Q. And how did you learn what that was?

A. Well, there are many ways. I don't recall the exact sequence I went through, but there was literature that I could read, many, many reports on the process, the treating process, the chemistry in the process, which included safety measures to be taken. I then would have an opportunity to talk to those that were experienced prior to my assignment there and get their personal inputs.

Q. Did you go down into the plant, into the PCB unit, and observe the process in action?

A. Oh, yes.

Q. What was the process, by the way, to make PCB?

A. Oh, depends where you'd like to have me start in the process. It's not a very sophtiscated process but, I guess --

Q. What substance would you start with to make PCB?

A. The most basic substance we started with, two materials, benezine and chlorine.

Q. And with the benezine what would be done with that?

A. The benezine would be treated at high temperatures. So

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high that the vessel in which it was occurring would glow at night. They were clearly red. And under those conditions the benzine combines with itself in a way to form polyphenols, biphenyls, and turphenyls,and quaterphenyls.

Q. Let me ask you this, Mr. Papageorge, at that point where the biphenyls have been formed is this substance any longer benzine?

A. Oh, no. It's lost its benzine identity. It's a different material all together.

Q. Is there any oxygen present in that particular process?

A. Oh, no. Oxygen and benzine at those temperatures would explode. So it has to be oxygen free.

Q. In the absence of oxygen can furans form?

A. No.

Q. Then, as a result of this process you just outlined you have -- I forget what, biphenyls or --

A. We have a mixture of polyphenyls.

Q. Polyphenyls? All right. And what then happens at this point to produce PCB? Or perhaps I guess the question is outline where you go from here to produce PCB?

A. We separate the biphenyls from the other materials formed. These biphenyls, to re-emphasize, they are not benzine any longer. At room temperature the biphenyls are solid materials. They're like candle wax. In order to take the next step the biphenyls must be kept hot so that they're

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liquid like molten wax and pumpable. We then introduce --

Q. I'm sorry. That word is what?

A. Pumpable. We can pump from one vessel into another.

Q. All right, sir.

A. We then introduce this molten biphenyl to a chlorine gas which is bubbled through this molten material in the presence of iron filings, and this results in chlorinated biphenyl.

Q. When you say in the presence of iron filings, what does that mean? It sounds obvious but, you know --

A. We purchase iron filings from steel companies. It's very, very fine. It's almost a dust. And it's introduced into the pot in which the chlorination takes place and this presence, this material, these iron filings help the process of making chlorinated biphenyls.

Q. Now, when you wind up with the finished product, that is PCB, is there any benzine in that?

A. No.

Q. Speaking of benzine, is benzine the starting product, to your knowledge for any other commonly used products, for instance?

A. Oh, yes. Many, many products.

Q. Such as?

A. I'm trying to think of some that are more common.

Aspirin, I know contains benzine. Has a benzine ring in it's formulation

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Tylenol is another common medication that has the benzine ring in its formulation.

Many plastic materials have benzine in them.

Q. Mr. Papageorge, we spend a little time here discussing your tenure at the -- I'm sorry, at the Anniston Plant. And how long was it that you were there at Anniston?

A. Five years. Until the end of 1969.

Q. DId your job responsibilities then change at the end of '69?

A. At that point, yes, they did change.

THE COURT: Mr. Jungerheld, we'll take a recess at this point.

Members of the Jury, retire to the Jury Room. We'll call for you in 10 minutes.

(Whereupon legal argument ensued out of the presence of the Jury and whereupon a recess was taken.)

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THE COURT: Go ahead, Mr. Jungerheld.

MR. JUNGERHELD: Thank you, Your Honor.

Q. (By Mr. Jungerheld, continuing:) Mr. Papageorge, while I think of it, during the course of the employment, as you described it thus far, have you had occasion to get PCB's on yourself?

A. Yes, many times.

Q. Where would that be? I don't mean on your body, but where, in Anniston or where?

A. Primarily the Anniston plant, yes.

Q. I think before the break we had ended at the end of 1969, which was the end of your tenure at the Anniston Plant, is that correct, sir?

A. Yes.

Q. And what was your change in job resonsibilities at that point then?

A. I was appointed manager, environmental control, located in the St. Louis offices of Monsanto.

Q. And did that have anything to do with PCB.

A. Yes.

Q. What were your job duties? By the way, when did this begin?

A. January 1st, 1970.

Q. All right, I'm sorry. I think you said that and I didn't catch it.

What were your job duties then as manager of Environmental

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Control as related to PCB?

A. I was responsible for becoming as familiar as possible, as quickly as possible, regarding an emerging, evolving issue regarding PCB's in the environment; to keep abreast of developments, to guide management and make recommendations to management regarding Monsanto's actions as it related to new information as it was available.

Q. Mr. Papageorge, you used the word "emerging" and "evolving". What do you mean in the context of PCB?

A. Well, at that time the information we were getting regarding PCB's were very sketchy, confusing at times. The terminology hadn't yet been made standard. Even the expression "PCB's" was not common at the time. There was, I recall, some initial confusion between the words "phenyl" and "phenol" which are entirely two different chemicals.

So it's that kind of thing that I refer to when I say emerging, evolving. It was a fast changing scenario.

Q. When did you first learn of the environmental presence of PCB?

A. As best I recall, it was late 1969.

Q. And what were the circumstances?

A. That is when my supervisor approached me to consider taking on this newly created job. And in telling me about this job, he mentioned that he had heard that there was some evidence that PCB's were discovered in the environment, that

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this is a product of Monsanto's, and we should get to know more about this situation.

That a few people in St. Louis were trying to keep up with events, but the information was rapidly evolving and they needed someone to devote full time to it.

Q. And the lucky someone was you?

A. Yes.

Q. All right. Now, Mr. Papageorge, would you outline for the Jury what you did undertake then in connection with this endeavor?

A. Well, there were so many things early in 1970. There was the effort I made to get more familiar as quickly as I could.

Q. How did you go about doing that?

A. I made appointments with all of the individuals within Monsanto initially who had been involved and borrowed their --

Q. Involved in what?

A. With the PCB situation as they understood it. And made appointments with these individuals and they would conduct tutorials, they would teach me what they knew and would give me reading material which, of course, I would take with me and study.

Q. Are you talking about the environmental presence of PCB?

A. Yes, environmental presence and new analyses that lead to this detection in the environment.

They also brought me up-to-date on the kinds of studies

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that Monsanto had already in place or had completed up to 1970. And as part of this, we also made appointments wherever we could with individuals outside of Monsanto, a few university people, some governmental people.

And in that year we also started to make contact with individuals in Europe to try to set up appointments so that we could meet with them and get familiar with information they may have and actions they might be contemplating.

Q. What was your interest in what was going on in Europe?

A. Well, it was two-fold. One is this is where the researchers in Sweden had developed analytical methods that able able to identify the PCB's in some of their samples. So Europe really was the beginning of this new analytical frontier, and we wanted to be able to talk to these researchers to see what new developments they had in 1970.

And we also wanted to talk to producers of PCB in Europe and we also wanted appointments with researchers in analytical laboratories and also some individuals in the regulatory ministeries in the United Kingdom to see what they knew about effects of PCB's or presence of PCB's in wildlife.

Q. Did you undertake any activities in addition to the information gathering?

A. Yes.

Q. I might mention, we'll come back -- we'll do this in a little

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more detail later. But initially let's talk about what kinds of activities you undertook in this regard.

A. I don't recall the exact sequence. There were so many things going on. One was we looked at our labels and decided that they should be modified to reflect the information that was evaluated, at least information that was felt was firm enough to be communicated. That information should be on the labels. So we decided to start composing the right words, the right statements.

At the same time we assigned several individuals the task of looking over some literature that described the PCB's that Monsanto manufactured and see if that literature should be changed to reflect new information.

Q. What kind of literature are you talking about?

A. I have in mind a specific bulletin that describes the PCB's that Monsanto made and kind of applications that customers might use these PCB's in.

Q. Would this have been applicable to the plasticizers?

A. Yes. That was a plasticizers technical bulletin.

Q. All right. Continue on. What other kinds of things were you doing?

A. Well, we also very early on decided that although the studies were far from finished regarding presence in the environment, where and what, we thought we had enough in 1970 to communicate at least in part to our customers that we had on record,

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whose names and addresses we had in 1970. So we composed some letters to customers and also, as a variation of that, we had letters to distributors in which we tried to share with them what we knew early in 1970.

Q. And perhaps it might be a good point to explain what is a distributor versus what is a customer. Explain the distinction between the two, if there is one.

A. Well, in my interpretation of the word, the customer is that company or that person that purchases the Monsanto material and uses it in the production of his product.

A distributor is a person or company in the business of handling many, many chemicals; very much like a supermarket, to which others may come and order those chemicals for their use. So the distributor does not use our materials, he re-sells it to others.

Q. All right, sir. And you indicated something about communicating with customers, distributors.

Would you please continue?

A. Well, that took place in 1970. We changed our literature, we changed our label.

Q. What was your concern at this point in early 1970? What was your impression of the concern?

A. Well, my concern was that there was a man-made material being discovered in nature, in very surprising ways to us, to those of us who were close to this product, and it just

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didn't seem responsible that that material should be found in the samples that were reported, such as fish and birds, plants and the like; sediment from rivers and so on.

Q. You talked about several activities that you undertook. Can you tell me if you looked into incineration, for instance?

A. Yes.

Q. In what connection?

A. Early in 1970 I was also asked to propose an action plan as to what should Monsanto do with this series of products for the future based on what we knew then. Part of that action plan was to provide a service to our customers to which they would return their used liquid PCB so that we could properly dispose of it rather than have them in a situation where they couldn't do anything that was considered proper with that particular liquid waste.

So I made arrangements with a company that was noted for designing incinerators and burners. They would test and see if they could develop a unit that could destroy PCB's without contamination of the environment.

Q. Mr. Papageorge, at this time was there any consideration given by you to the ceasing of production of PCB for any particular uses?

A. Oh, yes, that was early on. Yes.

We decided that since the reports we were getting from other laboratories, as well as reports from our own laboratory,

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that there were certain of the PCB commercial mixtures that were the ones that were being identified as the type that seemed to persist in the environment. So we decided that, first of all, we would reduce the use of those types.

At the same time we decided that there was some uses that just could not be controlled adequately to prevent PCB's from reaching the environment, and those were the uses we, in Monsanto, referred to as the plasticizer use, which, for all practical purposes, really turned out to be the miscellaneous use.

These are uses in which PCB's end up in end products that are disposed of fairly quickly; not too long a period of time between the manufacture of the product and its end of usefulness. And these are kinds of uses that we perceived as being the kind that we just better discouraged those uses. We better not supply for that type of use.

Q. Mr. Papageorge, backing up just a bit. During your tenure with Monsanto did you have occasion to become familiar with the labels used by Monsanto on PCB's

A. Yes.

Q. I'm going to hand you what has been marked before we commenced this morning as Defendant's Exhibit 406 and ask you if you can identify that.

A. Yes, I can.

Q. And without giving the contents of it, what would that be?

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A. That is a label that is used on a container of Monsanto PCB.

Q. When?

A. Very early in the '30's. One of the original labels when Monsanto was involved.

MR. DAVIDSON: No objection, Your Honor.

MR. JUNGERHELD: We've offered Defendant's Exhibit No. 406.

MR. WOODWORTH: No objection.

THE COURT: 406 is admitted without objection.

Q. All right. Mr. Papageorge, referring to 406, tell the Jury what is this document. First off, of course, we understand it's an expanded version; but nonethe less, what does this represent?

A. This document represents a label that was glued onto the packages of Aroclor manufactured and sold by Monsanto Company back in the '30's and '40's; 1930's, 1940's.

Q. I'll hand you what has been marked as Defendant's Exhibit 407 and ask you if you can identify that?

A. Yes, I can.

Q. And that is what?

A. That is another example of a label from Monsanto's PCB's. It's a modification of the earlier examples we just saw and this was adopted in the '50's, as I remember.

MR. DAVIDSON: No objection.

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MR. WOODWORTH: No objection, Your Honor.

THE COURT: Very well.

MR. JUNGERHELD: Okay. In the absence of any objections, I'll offer 407, Your Honor.

THE COURT: 407 is admitted without objection.

Q. Mr. Papageorge, with that exhibit on the board before the Jury, would you explain to the Jury what that represents?

A. That represents a copy of the label used by Monsanto to affix to containers of the PCB product that Monsanto manufactured and referred to as Aroclor 1254.

Q. Mr. Papageorge, I'll hand you Exhibit 408 and I will ask you if you can identify that.

A. Yes, I can.

Q. And, again, generally what is it?

A. It's a copy of the label.

Q. This label would be starting in use when?

A. Late '60's.

MR. WOODWORTH: Your Honor, I'll tell you the truth, I don't recollect having seen this before; but, you know, I'm not disputing that is a label, so I'll let it in for that purpose. We'll just have to check on it ourselves. We have so many of them.

THE COURT: All right. Mr. Davidson?

MR. WOODWORTH: In other words, I won't object.

MR. DAVIDSON: I don't have any objections, with

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one clarification. It's my understanding that the date that is stamped on there is the day it commenced use.

THE COURT: The testimony was the late '60's. Are you offering --

MR. JUNGERHELD: Yes, we offering Exhibit 408.

THE COURT: It's admitted without objection.

Q. Mr. Papageorge, referring to Defendant's Exhibit 408, which is on the easel there, would you tell the Jury what that is and when that came to be used?

A. This is a copy of a label for Monsanto's PCB; Aroclor 1254, specifically. And it was adopted for use in the middle of 1969.

Q. The last three exhibits then, Mr. Papageorge, do they reflect the labeling developments from the '30's into the late '60's?

A. Yes, they do.

Q. I'm going to hand you Exhibit 409 and ask you if you can identify that?

A. Yes.

Q. And then briefly what is that without giving the substance of it at this point?

A. That is a label to be affixed to PCB's manufactured by Monsanto.

THE COURT: Is there a time period as to that?

MR. JUNGERHELD: That is what I am going to get

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into with him. Yes, there is, Your Honor.

Q. Now, Mr. Papageorge, with reference to Exhibit No. 409 --

THE COURT: Before you put it up there you better offer it.

MR. JUNGERHELD: I'm sorry.

THE COURT: Without the Jury seeing it, technically.

MR. JUNGERHELD: Yes, I'm sorry. I would offer then Defendant's Exhibit 409.

THE COURT: Any objection?

MR. DAVIDSON: No objection.

MR. WOODWORTH: No objection.

THE COURT: 409 is admitted without objection. Go ahead.

Q. Mr. Papageorge, looking at Exhibit 409, could you tell the Jury what that is and when that came to be used and under what circumstances?

A. That label was developed for use in 1969 such as the previous labels. It's purpose is that it was a supplementary label which would be affixed to containers of PCB's already packaged and in the warehouse which contained the previous label, the one used in the '50's.

So in order to get this additional paragraph on all shipments, this was a supplementary label used until the old inventory had been sold and the inventory would have on

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it the new label adopted in July, 1969.

Q. And when you say the new label adopted in July of '69, would that then be Exhibit 408?

A. Yes.

Q. Mr. Papageorge, I'm going to hand you Defendant's Exhibit 410 which is two pages and I'll ask if you can identify that?

A. Yes, I can.

THE COURT: Are they both just 10 or is there a letter, also?

MR. JUNGERHELD: Apparently we've marked this separately, Your Honor. It's 410A and 410B.

THE COURT: All right.

Q. This is a letter dated when and to whom?

A. This is a letter -- this is copies of a letter dated February 19, 1970, and it's addressed to "Dear Sir". And it was sent to distributors who did business with Monsanto and PCB's.

MR. WOODWORTH: I have no objection. I think they're already in. I put them in with Dr. O'Connor, three files full.

MR. JUNGERHELD: This is a series of expanded versions of some exhibits that have been earlier in evidence, but not, I don't believe, put before the Jury yet. These are expanded versions, because, of course, they're easier to read.

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MR. WOODWORTH: Well, they are in evidence and I don't know if they were circulated through the Jury. There was three files I put in with Dr. O'Connor and he went through and identified the letters and that is what he based his letters on. I guess these are representative in that case.

THE COURT: I'll allow -- do you have any objection?

MR. DAVIDSON: No objection, Your Honor.

THE COURT: I will allow their admission on the basis that they are -- there is a difference in the sense that they are a larger version and therefore can lend themselves to be put up more visible to the Jury.

So I'll allow 410A and 410B. I'm not sure if that is over or without objection, but the record speaks for itself.

Q. Mr. Papageorge, earlier in your testimony you had reference to some letters that went out in connection with your work as you described it in connection with the PCB environmental situation in early 1970. Would you tell the Jury what this exhibit is now or these exhibits that we have here, 410A and 410B?

A. These exhibits are a copy of a two-page letter that was mailed to distributors on February 19, 1970, in which we informed the distributors that Monsanto is going to mail to its customers letters in which we tried to share with these customers our knowledge of PCB's and the environment.

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And we go on in this letter to suggest to them that they in turn inform their customers. And we even attached to this a proposed letter that they might wish to use to mail to their customers.

Q. Was there, in addition to -- well, what then would be enclosed with this letter to distributors?

A. With this letter to the distributors there would be a copy of Monsanto's letter to its customers, as well as a copy of an article out of a chemical journal called "Chemical Week" which contained an excellent summary of all of the states' water pollution laws that existed at that time.

This is before the days of EPA when water pollution was managed by the states individually, and each of the states had their own set of laws. But throughout all of these summaries it was obvious that the contamination of rivers and creeks and lakes just wasn't going to be tolerated and this, we felt, was appropriate with our message to keep PCB's out of the sewers and keep from spilling and the like.

Q. All right.

MR. WOODWORTH: Your Honor, excuse me, but do they have the Chemical Week attachment? I recall I moved for that to be admitted with the letter and it was not admitted because that was hearsay. It was attached to the -- I think --

THE COURT: The letter wasn't admitted?

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MR. WOODWORTH: The letter was but the article from Chemical Week was not admitted because it was considered hearsay and he has just testified as to what the letter from Chemical Week testified.

I wonder if they have that blown up, too, because I think the exhibit will show, from Dr. O'Connor, that the Chemical Week article is not with the letter.

THE COURT: He testified that it included that. I don't think he testified as to the contents of it.

MR. WOODWORTH: He said that the Chemical Week article summarized all the water pollution standards for all the states that the EPA was not, you know, shouldn't be -- to help them so it wouldn't be discharged in the river, streams, sewers, that kind of thing.

Now, I'd move for the admission of both that letter and the Chemical Week article that was attached to it, with Dr. O'Connor, and I think there was an objection, but my recollection was that there was an objection because the Chemical Week article was hearsay and I believe I argued back saying, well, it was attached to the letter.

My recollection is it wasn't admitted. I might be wrong. At this point it would become admissible, if nothing else. I don't know if they have this blown up or not.

MR. JUNGERHELD: Your Honor, I don't recall the exchange Counsel is talking about. I don't intend to offer

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the Chemical Week article. I'm just concerned with the series of letters here.

MR. WOODWORTH: Perhaps, so that we could save some time, if I could get those exhibits out and then I can look at them while he is putting these up and that might save the dispute.

THE COURT: Go ahead, Mr. Jungerheld.

MR. JUNGERHELD: Thank you, Your Honor.

MR. WOODWORTH: In fact, here it is. Plaintiff's Exhibit No. 90. It was admitted and I remembered that because I moved for the admission of that very same letter and it was admitted but there was an objection. I had the Chemical Week article attached to it.

THE COURT: Well, I will let you address that in your cross-examination, if you want to offer it now.

MR. WOODWORTH: Thank you, Your Honor.

MR. JUNGERHELD: Thank you, Your Honor.

Q Even with the expanded version, it may be a little difficult to read that from the back of the Jury Box, so would you be kind enough to read that to us?

A Certainly. It's dated February 19, 1970.

"Dear Sir: Recently several newspaper and magazine articles have been published indicating that poly-chlorinated biphenyls, PCB's, have been discovered at some point in some marine, aquatic, and wildlife

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"environments. The quantities detected are in the parts per million and parts per billion categories.

It is claimed that the PCB's found, strongly resemble chlorinated biphenyls containing 54 percent and 60 percent chlorine by weight. Products which are sold by Monsanto under the tradenames of Aroclor 1254 and 1260, contain chlorinated biphenyls.

Monsanto has decided to notify all its customers of Aroclor products of the publicity surrounding PCB's. A copy of the letter which will be sent to our customers is attached.

This letter is intended to alert our customers to a potential problem of environmental contamination through the application, processing, an effluent disposal of Aroclor 1254 and 1260.

We feel that it is very desirable that you, as a reseller of Monsanto's Aroclor plasticizers, alert your customers to this potential problem. This should be done promptly and ideally all customers should be notified at the same time.

A record should be kept of all customers notified, along with the dates on which the letters were transmitted. You will note that attached to the notification letter is a copy of a reprint of an article that appeared in Chemical Week, October 29, 1969, regarding water

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"pollution standards set by each state in the nation. This article helps to put our letter in proper context.

As mentioned in the article, good manufacturing practice in the future may require that no products used by any company be lost or discharged in such a manner as to ultimately be found in waterways. For your guidance, we intend to mail the attached letter to all our Aroclor customers around February 27.

The letter will be addressed to the office of the president at the accounts receivable address which we hold in our files. We will send you sufficient copies of the letter for your needs in notifying your customers.

To help you further, we have drafted a cover letter which you may wish to use in notifying your customers. A copy is attached, but the decision whether to use it draft your own cover letter is, of course, yours.

We regret the work that this request may cause you. As a responsible supplier, however, we feel we have a duty to keep our customers fully informed on matters concerning the safe handling of our products.

We are sure of your support in this matter and confident of your assistance along the lines indicated.

Very truly yours, W.E. Schalk, Director of Sales, Plasticizers."

Q Mr. Papageorge, did this letter reflect the state of your

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knowledge about the PCB environmental situation at this time?

A. Yes.

Q. Now, that letter that you just read makes reference to a letter to customers, does it not?

A. Yes.

Q. I'm going to hand you what's been marked as Defendant's Exhibit 411A and 411B and I will ask you if you can identify this document.

A. Yes, I can.

Q. And in summary fashion, what is that letter?

A. It is the copy of the letter to customers summarizing our stated knowledge of the PCB's in the environment at that time, February, 1970.

Q. And would this be a copy then of the letter that also went to the distributors with the one we just talked about?

A. Yes.

MR. WOODWORTH: I have no objection, Your Honor. That's already been admitted as 91A.

MR. DAVIDSON: No objection.

THE COURT: 411A and B are admitted without objection.

MR. JUNGERHELD: I suppose I should offer them.

Q. Mr. Papageorge, referring now to Exhibit 411A and B, would you explain to the Jury what that was.

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A. This is a copy of a letter mailed to customers on record in February, 1970, describing our understanding of PCB's and their presence in the environment.

Q. And would you read that to the Jury, please?

A. Yes. It's dated February 27 -- well, no, those are hand-written notes. This was mailed in '70. February 27, 1970, and it reads:

"Dear customer: Recently several newspaper and magazine articles have been published indicating that poly-chlorinated biphenyls, PCB's, have been discovered at some points in some marine, aquatic, and wildlife environments. The quantities detected are said to be in the parts per million and parts per billion categories.

It is claimed that the PCB's found, strongly resemble chlorinated biphenyls containing 54 percent and 60 percent chlorine by weight. Products which are sold by Monsanto under the tradenames of Aroclor 1254 and 1260 contain chlorinated biphenyls.

As your supplier of Aroclor 1254 and 1260, we wish to alert you to the potential problem of environmental contamination as referred to in the newspaper and magazine articles. We would like to point out the following additional facts.

1. Certain Monsanto products which are sold under the Aroclor trademark, namely, Aroclor 5060, 5442, and

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"5460 are not polychlorinated biphenyls.

2. PCB's with a chlorine content of less than 54 percent have not been found in the environment and appear to present no potential problems to the environment.

We feel that all possible care should be taken in the application, processing, and effluent disposal of these products to prevent them becoming environmental contaminants.

Of interest to you may be an article in Chemical Week, October 29, 1969, regarding water pollution standards by each state in the union. It is attached. This article reflects the view that good manufacturing practice in the future may require that no products used by any company be lost or discharged in such a manner as to ultimately be found in waterways.

Very truly yours, W.E. Schalk, Director of Sales, Plasticizers."

Q. Mr. Papageorge, did this letter then also, the one that you just talked about, did that represent the state of your knowledge at that point regarding PCB's in the environment?

A. Yes, it did.

THE COURT: Gentlemen, I think we'll recess for the day.

Members of the Jury, in light of the hour, we'll

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recess until Monday morning at 9:00. The same rules concerning avoiding exposure to the media coverage of the case applies and also of not discussing the case, of course.

And we'll look for you promptly, at which time we will reconvene the trial promptly at 9:00 o'clock on Monday morning.

Until then you are excused.

(Whereupon at 4:50 o'clock P.M., on Thursday, May 17, 1984, the Hearing was adjourned until Monday, May 21, 1984, at 9:00 o'clock A.M.)

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STATE OF MICHIGAN)
) SS
COUNTY OF HURON)

We, James R. Fritzler, a Notary Public and Court Reporter in and for Saginaw County, State of Michigan, and Donald E. Pearson, a Notary Public and Court Reporter in and for Midland County, State of Michigan, do hereby certify that we stenographically recorded the proceedings had and testimony taken in the above-entitled matter, on Thursday, May 17, 1984, before the Honorable M. Richard Knoblock.

We further certify that the foregoing and attached pages, or parts of pages, constitute a full, true and correct record of our stenographic notes then and there taken.

James R. Fritzler, RPR, CSR-2067

Notary Public, Saginaw County
My commission expires: 8-30-87

Donald E. Pearson, RPR, CSR-0279

Notary Public, Midland County
My commission expires: 11-18-87

bmg: 5-17-84

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