Certified Shorthand Reporter
134 South LaSalle Street
Chicago, Illinois 60603
312-782-3332

13 January 1983

TO: MR. JAMES T. HYNES
MR. MICHAEL A. POPE
MS. JOSEPHINE OLIVER
MR. JEFFREY C. FORT

RE: CASE NO. 78 C 1004
USA VS. OMC AND MONSANTO

PLEASE BE ADVISED THAT THE DEPOSITION(S)

OF: WILLIAM B. PAPAGEORGE

TAKEN ON : AUGUST 27, 28, 31, SEPTEMBER 1 and 2, 1981,& EXHIBI NOS. 1 through 100, INCLUSIVE; CORRECTIONS PAGES WAS FILED ON:
WEDNESDAY, JANUARY 12, 1983
WITH THE CLERK OF THE COURT, UNITED STATES DISTRICT COURT,

NORTHERN DISTRICT OF ILLINOIS, EASTERN DIVISION.

THANK YOU FOR CALLING ON ME TO HANDLE THIS

MATTER FOR YOU.

CORDIALLY,

THEA L. URBAN

cc File

9003384

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

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

The deposition of WILLIAM B. PAPAGEORGE, called by the Defendant Outboard Marine Corporation for examination, pursuant to notice and agreement of counsel and pursuant to the Rules of Civil Procedure for the United States District Courts pertaining to the taking of depositions, taken before Thea L. Urban, a Notary Public in and for the County of Cook, State of Illinois, and a Certified Shorthand Reporter of said State, at the offices of Kirkland & Ellis, 200 East Randolph Drive, 58th Floor Conference Room, Chicago, Illinois 60601, on the 27th day of August, A.D. 1981, commencing at 9:00 o'clock a.m.

PRESENT:

MR. JAMES T. HYNES,
Deputy Chief, Civil Division;
MR. KEVIN E. SHARKEY,
Assistant United States Attorney,
(United States Attorney's Office
219 South Dearborn Street, Room 1486
Chicago, Illinois 60604),

and



Thea L. Urban
Certified Shorthand Reporter

PRESENT: (Continued)

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

appeared for the United States of America;

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

and

MR. RICHARD J. KISSEL,
(Martin, Craig, Chester & Sonnenschein
115 South LaSalle Street
Chicago, Illinois 60603),

appeared for Outboard Marine Corporation;

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

appeared for Monsanto Company.

ALSO PRESENT:

MR. HUGH THOMAS,
(Outboard Marine Corporation).

- - -



Thos. L. Urban
Certified Shorthand Reporter

# I N D E X



# E X H I B I T S



- - -



Thea L. Urb n
Certified Shorthand Reporter
134 South L... S... Street
Chicago
312 - 782-3337

(Witness sworn.)

WILLIAM B. PAPAGEORGE,

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

DIRECT EXAMINATION

BY MR. POPE:

Q Would you state your name and spell your last name for the court reporter, please.

A William B. Papageorge, P-a-p-a-g-e-o-r-g-e.

Q Mr. Papageorge, I'm going to be asking you some questions. I want to make sure you understand all the questions that I ask you, so if there is any uncertainty in your mind, please feel free to have a question re-read or clarified.

A Thank you.

Q Why don't you tell us where you currently reside.

A St. Louis, Missouri, the suburbs.

Q What is your home address?

A 321 Pebble Valley Drive, St. Louis, Missouri 63141.

Q You are in the City proper then?

A No, sir.

Q This is a suburb?

A Suburb, County.

Q How long have you lived at that address?

A About 11 years, 12 years.

Q Where did you reside before that?

A Anniston, Alabama.

Q What is your current occupation, Mr. Papageorge?

A I am employed with the Monsanto Company in St. Louis and I currently am Director, Environmental Operations for Monsanto Chemical Intermediates Company, an operating unit of Monsanto.

Q Monsanto Chemical --

A Intermediates Company.

Q Is that a division or is that a separate corporation?

A No, it is a division.

Q It is an operating division of the overall company?

A Yes, sir.

Q What does the Monsanto Chemical Intermediates Company do?

A That part of Monsanto manufactures basic chemicals. We call them building block chemicals for use by other units within Monsanto of for sale to the marketplace.

Q Has that division or operating company been in effect under other names prior to it being called Chemical Intermediates Company?

A Could you repeat the question?

Q Sure.

How long has that division been in existence?

A It was formed as a unit in the Fall of 1976.

Q Prior to the Fall of 1976, there was no similar operating unit or was there?

A There was no similar unit, no.

Q Was there a significance to the term Intermediates Company?

A Yes. This refers to, it is Chemical Intermediates. In other words, they are not finished products. They are intermediate chemicals in the process of arriving at end products.

Q Is one of the basic purposes of the company basic research, chemical research?

A No.

Q Is it the formulation of new products or new chemicals for other operating companies, divisions of Monsanto?

A To me formulation implies blending, a mixing

and the like. This is more actual manufacture.

Q And the products or substances that are manufactured are all manufactured for other divisions of Monsanto, is that correct?

A Correct.

Q Mr. Papageorge, would you describe for us what you have done by way of preparation for this deposition?

A In the past few weeks I have refreshed my memory by looking over some old reports that I still have in my possession, but more recently I have worked with attorneys in reviewing documents which I am told were already submitted as exhibits relating to this issue.

Q Referring to deposition exhibits?

A I believe that's it, yes.

Q Anything else?

A That's all.

Q These reports that you have in your possession, would you describe them for me, please?

A They were really duplicates of much of what I saw here the past few days; material that I mentioned were offered as deposition exhibits, that type of materia

MR. POPE: Mr. Schink, may we feel confident that these reports that Mr. Papageorge has told me he has reviewed in preparation for the deposition are duplicates

of Monsanto documents that have already been produced?

MR. SCHINK: Yes.

BY MR. POPE:

Q The reports that you reviewed that you have in your possession, do they relate to time periods?

A Yes.

Q Beginning in 1970 or what time periods do they relate to?

A Yes. I don't remember anything before 19 70 -- there might have been a very few before 1970, but most of them were 1970 through 1975; the majority of them, '70, '71.

Q Can you give me an approximation of the volume that we are talking about?

A About three inches high or so, a stack of paper about three inches deep. That is an estimate. (Indicating.)

Q Would these reports be ones that you authored as well as ones that other people authored?

A Yes.

Q Would they all have been, to the best of your recollection, internal Monsanto documents?

A No. There were some documents that were not Monsanto.

Q Such as what?

A I'm trying to remember. For example, I recall there were some letters from governmental agencies, some reports from meetings that were held on the subject of PCBs.

Q Are those meetings that you attended?

A Yes.

Q Any other?

A I can't remember anything specific, but they were not all Monsanto.

Q Did they also include technical papers?

A Yes, there were some technical papers.

Q Papers that had been published?

A I don't think any of them were published in technical journals, no. I don't recall anything like that.

Q Can you give me your best recollection of whic are the technical papers, the subject matter or the author or identify them in some fashion that you reviewe

A Let me think here. I recall a paper referring to the studies being made in attempting to find whether PCBs degrade. I cannot recall any other specific ones at the moment.

Q In your preparation for this deposition, did

you review any reports of toxicity tests?

A I reviewed summaries, summary-type reports, yes, not full-fledged technical documents.

Q Who were those summaries prepared by?

A One was prepared by Monsanto's Medical Department personnel. There was another, I recall, prepared or at least the transmittal letter was signed by Dr. Calandra from a private animal testing laboratory, Industrial Bio-Test Laboratories.

I cannot recall any other reports.

Q The summary you have just referred to from someone in the Monsanto Medical Department, was that a summary that was prepared roughly contemporaneously with the receipt of that report which it was summarizing?

A Yes.

Q Was that a post 1970 report?

A Yes.

Q Who prepared that report or what service, what laboratory?

A Industrial Bio-Test Laboratories.

Q You are well familiar with Dr. Calandra, aren't you?

A Yes.

Q I do not want to take a great deal of time on

this. I want to know that we are talking about the same reports.

I will tender to you, a copy of a report to Monsanto Company from Industrial Bio-Test Laboratories, Inc., identified as IBT No. A7204, which has been produced by Monsanto in this litigation.

I do not propose to mark it now. I want to know if that is one of the reports you reviewed for this deposition or a summary of this report?

MS. STEIN: If you are not going to produce documents given by Monsanto, would you be kind enough to indicate the numbers that appear on the bottom.

MR. POPE: I was going to do that at the time of marking the document, but the number is 0001008, the first page.

BY THE WITNESS:

A I did not review this report.

BY MR. POPE:

Q I show you a 1972 report from Industrial Bio-Test Laboratories, Inc. to Monsanto Company, IBT A8570, which the production process of Monsanto numbered as 003421, and ask you if that is one of the reports that you reviewed or a summary which you reviewed?

A No, I did not review this report.

Q The reports from Industrial Bio-Test that you did review, what animals did they relate to?

A. Rat.

Q Both of them?

A It was the rat and the beagle dogs and chickens on the one report and the other report, as I remember, referred only to rats.

Q Are there any other technical articles or reports that you reviewed in preparation for this deposition?

A I need a clarification of technical.

Q I am trying to include both published articles that would relate to the science of PCBs or the presence of PCBs in the environment as well as studies done on animals dealing with the effects. Does that assist you?

A I am a little, somewhat confused.

In my definition, a technical report is a rather formal sort of document covering the results of the study.

Q Such as the two reports I just showed you, is that right?

A Yes, or extending it further, summaries of such reports that might be capsulized on a few pages.

Q I will be happy to accept your definition.

With that definition, Mr. Papageorge, have you reviewed any other technical reports in preparation for the deposition other than the two Bio-Test reports you just referred to?

A I reviewed some reports that came out of the Research Analytical Laboratory that summarized the results of analyses for PCBs.

Q Research Analytical Laboratory?

A Yes.

Q Where is that?

A St. Louis.

Q Is that your in-house --

A Yes, sir.

Q Anything else?

A I cannot recall any more, no.

Q And the Research Analytical Laboratory reports, what animals was that work dealing with?

A I don't recall any.

Q Is it not an animal at all?

A I don't recall animals mentioned.

Q It was a report that was summarizing some chemical experiments with respect to the effect of PCBs, is that correct?

A No, sir. These were reports in which they

attempted to detect whether PCBs were present in the water or sediment and all kinds of samples, and if they were present, to determine how much.

Q When approximately was that report prepared, do you remember?

A 1970, 1971.

Q Was that a report that was analyzing samples that were taken from Outboard Marine Corporation?

A I believe one of the units of Outboard Marine Corporation is listed in at least one or two or some of these reports, yes.

Q Johnson Motors?

A Johnson Motors, yes, sir.

Q Let me clarify one thing; we are not as formal as Monsanto is. For purposes of this deposition, I want you to understand that references to Outboard Marine Corporation, I mean to include Johnson Motors and use the term virtually interchangeably, and that is to the extent of various documents. I think we should understand each other today.

A Okay.

Q Beyond the review of the two Bio-Test laboratory reports or summaries that you have told me about and the analyses of samples taken in the water and

sediment which included references to Johnson Motors, were there any other technical reports that you reviewed in preparation for the deposition today?

A I believe I had mentioned earlier a report on the degradation of PCBs.

Q Would that be a 1970, '71 report?

A In that period of time, yes.

Q Any others?

A I can't recall any others.

Q Would it be a fair summary to say that the balance of materials that you reviewed consisted of correspondence and minutes of meetings?

A Predominantly so, yes.

Q Was there anything else besides those two categories?

A As I remember there was at least one document that was sort of a memo to the file type rather than correspondence to any particular person.

Q What was the subject matter of that memo?

A I can't recall.

Q That was an interoffice memo to Monsanto's File?

A Yes.

Q Was that one you authored?

A No.

Q Was there anything else that you can recall that you reviewed in preparation for the deposition?

A No.

Q Did you review any transcript?

A I am sorry.

Q Did you review any transcript of testimony?

A No, sir.

Q Did you review any summary of transcripts of testimony?

A No.

Q Approximately how long did you devote to the preparation for the deposition in terms of hours?

A I didn't really keep a record, but I would say about 15 to 18 hours total.

Q Does your current job include as one of its duties the following of Monsanto litigation involving PCBs?

A No, not any more than I have to.

Q Specifically with regard to this case, have you been kept up to date all along on a regular basis as to the developments in this litigation?

A No.

Q Have you talked to other witnesses who have

given depositions in this case regarding the case?

A No.

Q Or their testimony?

A No.

Q You have, I take it, given other testimony related to the subject matter of PCBs, have you not?

A Yes.

Q Could you tell me what that other testimony has been?

MR. SCHINK: You are talking now about court-type proceedings, Mike?

MR. POPE: I understand he has also testified before agencies, either Congress or maybe States and I will be happy to break it out if you prefer.

MR. SCHINK: No, are you talking about -- apparently he has made some presentation over time to various bodies, but in my mind, there is a distinction between them and testimony.

You are talking about statements he made under oath?

MR. POPE: Yes.

BY MR. POPE:

Q Where you testified under oath.

A Under oath, all right.

I testified under oath before a sub-committee of Congress. As I recall, it was about 1974, '75.

Q Do you remember which committee it was or what subject?

A No, I don't. It had something to do with the Merchant Marine. I don't recall the committee title.

I was involved in depositions, as I remember, about five or six, and I have been involved --

Q Depositions in five or six cases, generally?

A Yes.

Q Were those cases all cases in which Monsanto was named a party?

A Yes. And I was involved in two trials involving PCBs.

Q Where were the two trials?

A One was in New Hampshire, the other in Tennesse

Q Was there a specific Monsanto product line involved in each of those two cases?

A Yes, yes.

Q What was that for the New Hampshire case?

A The New Hampshire case involved PCBs, either of the heat transfer-type application or of the printing ink/adhesive/miscellaneous-type application.

Q As in packaging?

A Yes, yes.

Q How about in Tennessee?

A Tennessee, it involved fluid containing PCBs used in a transformer.

Q I presume that the five or six depositions included depositions in those two cases, is that right, or are those separate?

A Yes, yes.

Q So that leaves us with three or four additional cases where you testified.

Can you recall where those cases were pending?

A Where they were pending?

Q Yes.

A Are you referring to the locality?

Q The courthouse.

A I don't know the specific courthouse.

MR. SCHINK: Do you remember where you were deposed?

BY MR. POPE:

Q The state.

MR. SCHINK: The state location of your deposition.

BY THE WITNESS:

A I was deposed in Ohio and in Indiana and New

York. I believe that's it.

BY MR. POPE:

Q I take it those locations weren't chosen at random.

To the best of your knowledge, was the Ohio deposition taken in that case involving a case pending in Ohio?

A Yes.

Q And similarly with the others?

A Yes, yes.

Q Can you tell me the product line, if any, that was involved in the Ohio case?

A This involved one of Monsanto's PCB mixtures, Aroclor 1254.

Q What was the product that was involved?

A That was Monsanto's product.

Q What was the use or application that it was placed?

A It was alleged that this material was used in a formulation, used to coat concrete silos.

Q And the allegation was that the PCBs had gotten into food or food products?

A PCBs got into milk, yes.

Q To the best of your knowledge, has that case

been settled or is it still pending?

A That was settled.

Q The case in Indiana, what product was involved there?

A It is the same, the same situation.

Q Same incident?

A Different incidents.

Q Aroclor 1254 was involved in the coating of silos?

A In the coating of silos, yes.

Q Also in the milk?

A And cattle, present in the cattle.

Q To the best of your knowledge, what is the current status of that litigation?

A That is still pending.

Q How long ago were you deposed in that case?

A The first week of this month.

Q First week of August '81?

A August '81.

Q I take it you spent some time preparing for that deposition?

A Yes.

Q What product was involved in that case?

A It was never established, but it was either

the heat transfer fluid or a packaging-related application.

Q What was the allegation, that PCB had gotten into some food product?

A It got into poultry feed and involved poultry and eggs.

Q Is that in Upstate New York or New York City?

A Upstate New York.

Q What city?

A Middletown, New York, as I remember.

Q The best of your knowledge, is that case still pending or has it been settled?

A I don't know the status of that case.

Q How long ago did you give your testimony in that case?

A I believe it was 1977, approximately.

Q Have we exhausted the number of times that you have given testimony under oath in the general subject matter of PCBs?

A I believe we have, yes. I can't recall any more at the moment.

Q Are there other times that you submitted testimony to the Committees of Congress or State regulators in the form of affidavits or written testimony

other than this one Subcommittee of Congress on Merchant Marine?

A This is to Congress or States?

Q Right, either one.

A I don't recall any written material submitted, no.

Q Have you ever orally presented testimony to any Federal agency or Subcommittee of Congress where you were not under oath?

A Yes.

Q Could you tell me when that was and how often that has been?

A Oh, numerous times. I have never kept a record, really. I have spoken before many groups within the United States Environmental Protection Agency, both informally and semi-formally.

I spoke many times before a group consisting of representatives of regulatory agencies ~~and~~ within the Federal Government, which included not only regulatory but I guess policy-setting and counsel~~-setting~~ in the Office of Science and Technology, the Executive Offices of the President, the Food and Drug Administratio the United States Department of Agriculture.

Q Is that the Interdepartmental Task Force?

A Yes.

Q A group entitled Interdepartmental Task Force on PCBs in Washington, D.C.?

A Yes.

I spoke before Wisconsin Department of Natural Resources. I spoke before a group of representatives -- I forget the exact title, the Five-State Governors Meeting, Council on PCBs.

I spoke before the New York State Attorney General.

I'm sure I missed some. I cannot remember them all.

Q You recall no other appearances before Committees of Congress?

A No.

Q Mr. Papageorge, would you summarize for us, please, your educational background and training?

A I have a Bachelor of Science Degree in Chemical Engineering and a Master of Science in Chemical Engineering, both from Washington University located in St. Louis, Missouri.

Q When were those degrees granted?

A The Bachelor's Degree was granted in 1943, and the Master's of Science Degree was granted in 1947.

Q Have you taken any postgraduate courses or additional courses since then?

A Oh, yes. I have taken courses at what was at that time called Oklahoma A&M. Now I think it is called Oklahoma State, courses in chemical engineering.

Q When was that?

A The period 1948 through 1950.

Q Are there any courses you have taken since then?

A I'm sorry?

Q Have you taken any formal courses since Oklahoma State, the 1950 period?

A I need help on the word formal. Is it leading to credits for a degree?

Q Okay.

A No.

Q Have you taken courses that do not qualify to that degree of formality?

A Yes.

Q What types of courses were these that you took?

A Courses at the University; courses, for example the American Management Association.

Of course, Monsanto has courses, courses that are offered by the company, by many groups.

Q Professional groups?

A Professional groups or companies that a the business of offering courses.

Q Are these all in the chemical area?

A No.

Q Similar to the American Management Association?

A No, these are primarily in the management area.

Q That includes the ones you took at universities, is that right?

A Yes.

Q What universities are those?

A Washington University.

Q Any others?

A What?

Q Any others?

A No.

Q Can you tell us what professional societies you belong to?

A The American Chemical Society and the American Institute of Chemical Engineers.

Q Have you published any papers in your field?

A No.

Q When did you hold your first job after getting your B.S.?

A 1947.

Q What was the nature of the employment and who were you employed by?

A I was employed by Phillips Petroleum Company in Bartlesville,Oklahoma, working in their Research Department.

Q That is when you began taking the courses at Oklahoma State?

A Yes.

Q Was that leading to your degree?

A That was the intent.

Q The Ph.D. in Chemical Engineering?

A Yes.

Q That was not completed?

A That is right.

Q How long did you work for Phillips?

A From 1947 through most of 1951, November of 1951.

Q What was your final job with Phillips before you left?

A I was Process Designer in the Refining Department.

Q You changed jobs at that point?

A Yes.

Q Where did you go then?

A I joined Monsanto Company in St. Louis.

Q What was your initial function or job title with Monsanto?

A I forger the exact words, but I was again Process Designer.

Q In a larger department?

A This was at the plant in Monsanto.

Q Which plant?

A The John F. Queeny Plant located in St. Louis.

Q What was being manufactured by the John F. Queeny Plant?

A Oh, hundreds of different products.

Q You started working for Monsanto in what year was that?

A 1951.

Q Was the John F. Queeny Plant manufacturing PCBs in 1951?

A No.

Q As Process Engineer, were you designing?

A Yes.

Q What types of things were you designing when you started working for Monsanto?

A Distillation equipment, heat transfer units,

pumping circulating systems.

Q How long did your job remain basically the same?

A I believe it was about three or four years.

Q So approximately in 1954?

A Somewhere in there, yes.

Q What took place then?

A I then became the Production Supervisor.

Q At this point in time in the early 1950s, were you a registered professional engineer?

A No.

Q Are you today?

A Yes.

Q When did you become so registered?

A I believe it was the early 1960s.

Q What body issued that registration?

A State of Missouri.

Q Going back to 1954, you were promoted to Production Supervisor?

A Yes.

Q What did your job entail at that point?

A I was responsible for the management of a group of people who were involved in the manufacture of some of the chemicals.

Q Were you still at Queenay?

A Yes.

Q What type of chemicals or what type of products were being manufactured by these people that you were in charge of?

A Over the period of time it covered, I will mention chemicals if that will help: Phthalic anhydride.

Q What is that used for?

A I am sorry?

Q What is that used for?

A It is an ingredient that is used in making paints, making plasticizers, making plastics, and I also was involved in making these plasticizers from phthalic anhydride.

Then I was given the assignment to making another group of intermediate chemicals called nitro-chlorobenzenes.

Q What were those chemicals to be used for?

A They were used in rubber chemicals and in making of dyes; some were used in pharmaceuticals.

Q By dye, you mean color?

A Colors, yes.

Those are the principal uses.

Q Any other substances that come to mind that

your people were manufacturing at that time?

A That's it.

Q How long were you Production Supervisor on this team?

A I think about four years, roughly.

Q Was the nature of your job such that you were regularly on the floor as opposed to being in an office in management?

A Well, the office was right in the operating unit so I was there.

Q You were involved in the day-to-day manufacture?

A Yes.

Q Approximately how many people were working under you at that stage?

A I don't recall the exact number, but I'm going to estimate 30 to 50.

Q Whatwas the next promotion?

A I then was asked to become a Maintenance Supervisor.

Q This would be about 1959, 1958?

A Do I have too many years -- about '57, '58, somewhere in there.

Q What is a Maintenance Supervisor or what was it at that time?

A At that time I was responsible for a crew of craftsmen who would perform primarily repair on equipment and occasionally we would erect new equipment on a small scale.

Q Was this still at Queeny?

A Yes.

Q Was the general subject matter of discharges from the Queeny Plant under your care as Maintenance Supervisor?

A No.

Q The repair and erection of new equipment you were dealing with at that period of time related to in-house Monsanto manufacturing processes, is that correct?

A Manufacturing or facilities to support manufacturing.

Q Would this be a period of time when the Queeny Plant was expanding?

A Yes.

Q Approximately how many people worked under you during this period of time as Maintenance Supervisor?

A Again, it would vary with the work at hand: 30 to 50.

Q Would this similarly be a position where you

were actually yourself involved in overseeing the repair --

A Yes.

Q -- or erection of equipment?

A Yes.

Q How long a period of time were you Maintenance Supervisor at the Queeny Plant?

A A couple of years, I believe.

Q Would your next promotion or change of job be 1960 or so?

A Somewhere in there I became Maintenance Superintendent.

Q I take it that was a promotion?

A Yes, sir.

Q How did your job change?

A I was now responsible for all the maintenance in the entire plant.

Q At this point in time did your job include the disposal or cleaning of substances that were manufactured or discharged from the plant?

A Not directly.

Q How do you mean that?

A My function did not include involvement with, as an example, hiring of trucks to haul off wastes. We were indirectly involved in that we maintained the

facilities that would store material or the sewer system that carried the water effluent ~~from~~ to the City system and this is what I meant by indirect involvement.

Q So for example, did you have oil interceptors at that plant?

A No.

Q What form of treatment did the discharges have before they went to the City sewer?

A At that point in time, each department in its process equipment would make certain they separated the water from the non-water phases and the water would go into the sewer collecting system and end up in a main sewer which tied into the City, the municipal treating plant.

Q So your function did not include any treatment of discharge?

A No.

Q When you say your department was responsible for maintaining the equipment or the lines or the sewers that went to the City sewer, what do you mean by maintaining? What would you maintain?

A For example, if there would be a break in the sewer, our team would be called in to do whatever was necessary to perform the repair work.

Q Was it part of your function at that point to observe or monitor whether the individual departments were effectively separating out the process water from the regular water?

A That was not my responsibility.

Q Was there someone else at the plant that had overall charge of that responsibility at that time?

A Yes, there was an individual assigned at that time.

Q Who was that?

A Joseph -- gosh, I forgot his name, Joe Nemeth, N-e-m-e-t-h.

Q To the best of your knowledge, is he still alive?

A Yes.

Q How many people were working under your supervision as Maintenance Superintendent?

A About 400.

Q I take it included in that group would be the kinds of craftsmen you referred to earlier that were involved in repair and erection of new equipment?

A Yes.

Q How long did you have the job of Maintenance Superintendent?

A About three years, I believe.

Q What was your next position?

A Pardon?

Q What was your next position?

MR. SCHINK: You have to speak up, Mike. It is awfully hard to hear you.

BY THE WITNESS:

A I was then assigned a Superintendent in our Plant Technical Services Department.

Q Is this still at Queeny?

A Yes.

Q What was the Plant Technical Services Department?

A This is the Plant Engineering Design Group.

Q What did this group design?

A They would design new systems, new equipment, new facilities to help the plant improve its performance.

Q When you refer to new systems, are you talking about manufacturing systems?

A Yes.

Q This group would not concern themselves with the development of new products, would it?

A No.

Q Approximately how many people were in the

Plant Technical Services Department in 1963 when you became Superintendent?

A About 150 to 200.

Q Were those basically technical people, professionals?

A Yes, basically.

Q Were you in charge of the entire department or were you just one of the Superintendents?

A One of the Superintendents.

Q Did you have a specific role as Superintendent or series of projects?

A Yes. I was assigned ~~the~~ a group professionals and paraprofessionals and was given the responsibility for conducting the necessary studies, engineering, redesign for a specific group of products and processes.

Q Engineering for the design of specific manufacturing systems for particular products?

A Yes.

Q For what products?

A Phthalic anhydride which I mentioned earlier, maleic anhydride which is somewhat similar to phthalic anhydride, a little different chemistry, same kind of applications; some plasticizers. Again, that about covers it.

Q You were designing equipment to ma chemicals for those types of uses, is that

A To manufacture those chemicals, yes.

Q From the time you first started for Monsanto up to this 1963 period, were you within the same division, the same operating area of Monsanto?

A Yes.

Q What was that called at that time?

A At that time, the Organic Chemicals Division.

Q As of 1963, were you aware of PCB as a product that was being manufactured at Monsanto?

A Yes, I had heard of it.

Q Go ahead.

A Not only heard of it, we used it.

Q Did you use it in the plasticizers?

A No.

Q What uses had you come in contact with it at that time?

A It was primarily in the functional fluids uses such as compressors and heat exchange systems and electrical transformers.

Q You had used it in the manufacturing process and you had come in contact with it that way, is that right?

A Yes, but to assist the process, not as an ingredient in the process.

Q. The manufacturing process of making the various chemicals?

A Yes, right.

Q Did you include hydraulic fluids as one of the fluids you had experience with?

A Yes, this was in the air compressor use.

Q Was that one of the Pydrauls or was that different?

A Pydrauls, yes.

Q As of 1963, had you attended any Monsanto seminars where its various employees were acquainted with fluids that were being manufactured by Monsanto?

A If seminars in a broad sense means group to discuss a subject, yes.

Q Was a meeting such as you have just mentioned, were they held on a regular basis?

A Yes. It is part of the Safety Program.

Q Describe for me how it affected safety, what you mean by that.

A Part of the continuing education or training of employees is the education or teaching of people of the chemicals they are handling and how to best handle

them. And this is done not only for the new employees who first enter a particular producing unit, but it is also repeated at some frequency depending on the types of materials handled in that department.

So it is every quarter, sometimes every six months, sometimes once a year. It is variable.

Q Would that include both the types of chemicals that were being manufactured by these employees as well as other types they are using in the process?

A The answer is yes, anything they might be exposed to.

Q I take it then as Maintenance Supervisor, as Maintenance Superintendent and as Superintendent in the Plant Technical Services Department, it was one of your jobs to see that the employees were educated to the use of these various --

A Yes.

Q -- chemicals.

Did part of that educational process include some description of the safe handling of PCB products as far as you recall?

A Yes.

Q Would you give a lecture to the employees on that subject or would you bring in someone else, as you

recall?

A It could be either way. In fact it is usually a combination.

Q Do you have specific recollection of having such meetings in the early 1960s and late '50s with respect to the safe handling of PCB products?

A Yes, I remember we had meetings with our electricians who might be involved or potentially could be involved with dielectric applications. We did hold that, I remember that specifically.

Q What were they advised with respect to the safe handling of that fluid?

A Don't get it on your skin, if you do, wash it off fairly quickly. If it gets in your eyes, rinse it out because it is an irritant.

Repeated exposure to skin, we were told will cause to relate to them ~~because~~ a chapped hands appearance, reddening of the skin and when they are handling the hot material, avoid breathing those vapors because they irritate the respiratory system.

They were also told that if they got it on their work clothes to go back, take a shower and replace the work clothes.

Q Why is that?

A To avoid continuous skin contact.

That was the information given to the employees.

Q How was it likely that electricians would come in contact with this fluid?

A Oh, it might be when they are working on a motor starter or a transformer or when they are replacing a leaking capacitor.

Q Who gave this information to these employees?

A Generally it was the foreman, who in turn was coached by a supervisor or a Medical Department representative.

Q Do you recall Dr. Kelly or one of his associates coming in to give a discussion on that subject to your employees in the late '50s or early 1960s?

A Yes, they would be involved frequently enough that, yes, I do remember.

Q Was it Dr. Kelly himself?

A Not to the electricians, no.

Q Who was it, do you remember?

A A member of Dr. Kelly's staff, Jack Garrett.

Q Were you present?

A Yes.

Q On other occasions did you yourself advise

the foremen, the supervisors what they s
the employees on this subject?

A Yes, on occasion, yes. I wou
safety meetings with the supervisors a

Q Where did you acquire this knowledge w
pect to the nature of PCB products in the late '50s and early '60s?

A From at least two places: One is my personal conversations with Dr. Kelly and Elmer Wheeler and Jack Garrett who were members of the Medical Department at the time, as well as documented reference books that we had at the time.

Q A reference book?

A A reference book where the chemicals in the plant were listed and what we knew about them in terms of effect on people. That was available in the plant Medical Library.

Q Was that the source by which you determined who should be talked to about what types of chemicals?

A That was one of the principal sources, yes.

Q During this same period of time, were there any educational programs conducted on a regular basis for management people with respect to the various products that Monsanto was making or was introducing

and their characteristics?

A Yes.

Q Were those conducted on a regular basis?

A Yes.

Q Could you describe for me the format or the regularity, how they would be held, that type of thing?

A Well, as I remember, there would be a structured meeting conducted by members of the Plant Safety Department to which the salaried, as we call the supervisor level, would be invited to attend. This would be held in a most convenient meeting room that would hold the size of the anticipated audience.

It could take several forms: It would either be presentations by members of the Safety Department, presentations by those in the plant who had many years of experience with the product and could share that experience with the group.

It could be by invitation to people like the Dr. Kellys and Jack Garretts and Elmer Wheelers. Occasionally they would even bring in outsiders from the universities and the like, and it was a very varied forum.

I think that describes it pretty well.

Q The focus of the meetings was again on safety

of employees in the handling of substances?

A Yes, that is what we are talking about.

MR. SCHINK: You are talking now about products made in the plant as opposed to those products --

MR. POPE: That is what Mr. Papageorge has talked about. I am just trying to poke along and try to find out what was going on.

BY MR. POPE:

Q Were these meetings held monthly?

A Not that frequently, no. Generally they were twice a year, sometimes annually. It depended on the changeover in personnel and if in someone's opinion it was time to get reeducated.

Q At any of these meetings that you can recall, was the handling of PCB-bearing fluids discussed?

A Not as a subject.

Q Not as a subject, you mean if it was discussed it was only discussed in passing, or how do you mean that?

A The topic of PCBs did not appear on an agenda for that large an audience, many of whom would not even have the potential of even being involved with it.

It would be reserved for the more specific groups working with that equipment that might have

had PCBs in them.

Q I see. The discussions that you referred to earlier that you had with Dr. Kelly and members of his staff that acquainted you with the properties, the effects of PCBs, can you tell me when those took place and what you remember about what they told you?

I take it you don't remember the specifics of each one of these meetings.

A No, I don't. I can recall the essence of these discussions.

Q This is all around the 1963 or early '60s period?

A The early 1960s.

Q Could you tell us, please, what you remember about those discussions?

A I do remember asking Dr. Kelly and his staff what they could tell me, not only about PCBs, but other materials and where could I go to get more detailed information if I needed it.

Q Other materials that you were using in the manufacturing process, is that right?

A Right. And as best I recall of the information regarding the PCBs, it was like I indicated earlier, the effect on skin, drying out process, the eye irritant

capability, the respiratory irritant. Those were the three principal areas and he did indicate that there was some evidence many years before that point in time of the skin problems resulting from overexposure which was referred to as chloracne and we would relay this information to individuals.

Q Anything else?

A I cannot recall anything else.

Q Were there any discussions that you recall of effects on the liver?

A At that point in time, no.

Q Did they refer you to other sources with respect to your questions regarding PCBs?

A They referred me to some written material which was a summary of what they told me verbally.

Q Where was that written material?

A That was in the Plant Safety Department's library, which is part of our Medical Group.

Q You went and examined that?

A Yes.

Q Was there somebody at the plant that prepares some kind of analysis of each of the chemicals that is coming in?

A This would have been Dr. Kelly's group that

would have prepared the summaries and sent it to the plant for reference.

Q Setting aside the questions of safety to employees and the handling of products, was there in place an educational system within Monsanto that a person such as you in the early '60s working in the Queeney Plant could learn or be kept abreast of Monsanto' other products being manufactured at another plant?

A Not any formal way.

Q Was there an informal system of communication?

A I don't know. It was so informal, I don't know I'd call it a system. It was just the need may arise, the need to know. Someone working with future designs may wish to know something about the materials. They would because of that need seek out information and that information would come, depending on the type of information, from any one of several sources.

If it was of a chemical technical nature, they would go to a Research Group somewhere. If it was a health-medical type thing, they would go to Dr. Kelly's group, and if that knowledge was not within Monsanto, they would ask Dr. Kelly to seek it out from somewhere to see if there was anything. If not, Dr. Kelly's group would propose some studies to get it, and the same thing

with a chemical. If the chemical data, if it wasn't available within Monsanto, we would certainly conduct searches in the literature.

MR. SCHINK: The question was finding out about products of other plants.

BY THE WITNESS:

A Yes.

BY MR. POPE:

Q Would it be fair to say that the only way this information would be generated for a person such as yourself in the early 1960s would be by you initiating a request to somebody else for additional material?

A Yes.

Q How long did you hold that position of Superintendent in the Technical Services Department?

A I believe until 1963, late '62; somewhere around there.

Q Why don't you tell me approximately how long you were there.

A A couple of years; two, three years, two years.

Q What was your next position?

A I became General Superintendent at the Queeny Plant.

Q Would this be 1964?

A About 1962 or '63, as I remember.

Q General Superintendent?

A General Superintendent and I was responsible for Warehousing, Distribution -- which is shipping of tbe products -- and the Utilities.

Q You would be in charge of shipping the final product that was manufactured there at Queeny?

A Shipping out or involved with receiving raw materials.

Q And utilities means the power for the plant?

A Yes, electrical power, steam, water.

Q In this position were you partly responsible for the plant's discharges to the sewer or anywhere else?

A Only for those discharges that the utilities operation might create, like boiler water, blowdowns, cooling water tower treatment.

Q Was there any treatment given to those waters before they were discharged when you were General Superintendent?

A The treatment was given to make them more suitable for their use.

Q What treatment was given?

A For example, boiler water is treated to prevent

it from corroding the ~~water~~ boiler or depositing material into the boiler.

Q It is treated before it goes into the boiler?

A Yes, the same thing with cooling water, treated to make it more suitable for the cooling service.

Q How about when it was discharged from the plant? Was there treatment then?

A There was no treatment.

Q It just went to the City sewer?

A Yes.

Q In your position or that aspect of your position related to receiving of products, would you be in charge of receiving materials from other Monsanto plants?

A Yes.

Q I take it then you would be in charge of receiving the PCB-bearing fluids we discussed earlier that were used at Queeny?

A Yes.

Q Would they come to your dock in the same packaging that an outside customer would receive from Monsanto?

A Yes.

MR. SCHINK: Give him a chance to finish the question.

MR. POPE: We are doing just fine, Mr. Schink.

MR. SCHINK: Because for just a second, he paused on his question. Wait until he is finished asking the question.

THE WITNESS: Okay.

BY MR. POPE:

Q Do you recall what quantities you received the heat transfer fluid in at Queeny?

A I don't think I understand the question.

Q Do you mean tank cars full, barrels, buckets, pints, thimbles?

A All I recall was that we received it in steel containers, ~~not~~ in tank cars or drums.

Q You do not remember the quantity that was used there?

A No.

Q Would the same be true for the Pydraul or do you recall?

MR. SCHINK: You are talking now about the air compressor fluid, Mr. Pope?

MR. POPE: Whatever Pydraul they used at Queeny?

MR. SCHINK: He has already answered that.

MR. POPE: Excuse me?

MR. SCHINK: The Pydraul, just because the term

Pydraul has been used interchangeably in several depositions, it applies to several different types of fluids.

MR. POPE: I do not want to misstate it. We are talking here of using Pydraul only for the air compressor is that correct, Mr. Papageorge?

THE WITNESS: That is my recollection, yes.

BY MR. POPE:

Q The question is what containers did they come in, the same type of steel containers?

A Yes, steel drum.

Q It is a different substance, isn't it?

A Yes, it is different.

(The witness conferred with his counsel.)

MR. POPE: Do you want to take a break?

MR. SCHINK: Let's take a brief recess.

(Brief recess had.)

BY MR. POPE:

Q With respect to the Pydraul that was u[illegible] at Queeny, did it come with any labels on it, to y[illegible] recollection?

A Yes.

Q Did the labels contain any warnings, t[illegible] your

recollection?

A Yes.

Q To the best of your recollection, what did they say?

A I don't recall the exact words, but there were references to the eye irritation potential, the effect on skin and to avoid breathing the vapors. I believe that is the message.

Q Was there a description of what the product was in terms of containing PCBs?

MR. SCHINK: Was there any description as to the content?

BY THE WITNESS:

A Yes. I remember it had reference to chlorinated hydrocarbons which is the broad classification.

BY MR. POPE:

Q This is in the early '60s, is that right --

A Yes.

Q -- you are talking about?

A Yes.

Q Did the material for the heat exchanger fluid contain similar labels?

A Yes.

Q Did that also identify the product as containi

chlorinated hydrocarbons?

A Yes.

Q Was there any other PCB-bearing fluid that was used at Queeny during this period of time other than those two?

A We had mentioned the electric transformer application for use.

Q Was that received as a fluid at Queeny?.

A Yes.

Q Did that come in steel containers as well?

A Yes.

Q Are these roughly the size of drums?

A Itwas possible to have three different size containers at that time: The 5-gallon barrel, the 30-gallon drum and the 55-gallon drum. It was one of those or all three.

Q Was the fluid for the electrical use, was that similarly labeled as the other two?

A Yes.

Q You referred earlier to employees coming in contact with these fluids in repair or when there were leaks in the air compressors and whatnot. Was one of your duties to be in charge of disposal of such substance

MR. SCHINK: I am not sure he said they did. I

think he said they could, so I object to the form of the question insofar as it is not properly characterizing his prior testimony.

MR. POPE: I will withdraw the question, Mr. Schink.

BY MR. POPE:

Q Did there ever come a point in time at Queeny when it was necessary to dispose of fluids that contained PCBs?

A Yes.

Q How did that occur?

A We had individuals whose responsibility it was to first of all collect this spillage and put it in a steel container.

Q My first question was how did it occur. Was that a necessity, to have people like that --

A I am sorry, I misunderstood.

Q How would the Pydraul or how would any PCB-bearing fluid come to the point where it would need to be cleaned up?

A It might be a situation where a leak would develop in the system.

Q That did occur, did it not?

A Yes, occasionally.

Q What type of system are we talking about now?

A It would be heat transfer or even a compressor.

Q From time to time there would be leaks that would cause the PCB-bearing fluid to come out of place, where it --

A Yes.

Q When that happened, what was the practice with respect to cleaning it up and disposing of it?

A The practice was to contain the leakage, keep it from getting out of control. Of course, you take any steps you can to shut down the system so that it is not under pressure.

Q Not spurting all over the floor?

A Correct, and anything that did get on the floor would be collected or absorbed in some absorbing medium, whether it be sawdust or commercial products like Oil-Dri and the idea was to convert it into a form that could be swept up and collected and put into a container.

Q That was in fact done when these leaks occurred

A Yes, that was.

The container would then be accumulated with other chemical wastes and would be then hauled out to an approved landfill.

Thea L. Urban
Certified Shorthand Reporter

Q Approved by whom?

A By the State authorities and County authorities, whoever was responsible at that point in time for approving landfills.

Q To the best of your recollection, was that approving agency advised or was anyone advised there were PCBs in the substances being hauled to the landfill?

A No.

Q Following the sweeping up of fluid and the absorbent material, was it the practice then to wash down the floor?

A No need to. The PCBs are not water soluble anyway, so washing the floor doesn't -- it was not the practice.

Q Was there anything further done other than just sweeping up this material?

A That's it.

Q How many people were charged with that responsibility?

MR. SCHINK: Is your question was there this exclusive responsibility or did they have a maintenance responsibility which would have included this in the event it occurred?

MR. POPE: I don't know whether there was anybody

who had the exclusive responsibility of cleaning up spills.

MR. SCHINK: Your question is ambiguous and that is why I asked for clarification.

I will object to the form of the question.

BY THE WITNESS:

A I don't know that I can come up with a number. It is the person responsible for operating the equipment would be the first to see the spillage and would take action on his part. He has that responsibility and he does all he can to contain that leakage until the Maintenance people come along now to repair the problem, so that is another group. And this would happen, this could involve different groups of people depending on the location of that system, that piece of equipment.

BY MR. POPE:

Q Is there a third person that is called to sweep up the absorbent material and haul it away?

A No. Either the person operating the equipment will sweep it up or the Maintenance people would clean up after.

Q So the repair person, after he finishes repairing the leak, his responsibility would be to clean up whatever fluid had come loose, is that correct?

A I think this would vary. One of the two would clean up depending on, I suppose, when most of the material would have accumulated, either during the repair procedure or during the early stages.

Q When earlier we referred to repair people in the Maintenance Department that you were overseeing, they would be the people that would share the responsibility for cleaning up any leaks and disposing of material along with the personnel responsible for operating the machine, is that correct?

A That is correct.

Q Getting back to your position as General Superintendent, was it within your area of responsibility to see to the ultimate disposal of these various containers of chemical wastes?

A Yes.

Q Was the practice already in place and you simply followed it as you became General Superintendent with regard to disposal?

A Yes.

Q The practice was simply to take these containe to a landfill, is that right?

A Correct.

Q Was it always the same landfill when you were

General Superintendent?

A The best of my knowledge, it

Q Was there any segregation amon chemical wastes that were being disposed

A Yes.

Q How would that work?

A Those chemical wastes that were not considered to have a potential for creating any problems were segregated from those that we perceived as having potential for creating some health problems.

Q Human health problems?

A Primarily human, yes.

Q Into which category did the PCB-bearing fluids fall during the mid-'60s?

A They went in with the chemical, what we call chemicals, the potential terminology as distinguished from trash.

Q They went into the category that you described as the potential for human health problems, is that correct?

A Correct, correct.

Q They would be hauled together, all those types of chemical wastes, is that correct?

A Yes, correct.

Q That would be different from those that were considered to be trash and not havi potential effect on human health?

A That is right.

Q Who would make a determination as to any particular wastes, into which category it fell?

A The supervisor responsible for that producing unit, guided by the Plant Safety medical staff, would determine which containers would be used for which wastes.

Q Was this practice you have just been describing in place when you became General Superintendent?

A Yes.

Q To your knowledge, how long had it been in practice?

A I don't remember. I have no way of knowing. It was there in the '50s when I arrived and appeared to have been there before World War II, to the best of my information.

Q These containers that were used in disposal, did they have any labeling on them?

A No.

Q Were arrangements made so that these containers would be taken to a place that was used exclusively for

chemical wastes?

A Yes.

Q Who arranged that, the landfill people, Monsanto?

A Monsanto, yes, it was our people that arranged it.

Actually it was our landfill we were using.

Q I see.

A That we were using.

Q Where was this landfill?

A In Illinois.

Q Where?

A Across the river from the Queeney Plant.

Q Adjacent to the Sauget Plant?

A Yes.

Q That landfill was, I take it, registered with the State of Illinois as an approved landfill for chemical wastes?

A Yes, that is right.

Q Did I understand correctly that there were PCBs in the heat exchanger fluid that you were using at Queeney at this period of time?

A Some of the heat exchanger fluids.

Q Was there occasion when there would be leaks

of that heat exchanger fluid?

A Occasionally, yes.

Q. Upon the occurrence of such a leak, would the fluid come in contact with water?

A No.

Q Was there any water used for cooling water or other purposes in connection with the machines that used the heat exchanger fluid, to the best of your knowledge?

A No, no.

Q Were there any PCB-bearing fluids at Queeny during this period of time which if they came about the leak would come in contact with water, to the best of your recollection?

A They shouldn't, no.

Q During this period of time that you were General Superintendent, did you have occasion to have any interaction with the Sauget Plant?

A Yes.

Q That is called, what is the name of that plant?

A The W. G. Krummrich Plant.

Q That is simply across the river from the Queeny Plant, is that correct?

A Correct.

Q Although it was a wide river, as I understand.

What was the nature of contact you would have with the Krummrich Plant during that period of time?

A It would vary the full spectrum for comparing notes on how they do things, how we do things, the routine where, "I'm coming over with a load to dump, put in your landfill, is the gate open?" to "I'm going to conduct a certain training course, do you have anybody that wants to attend?"

Just about any topic imaginable could have and did exchange between the two plants.

Q Were there any other Monsanto plants that you had such contact with on a regular basis?

A Not to that degree, much more limited.

Q Because of the physical proximity?

A Correct, plus the types of materials handled were similar.

Q Were you using in Queeny, products that were being manufactured at the Krummrich Plant?

A Yes.

Q What type of products?

A The PCBs, for one.

Q Is it fair to say that all the PCB-bearing fluids you were using in the manufacturing process at

Queeny were being manufactured across the river at Krummrich?

A Not necessarily.

Q What was the breakdown?

A What was the breakdown?

Q You said not necessarily. I am asking you to explain that.

A Some PCBs used by the Queeny Plant were manufactured at the Anniston, Alabama Plant of Monsanto.

Q Of the fluids we discussed, which ones were manufactured at Krummrich and which ones at the Anniston, Alabama Plant, do you know?

A Both.

Q I see. They are interchangeable?

A Yes.

Q Beyond the PCB-bearing fluids, what other substances were you using that would be manufactured at Krummrich?

A Acid and caustic, chlorine and nitrochlorobenz I cannot recall any others.

Q Was one of the subjects that was discussed in your regular contact with the Krummrich Plant the handli of PCB-bearing fluids, safe handling?

A Yes, yes.

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[illegible]

Q With whom would you deal on that subject at the Krummrich Plant?

A It would be my counterpart at the Krummrich Plant who had the responsibility for that producing unit.

Q Who was that?

A I believe at that time it was Mr. Paul Heisler, H-e-i-s-l-e-r.

Q Was Mr. Heisler ever invited to come over and address the employees on the subject of safe handling of PCB products?

A I don't recall him being invited.

Q He was the person at Krummrich who was basically in charge of manufacturing of these particular PCB fluids that you --

A Best of my knowledge, yes.

Q In your position as General Superintendent, Queeny --

MR. SCHINK: You are not talking about General Superintendent of the Warehousing, Distribution and Utilities? You mean the entire plant?

BY MR. POPE:

Q Your title was General Superintendent of --

A Warehousing.

Q Is it a division or --

A It should be commas, I didn't indicate, I don't think. It is General Superintendent comma -- I don't know what that means.

Q I know it is important in that corporate structure.

A Warehousing, Distribution and Utilities. I believe that is the name. I may have missed a comma or two there.

Q In your position as General Superintendent, Warehousing, Distribution and Utilities at Queeny, did you have occasion to consider the likelihood of PCB-bearing fluid persisting in the landfill for a long period of time?

A No.

Q Were you aware as a chemical engineer that PCB fluid would basically last virtually forever at the place where it was disposed?

A No.

Q Is that not a true statement?

A What, was your statement true or mine?

Q Is it your understanding that PCB --

MR. SCHINK: Now you are asking him as of ay?

MR. POPE: As of today.

BY MR. POPE:

Q As of today, that PCBs disposed of in a landfill will basically persist for a long period of time. Is that a true statement as you understand it today?

A No, I would have to know the conditions of burial and what PCBs were present and which PCBs you are talking of.

Q We know what we are talking about. We are talking about the PCBs you disposed of from the Queeny Plant, whichever ones those were. Whichever PCBs you disposed of at the Queeny Plant and the conditions I am discussing are the ones you are aware of that were being implemented in the late '50s and early '60s at the landfill in Sauget.

MR. SCHINK: You are talking about several different PCBs, Mr. Pope. That is the problem with your question. That is why I object to the form of it.

The witness has testified there are differences depending on conditions involved and the conditions of burial.

BY MR. POPE:

Q Is it your understanding that some of those PCBs disposed of under the conditions you disposed of will last for a great deal of time?

A Yes.

Q Is that a fact you were aware of in 1962 and 1963?

A I was not aware of that then.

Q As a chemical engineer, were you aware of the basic formula that goes into making PCBs in 1962 and 1963?

A In a general way I was aware of chlorinated biphenyls, but since I did not manufacture them, I did not pursue the chemistry in depth.

Q Were you aware of their general characteristics with respect to persistence?

A No.

Q Were you aware of the general effect of pouring on a substance like that making it last longer and making it more inert?

A No.

Q During the period of time that you were General Superintendent, Warehousing, Distribution and Utilities, did anyone in your presence raise the question of whether the disposal of these wastes at the landfill across the river would be a safe process?

A No.

Q I presume you understood me when I said in your

presence, I also include by written memoranda. You understood that as well?

A Yes.

Q In your review of the files of the company, had you uncovered any prior question being raised about the safe disposal of these substances at Sauget?

A I would like a clarification of what you mean by question raised. Does this imply that someone was concerned that it was improper?

Q No, sir. You have already told me as far as you knew no one in your presence or during the period of time you were General Superintendent, Warehousing, Distribution and Utilities, raised a question about that.

My question to you is when you came into the office, did you have access to the files, was there any past correspondence relating in the files that somebody had questioned it?

MR. SCHINK: Prior to '62?

MR. POPE: Yes.

BY THE WITNESS:

A No.

BY MR. POPE:

Q No, there was not?

A No, there was nothing in the file.

Q Did you at any time when you were in this position personally check the approval from the State of Illinois with respect to this landfill?

A No.

Q Did you have access to any files relating to that approval or seeking of that approval or representations made by Monsanto with respect to that landfill, per se?

A The files were not in my possession, but I had access if I desired to look.

Q But you never did?

A That's right.

Q What steps were taken to your knowledge at the Sauget landfill to give any added safety to disposal of these chemicals?

A I don't know.

Q Did you ever yourself during the period of time you were General Superintendent of Warehousing, Distribution and Utilities go to the landfill site?

A No.

Q Did you ever during that period of time have meetings with people to determine what was being done to ensure that this disposal was being safe?

A Not formal meetings, just discussions.

Q Who did you have such discussions with?

A I have forgotten the individual at the moment. It was my counterpart at the Krummrich Plant.

Q You do not recall his name?

A No, I don't. I don't remember.

Q Did you ask him what was being done with respect to the safe disposal of these chemical wastes?

A I forget the exact words, but the discussion was somewhat of along the lines of is this landfill used for chemicals or is it a sanitary or office wastes going into it; just how do you handle it and do you cover the material; this type of discussion.

Q What did he tell you as best you recall?

A As best I recall, he informed me that it was used exclusively for chemical wastes; that they did cover and I was left with the impression things were well done. I don't remember any details.

Q Do you remember this gentleman's name?

A I think it might have been Paul Gatens, but I'm not positive of the timing.

Q Paul who?

A Paul Gatens.

Q If I understand you correctly, as far as you know, the substances were taken from Queeny and basicall

put in the ground in the same containers they w stored there at Queeny ?

A. Yes.

Q And covered over with some soil?

A Yes.

Q I may have asked you this before and I am sorry if I have, but you never had any concern during this period of time as to whether this was a safe way to dispose of these fluids, did you?

A I had no reason to be concerned, no.

Q In your discussions with Dr. Kelly and his staff, had they ever indicated any tests that had been done on PCBs with respect to whether there was any long term health problems as opposed to acute toxicity tests?

A At what point in time?

Q Prior to this mid-early '60s.

A No.

Q You had not had any such discussions?

A No discussions.

Q The discussions you had with Dr. Kelly didn't relate to that subject at all, one way or the other?

A That is true.

Q How long were you General Superintendent, Warehousing, Distribution and Utilities at Queeny ?

A I think a couple of years, as best I recall, from about '62-'63 to '64.

Q Did that position include negotiating with unions?

A In what respect, dealing with the union and the shop stewards and the like?

Q Yes.

A Yes, sir.

Q But not in the general negotiation contracts?

A The position didn't, but I was involved.

Q That was in addition to your other functions?

A Yes.

Q How long a period of time had you taken on that function as well?

A Oh, I was involved in, let me -- correction.

MR. SCHINK: I think you are talking about negotiating with the union for their plant agreement, is that right?

MR. POPE: Right.

BY THE WITNESS:

A -- which happens every so many years. I was involved with the Queeny Plant negotiations from the time I was Maintenance Superintendent through the period when I was General Superintendent, Warehousing, Distribut

and Utilities.

BY MR. POPE:

Q Were there any other jobs that you performed beyond those that you have described for us as of the '62-'63 period?

A No.

Q What took place in 1964?

A I was transferred to the W. G. Krummrich Plant as General Superintendent, Manufacturing.

Q What did that position entail?

A I was responsible for several units involved in the manufacture of chemical products.

Q Were you General Superintendent of all the manufacturing taking place at that point?

A No, there were three General Superintendents in Manufacturing so I had roughly a third of the manufacturing capability under my supervision.

Q Approximately how many employees reported to or worked under you in that position?

A Two to three hundred.

Q Was there a breakdown of products amongst the three General Superintendents?

A Yes.

Q Which products were you in charge of?

A I had rubber ~~adhesives~~ additives, phenol, sodium sulfite, chlorophenols. I believe that's it.

Q. Were these substances being manufactured by other plants as well within Monsanto?

A No, those were manufactured for Monsanto only at the Krummrich Plant.

Q Just briefly, the rubber ~~adhesives~~ additives, what was being manufactured and what was its intended use?

A We made a material we called a 4NDPA. I don't remember the chemical name. It is a chemical that is added to rubber products such as automobile tires.

Q That is its principal use?

A Yes.

Q And the phenols that you were manufacturing?

A Yes.

Q Is that p-h-e-n-o-l?

A P-h-e-n-o-l, has a wide variety of uses. It is used in making agricultural chemicals as a starting point. It is used in making plastics and resins; used in making glues, adhesives and also in making dyes, coloring chemicals. It is also used as a pharmaceutical.

Q Is that a representative sample?

A Yes.

Q How about sodium sulfite?

A Its principal use is it is added to water used in industry to remove or tie up the oxygen that is present in water to make water less corrosive.

Q Such as you described earlier with the boilers?

A Correct.

Q And the chlorophenols, what are they used for?

A Chlorophenols are again starting chemicals for pesticides. They are also used as slimacides and also wood treating.

Q Is that a chlorinated hydrocarbon?

A Yes.

Q Do any of the four of these contain PCBs?

A Not to my knowledge, no.

Q If you don't know, nobody knows.

Did Monsanto manufacture pesticides in 1964?

A Yes.

Q The chlorophenols that you were manufacturing at Krummrich would then be shipped to another plant to be turned into pesticides, or were you manufacturing them right there?

A I don't believe -- Monsanto pesticides did not start with chlorophenols. Ours were a different type of pesticide.

Q So these materials you would manufacture then would be sold to some other formulator who would put together a pesticide?

A Correct.

Q As one of the three General Superintendents, Manufacturing, were you responsible for discharges with respect to your machines that you were using for the manufacture of these products?

A Yes, that was part of the job.

Q Was there a treating system set up with respec to discharges?

A You are talking discharges as sewer waste?

Q Yes.

A The sewer waste at Krummrich Plant would go to the Sauget Treatment Plant.

Q Is that a municipal --

A Municipal system, yes.

Q Treating plant?

A Yes, so there was no treatment, per se, of the wastes from the manufacturing units.

Q There was no discharge directly to the Mississippi River or any other body of water?

A No.

Q In the process and manufacture of these four

substances, were your people still coming in contact with PCB-bearing fluids in the manufacturing process as you described earlier with regard to Queeny?

A No, not that particular group.

Q You did not use heat transfer fluids or Pydrauls, is that right?

A That is right, to my knowledge.

Q They were manufacturing PCBs at Krummrich at that period of time, were they not?

A Yes.

Q That was one of the other Superintendents who was in charge of that?

A Yes.

Q Who was that?

A Mr. Heisler, Paul Heisler.

Q How long did you hold this position at Krummrich?

A Until April or May of '65.

Q During that period of time were similar practices employed at Krummrich as you described earlier with regard to Sauget by the employees in the handling of chemical products?

A Yes.

Q You gave periodic lectures to them?

A Yes.

Q And had management meetings as well, is that right?

A Yes.

Q Of the salaried employees?

A Yes.

Q During any of these meetings, was the discussion held with respect to PCB-bearing fluids or PCBs generally?

A I don't specifically recall that very topic, no.

Q Were there any special safety practices employed at that plant as far as you were aware with respect to the employees who were manufacturing PCBs?

A I think you used the word special?

Q Yes.

A No. We were following, the best of my knowledge, the good industrial hygiene practices which involve cleanliness, good housekeeping. I don't know of anything special or unique that was followed.

Q The same practices were followed with regard to manufacture of all products at Krummrich?

A Not necessarily all. There were some materials manufactured at the plant that required special attention

For example, chlorine.

Q What special attention was given?

A They had to have special respirators to prevent exposure to any chlorine leaks, so that is just one example and I'm sure, there were others I don't recall specifically at the moment. Each chemical has to be looked at on its own, but you start with a ~~basic~~ base line of good practices and then take care of special needs.

Q We have now come full circle, that is why I was asking if there were any special practices employed with the manufacture of PCBs as it would impact on the safety of employees who engaged in that manufacture.

A Nothing unique.

Q Would your answer be the same with respect to disposal of the waste involving PCB manufacture, was there any special handling techniques you were aware of at Sauget in 1964, '65?

A Keep in mind I was not intimately involved, but to the best of my knowledge, we treated those wastes just like we did other chemical wastes.

Q In the treatment of chemical wastes in that period of time of Krummrich, was the Waste Treatment Plant advised of the nature of the wastes that were being submitted to them?

A You're talking now of the water wastes?

Q Yes.

A Yes, they were advised by the usual parameters which were used at the time to describe wastes.

MR. SCHINK: The acid, the dissolved solids, the oxygen demand?

BY THE WITNESS:

A (Continuing.) The usual parameters, the typical parameters.

They were aware of all of that and in fact, they would analyze and we would analyze, compare notes.

BY MR. POPE:

Q With respect to chemical wastes, were the practices at Krummrich the same as you have described them for Queeny, with respect to sweeping up of substances, putting them in containers and having containers taken out to the landfill?

A Yes, generally, yes.

Q As far as you know, was there a period of time at Krummrich when anyone was checking the wastewater for PCB presence during this '64-'65 period?

A No, the methodology did not exist.

Q No one was checking?

A That is right.

Q And in fact, your answer would be the same for Queeny?

A That is right.

Q You said the methodology did not exist. What methodology would have been required that didn't exist in '64, '65?

A As it turns out from what we know today, it requires the use of some sophisticated analytical equipment, a gas chromatograph, mass spectrometer and a method for processing the sample to get it ready to be introduced into the present machinery to get the results. All of that was not known at the time we are discussing.

Q '64, '65?

A Right.

Q Is it your testimony that without those substances or those processes or equipment that had not yet been invented or knowledge about them had not been circulated, it was impossible to check wastewater for the presence of PCBs?

A Yes. Now we are talking dissolved PCBs.

Q What is the difference from any other kind? I don't understand your clarification.

A If water and PCB are present together and

there are a lot of PCBs present, the PCBs will sink to the bottom, a separate layer.

Q . It is heavier than water?

A Correct. Under those conditions, it is very easy ~~whereby~~ therefore to make a separation and prevent that bottom layer from going on to the treatment plant.

That doesn't need analytical methodology, but to determine the PCBs in that water at that point in time, no one knew how to do that.

Q Just to clarify or help me understand that, is it your testimony then in 1964 or 1965 if you took a sample to one of your Monsanto chemists of a substance and said, "Can you tell me if there are PCBs or not," he would not have been able or she would not have been able to answer you. Is that true or is that false?

MR. SCHINK: I object to your question unless you clarify.

Are you talking about a sample of water with PCBs dissolved in it?

MR. POPE: No, just a --

MR. SCHINK: What kind of sample?

MR. POPE: Just a liquid material of PCBs.

MR. SCHINK: That was a liquid PCB?

MR. POPE: Yes.

BY THE WITNESS:

A This is all PCBs?

BY MR. POPE:

Q Yes, sir.

MR. SCHINK: The question is could the laboratory in 1965 have told Mr. Papageorge what that was?

BY MR. POPE:

Q Would that fall in the same category as being unable to determine?

A If the PCBs are present and as you say all PCBs, the answer is yes, they would be able to determine that it is PCBs.

Q Would your answer be the same with respect to a cup of Pydraul, for example? If I had taken that out and you had given that to one of your chemists, could they have determined that that was PCB-bearing fluid?

A Yes.

Q What methodology as far as you understand would have been employed in those days or what would have been the proper methodology to use in 1964-'65 to make a determination?

A I am not really conversant with all, but I know they determine total chlorine content.

Q Was that by infrared?

A No, this was in those days by using a high pressure bomb-type of arrangement and burning --

Q. B-o-m-b, not b-a-l-m?

A Right, and burning the material and ending up with the chlorine and analyzing for the chlorine and then working back, very crude by today's standards, but that was rather typical at that time.

Q That was the state of the art at that time, to make those samples?

A Yes. There are other tests they apply to confirm that it was PCB and not some other hydrochlorinated chlorine.

Q Were they at that stage, after doing those tests, able to determine the percentage of weight by chlorine?

A That is the way the chlorine was determined, yes.

Q From that they would know what type of PCB it was, '64-'65?

A Correct, correct.

Q May of 1965, you got promoted?

A Yes.

Q What was your promotion to?

A I was assigned ~~a~~ as Plant Manager ~~with~~ at the

Anniston, Alabama Plant.

Q Does Anniston have a name?

A No.

Q That plant hasn't been blessed with a name?

A They stopped the practice.

Q I take it in the scheme of things, a Plant Manager is somebody who is above a General Superintendent

A Yes.

Q What were your duties as Plant Manager in Anniston in 1965?

A I was responsible for everything that took place in that plant, manufacture --

Q Could you tell us what did take place in the plant and that will tell us what you were responsible for.

A Manufacture of chemicals, of course. I guess there were two principal product lines, really. It was the chlorinated biphenyls/terphenyls and insecticides and we produced some of the chemicals that went into the manufacture of these two main product lines.

Q You made the finished product and also made some of the ingredients for those products?

A Some -- well, yes, yes.

Q What was the makeup of insecticides that were

manufactured or were there multiple ones?

A It was the phosphonates we call parathion. I don't know if it is a trade name or a generic name; basically parathion and the methyl-ethyl versions, but parathion is the common designation.

Q In addition to those insecticides, you also manufactured chlorinated biphenyls and terphenyls, is that right?

A Yes.

Q How many forms of chlorinated biphenyls were manufactured at the time you became Plant Manager in 1965, do you recall?

A How many forms?

Q How many products?

A Liquid and solid.

Q How many types of products fall within that general category of chlorinated biphenyls that were manufactured at Anniston?

A By types, I would refer to the liquid type and the solid type and within.

Q Okay.

A Those two major categories, we had mixtures that were marketed under trade names. The trade names we applied were the Aroclor followed by the four-digit

designation. Then we made the Aroclor 1221, '3 these are the last two digits of the 1200 series '48, '54. I think we made a little of the '62 ar os.

That represents the PCB line when I arrived.

Q Were others added afterwards while you were there?

A Not at Anniston, no.

Q How about the terphenyls?

A The terphenyls, the terphenyls were designated by the 5000 series, so we made some 5445 and 5460. And then we had a blend of PCBs/PCTs which we called Aroclor 4560.

Q Is that it?

A I believe that's it.

Q Is that really the sum total of what was being manufactured at Anniston: The insecticide, basically parathion, the Aroclors you have listed and the terphenyls and this one blend of PCB and PCT?

A Right. We had in the PCB line, we also blended transformer fluids which were referred to by the electrical equipment manufacturers' trade name of Pyranol, P-y-r-a-n-o-l, and Inerteen, I believe I-n-e-r-t-e-e-n.

Q Any other products that were being manufactured

at that time?

A Yes. Then we also sold or shipped out of the plant three other materials that I recall. One series we called Santowax.

Q W-a-x?

A S-a-n-t-o-w-a-x, which was the unchlorinated terphenyl mixture.

We also shipped out of the plant a material we called HB-40, which was a hydrogenated biphenyl.

We also sold biphenyl itself.

Q Unchlorinated, unhydrogenated?

A Unchlorinated, unhydrogenated.

Then we sold some of the residues from the PCB/PCT mixture under the trade name Montar, M-o-n-t-a-r. I believe that's it.

Q During the years that you were Plant Manager, did this product line basically stay the same?

A Yes.

MR. POPE: Let me have this document marked, please as Papageorge Exhibit No. 1.

(Papageorge-OMC Deposition Exhibit No. 1 marked for identification, 8/27/81, TLU.)

BY MR. POPE:

Q Mr. Papageorge, let me hand you what has been marked as Exhibit 1 for identification. Can you tell me what Montar consisted of and what its purpose was?

A Montar was that fraction of the liquid stream that remains after the Aroclors were distilled off or where the biphenyl was distilled off. It looks like road asphalt, black, tarry-type material.

Q What is it used for?

A I never did pursue it personally. I was led to believe it was used for many applications that asphalt and tar was used for.

Q I take it that was not a major product from the plant?

A No.

Q How about the biphenyl itself? What was that used for?

A It was used by industry as a starting material for their dyes. It is used by the citrus industry to impregnate inner layers in the packages of citrus fruit and also the tissue to prevent the molding of the fruit, the spoilage. I don't recall any other.

Q Biphenyl is a substance you would use yourself as a raw material at Anniston, is that right?

A Yes, that is right.

Q Would these sales be sporadic that were selling excess amounts left over?

A They would be steady ~~by~~ but low volume, relatively low volume.

Q How about the HB-40? What was that used for?

A That was used in proprietary products as a solvent and in some cases at that time was used as a heat transfer fluid at temperatures lower than the PCB use. It cannot take the extremely high temperatures but it is a good heat transfer fluid.

The big heat transfer use for HB-40 was by the Canadian Government in their atomic energy units as a heat transfer medium.

Q Was that a large volume item relative to the rest of the plant?

A No, small ~~unit~~ item, very small.

Q How about Santowax, the unchlorinated terphenyl mixture?

A I was told that that was also used as a starting point for many chemicals by many customers.

Q Outside interests?

A Outside Monsanto, yes.

One of the uses was a wax extender.

Q What type of wax?

A I don't know where the word extender from, but I was told because I am not the auth this helps make candles dripless, for example.

Q I detect that was a low volume item as well?

A Yes.

Q How about Pyranol and Inerteen?

A Yes.

Q What were they used for?

A They were used in transformers in the electrical equipment industry.

Q Were they different from the Aroclors that were used in that sense, in that application?

A Some of them. Most of them were blends, blended with tri- and tetrachlorobenzene.

Q Would they have any different use in the transformer electrical industry that would call for Pyranol as opposed to one of the Aroclors?

A Yes. It depended, and I am no electrical engineer, but I am told it depended on the design of the unit, the work load, the stress that the fluid would be expected to undertake, the location in the country -- for example, a unit up near the Arctic Circle would contain one; for up near the Tropics would contain

another, and variations in between.

Q How about Inerteen? What was that used for, the same thing?

A Same thing. For clarification, the Pyranol is a General Electric trademark, and Inerteen is a Westinghouse trademark, and they were competitive in the marketplace.

Q Were those two companies the principal users?

A Yes.

Q This is not a low volume item, I take it?

A I'm sorry?

Q This is not a low volume item as we were discussing some of the other products?

A That is correct.

Q The PCB/PCT blend, Aroclor 4560, what was its basic use in the marketplace?

A I don't know if there is any basic use. It had a lot of small volume miscellaneous uses: Adhesives, coatings, sealants.

I understand it was also used in the wax, used in the casting industry, metal casting, the lost wax process.

I can't recall any other at the moment.

Q Is this a major product line for Anniston?

A No.

Q The terphenyls, 5445, what was that basically used for?

A About the same kinds of things that this 4560 and the same for the other terphenyl.

Q 5460?

A 5460, 5445.

Q None of the three of those were used as a pesticide extender, were they?

A No.

Q That was one of the Aroclor --

A Wait a minute, let me think about it.

I vaguely recall some reference to the use of 5460 as a pesticide extender similar to the PCB-type extender purposes.

Q That was 5445?

A I think it was '60.

Q Could we go in through the Aroclors in any fashion that would be convenient for you and similarly tell me what their basic use was?

A You mean the biphenyls, the PCB Aroclors?

Q Yes.

A I will try.

The principal use, let me turn that around

Capacitor fluids, electrical capacitors would principally use Aroclor 1221 and Aroclor 1242. Transformer fluids --

Q Excuse me. With capacitors, what would dictate use of one as opposed to the other, generally speaking?

A Each customer felt that he had strong scientific data to indicate that he needed a unique mixture.

Q Stronger data than Monsanto had?

A That's right.

The '42 was preferred -- the 1221 was used in colder climates. That is generally what happened.

Q Okay.

A The transformer industry used Aroclor 1242, 1248, 1254 and 1260.

Q Similarly was there a rationale for customers using one over the other based on its physical characteristics?

A The preferred one was Aroclor 1254. For colder applications they would go to the 1242 and occasionally on a much smaller scale 1260.

Q For colder uses or uses in colder places?

A No, warmer, it would be more viscous material.

Hydraulic fluids would principally be 1242 and 1248. 1242 predominated.

Q What would distinguish between the two?

A I think they were striving for different viscosity ranges.

Q The higher number being more viscous?

A More viscous, yes.

Q As far as you know, those are the only two that would be used in hydraulic fluids?

A To my recollection, yes. We are still talking now in 1965, middle '60s?

Q Right.

A The heat transfer applications ranged from 1242 and 1248, 1254 and the selection would be based on what temperature was desired.

Q The highest temperature that the product would be used in?

A Yes, the higher the number, the higher the temperature at which it could be used ~~for the~~ before breakdown.

The plasticizer application, which is more correctly in my opinion should be called miscellaneous application, used all of the Aroclors in a variety of uses.

It covered paints and lacquers, wax extenders, ~~caustic~~ caulking materials, adhesives of all kinds, the hot melt and the so-called cold adhesives; as an ingredient in some special plastic materials like chlorinated

Q Mr. Papageorge, I'm going to hand you a document that I believe was produced in the records of Monsanto, first page which contains the number 0004361, and to be doubly safe we have marked it as Papageorge Deposition Exhibit No. 1 for identification.

Would you take a look at that and tell me whether you have seen that basic brochure before. It appears to be a brochure entitled The Aroclor Compounds.

Is that a copy of the document with which you are familiar?

A First time I've seen this one.

Q Are you able to determine when that was published?

A I looked but I could not tell, I cannot tell.

Q Does that document refresh your recollection as to any further uses or applications of Aroclors that were being made during the 1960s other than the ones you have described for us?

MR. SCHINK: You are asking him about PCB as well as PCT Aroclors or just PCB Aroclors, Mr. Pope, because the document relates to both types.

MR. POPE: I was actually asking him about the uses of products that were manufactured at Anniston so I meant it in a broad sense rather than the limited

sense.

MR. SCHINK: You are asking him now whether this document refreshes his recollection as to any further use?

MR. POPE: Yes, as to any further ones he hasn't discussed so we can complete this area.

BY THE WITNESS:

A Looking through this brochure I see some references that in my description of the uses I would have included, for example --

MR. SCHINK: His question is can you think of any other uses that you haven't described.

He's clarifying --

BY MR. POPE:

Q You are saying some are there you are not sure were included in the category, is that right?

A I am including it in my thoughts.

Q For example, when I use the term hydraulic fluids, I am ~~using~~ including the vacuum diffusion pump oil very definitely here or liquid sealant for furnace roofs.

A I had referred to the plasticizer use in rubber. The brochure reminds me that it was proposed as a plasticizer in many kinds of plastic materials. I don't see any other, I don't recall any other uses.

Q So our list should be just about complete.

These uses we have been discussing were basically the products and the uses of products that were being manufactured when you took over as Plant Manager of Anniston, is that right?

A Right.

Q Were you able to determine whether this basic product mix had been manufactured at Anniston prior to your taking over?

A Yes.

Q It had?

A Yes.

Q Can you tell me for approximately how long Anniston had been manufacturing PCBs generally and if you are able to with these various types of products, how long specifically with them?

A The Anniston, Alabama site had been manufacturi PCBs since late 1929.

I personally never knew exactly when each of the types was added to the product list.

Q The Aroclors and the numbers we have been discussing from 1221 to 1260, were you able to determine how long they had been under manufacture at Anniston?

A No, I never did make that study.

Q When you became Plant Manager, did take to increase your knowledge with respect over what it had been previously?

A Oh, yes.

Q How did you go about doing that?

A Two ways: One is the reference to all the existing material available in the plant library, plant records,which was my first approach. That was my initial approach, and then this was followed up by my personal discussions with the individuals at the site and elsewhere who had been involved with PCBs for many years and I was able to learn from them on an informal one-on-one type of discussion.

Q Anything else?

A That's it.

Q Did you have an Assistant Plant Manager who had already been there before you took over?

A Not that title.

Q Did you have somebody that basically was your assistant with a different title?

A No, we don't have that kind of an organization. We have a General Superintendent of Manufacturing at the site.

Q Had he been there at Anniston before you got

there?

A Yes.

Q What was his name?

A Robert Moody, M-o-o-d-y.

Q Was Mr. Moody a source of information to you on the general subject of PCBs?

A One of many, yes.

Q Was he a knowledgeable source?

A Yes.

Q Is he still with Monsanto?

A Yes.

Q Tell me about the Plant Library. What kind of library did Anniston have at that time when you became Plant Manager?

A I don't know how to describe it. It consisted of the usual types of reference books that a chemical laboratory might have. In addition, it has what we refer to as the Standard Manufacturing Process.

Q What is that?

A It is a volume which contains the procedure followed in the manufacture of any product, in this case PCBs.

Q This is a Monsanto document?

A Yes, and in addition to describing the condition

temperatures and procedures and times, ingred also has other informative sections including cription of physical properties of the material such as --

MR. SCHINK: They have them. They have been marked as an exhibit in other depositions.

MR. POPE: I would like to know what the witness recalls of it though.

BY MR. POPE:

Q You may continue with the description.

A There is a safety section in there, references to the toxicity of the material, if any; how it should be handled, whether it is explosive, whether it requires any special kind of attention. That about covers it.

Q Did your review of the Standard Manufacturing Process at least in sections related to safety and toxicity, did that increase your knowledge over what you had at least been aware of from your past knowledge and experience with Monsanto?

A No, it reinforced it.

Q Do you recall reviewing any other text in the Plant Library with respect to PCBs with regard to the manufacturing process, the chemical makeup or the possibl toxic effects?

A I don't remember any specific book or pamphlet. Of course, eventually I got around to seeing the brochures similar to the one we just saw.

Q How many brochures were published dealing with Aroclors that you recall during the period of time that you were Plant Manager?

A I recall three, personally.

Q Those are all different ones other than the one we have marked as Exhibit No. 1?

A Yes.

Q Were they the same type of brochure, a different edition or were they different products altogether?

A Well, one was similar to the one we just saw here in that it addressed many of the miscellaneous uses I earlier referred to as plasticizer-type applications.

Q Was it confined to that discussion?

A Yes. The other I recall was directed to the electric application and the third one dealt with heat transfer applications.

I don't recall any of the other.

Q Were those brochures made available to you prior to being published or sent to the customers?

A Those brochures were printed and available

when I arrived on the scene.

Q They had already been there?

A Yes.

Q Did the Plant Library at Anniston have subscriptions to any scientific and medical journals that you recall in 1965 when you became Plant Manager?

A I don't recall.

Q Have we exhausted your recollection with regar to anything you did in review of the Plant Library in checking out on PCBs or learning more about PCBs generally?

A Yes.

Q I think you also referred to having access to the plant records with respect to that same subject matter.

A Yes.

Q What records did you have access to and what did you do in terms of increasing your knowledge on PCBs?

A There were records summarizing that unit's activities by month and by year.

Q The sales volumes, production levels?

A Production volumes, sales amounts or movement amounts. Some of them were transfers to Monsanto and

reference to changes in personnel, reference to the safety record, references to meetings held; sort of a summary of activities by month and then summarized by year.

That was available. Then I had access because I had access to medical records, I would sit down with the plant physician and become familiar, not to the extent he was, but to get a feel for what was going on in the plant.

Q Medical records of --

A Of employees.

Q Any ill effects they had encountered or reported?

A And this is not unique to PCBs. This is the whole plant.

Q Is that a standard technique in any chemical manufacturing plant?

A I cannot speak for any other plant managers but I did it.

Q All right.

A Then there are logs kept in the operating unit by the operators and not that I could read everything, but I got a good understanding by scanning to see what kind of notes they were making, remarks, problems they had during the night shifts and what maintenance was

taking place.

Q Those logs are limited to the maintenance area?

A No, just any non-routine event that takes place on a shift is normally recorded, if it is of significance.

Q Would a spillage of chemicals be reported on a log?

A Or a leaking gasket or a pump that is leaking and had to be repaired, notes would be made.

Q And you reviewed that?

A Yes.

Q Anything else?

A I can't think of anything else.

Q The production records that you reviewed, how far back did they go, approximately?

A I don't know.

Q As you took over in 1965, how long had the plant basically had the same configuration, same size, same capacity?

A About 10 years.

Q From your review of the medical records, recor of your employees, did you determine that your employees basically had been with the company some time?

A It varied. There were some new employees and some were long years of service.

Q Did you detect anything unusual in the medical records that caused you any concern?

A No.

Q Were they in your opinion being adequately kept?

A Yes.

Q Who was on the medical staff at the Anniston Plant then?

A Dr. James Francis.

Q Had he been there for some time?

A Oh, yes, yes.

Q How old was he?

A I'm going to have to guess. At that time I believe he was in his early 50s and had been associated with the plant for about 20 years.

Q Is he still alive, as far as you know?

A Yes.

Q Does he reside in Alabama?

A Yes.

Q What kind of a safety staff was in place at Anniston when you took over?

A We had the one individual who served the role

Safety Supervisor or Safety Engineer and he was considered to be adequate for the size of the plant. Of course, he didn't do the job alone.

Q Who assisted?

A His name escapes me, I can't remember his name.

Q Did you have a laboratory at Anniston in 1965?

A Yes.

Q What was the size of it?

A Are you talking about physical dimensions or people?

Q Either one, I don't know. Some describe hospitals by the number of beds it has. I don't know if you describe a laboratory by the number of chemists it has or not.

A I think it is more appropriate to refer to the staff that worked in the laboratory. As I remember, we had three professional chemists, a good half dozen technicians.

Q Were the three chemists graduate scientists?

A Graduate degrees, yes.

Q There were six technicians besides that?

A About that. I don't recall the exact number.

Q What was the basic function at the Anniston

laboratory? What did they do?

A They analyzed, of course, the finished product to see that it met specifications. They analyzed the raw material to see that it, too, met the purchase specifications and they analyzed the intermediate chemicals that we produced to see that they were produced properly for use later in another process.

They analyzed water samples which included boiler waters, cooling waters and also wastewaters.

I believe that covers the area of their activity.

Q They weren't doing any original research?

A No.

Q That function was all centralized in St. Louis?

A Let me back off a bit. On occasion the chemists would take on a very small, little special study related to the plant and its current processes. There was no research for new products, new processes, anything like that.

Q Can you give me an example of what type of study they would do or they did do?

A The one that comes to mind, for example, I had mentioned earlier the product HB-40.

As I remember, we were having difficulty in getting a catalyst from the original supplier and we had an alternative source, so our laboratory was asked to determine if this new source was as effective as the old, so they were able to set up their test unit and then to study that for a short period of time.

That is the typical example.

Q Kind of occasional basis when the need arose?

A When we wanted a quick answer to help ourselves rather than go to someone else.

Q During the period of time that you were Plant Manager, did the size of this laboratory stay relatively the same?

A Yes.

Q By that I mean the number of people, the staff?

A Yes.

Q Their functions remained relatively the same?

A Yes.

Q You mentioned that one of their tasks was to analyze the water samples from wastewater.

A Yes.

Q Were they testing for presence of PCBs in wastewater?

A No, not at that time.

Q Why were they not?

A Primarily because there was no methodology to detect PCBs in water.

Q Were there any procedures in place when you became Plant Manager to see that PCB products or by-products were not coming in contact with wastewater?

A Oh, yes.

Q What procedures were in place?

A The process itself was what I call a dry process. There is no water there, it doesn't use any water. The only water that gets into the area would be rainwater and this particular installation at Anniston was an indoor facility. It was housed in a brick building, stone or ~~block, concrete~~ concrete block building so even the rainwater problem was not even a problem.

So PCBs getting associated with water is very remote and then spillages and the like would be as we discussed earlier, contained, absorbed, swept up, shoveled up and taken to the Anniston operated landfill that we had.

Q The procedures were roughly the same as you had described at Queeny and Krummrich?

A Yes, identical. The intent was identical.

Q Were there other manufacturing processes that

did have the product come in contact with water?

A Well, sure.

Q At Anniston?

A Yes.

Q Which ones were those?

A The chlorine unit that made the chlorine, I don't know that we discussed that. We made chlorine to use in the chlorinated biphenyls. ~~That~~ There was water in it. The insecticide operation has water in it.

Q Were your laboratory people analyzing the wastewater for residues from those contexts?

A Yes.

Q And to your knowledge, what processes did they use to determine the presence, for example, of chlorine in them?

A I am not familiar with the analytical methodology used.

Q With respect to the boiler water and the cooling water, what were they analyzing for?

A The typical characteristics such as the solids, dissolved solids, acids. It is referred to as pH, the presence of oxygen, and in the case of boiler water, the amount of calcium that is present. That's about it.

Q Were there procedures in place when you

became Plant Manager at Anniston to see that PCBs did not escape into the environment in the manufacturing process?

A That's right.

Q Were those procedures other than the one you described already with respect to the water?

MR. SCHINK: And with respect to spills, containment? He has discussed that as well.

MR. POPE: Taking out to the landfill, I don't count that, Jim.

BY THE WITNESS:

A The thrust of the whole program was one of an individual getting PCBs and any industrial chemical out in the environment. I explained earlier how we contained spills. Keeping water away from PCBs is a must. Any solid material such as the Oil-Dri and sweepings and rags and contaminated coveralls, all of that, burying it properly -- that's about all there is to it, control your spills, dispose properly. They are really not complicated.

BY MR. POPE:

Q Were these procedures, for want of a better word, written in the plant records at Anniston?

A At that point in time?

I don't recall. There is a section in that operating procedure on housekeeping or there usually is. I don't remember.

Q The principle of keeping water away from PCBs as a means of PCBs getting into the environment, was that something you had already been familiar with from your past work at Monsanto?

MR. SCHINK: You are not talking about the fact that it was a dry process to manufacture it? You are characterizing some discussions of his earlier testimony as I understand it about the fact that water was not used in the process to manufacture PCBs.

MR. POPE: No, that is not what I am talking about at all, Jim.

Read the question.

MR. SCHINK: I object to the form of the question. I don't believe it accurately characterizes his prior testimony.

MR. POPE: Read the question, please.

(Question read.)

BY THE WITNESS:

A Yes.

BY MR. POPE:

Q When did you determine that?

A I don't remember any specific point in or place. I think this is one of the bits of information that is associated with PCBs in our normal communications regarding PCBs.

Q Were you during your period of time as Plant Manager successful in keeping PCBs out of your wastewater discharges?

A Yes.

Q Was this viewed as a goal by Monsanto, at least as applied to the Anniston Plant?

A That was a must.

Q Why was that?

A I think it is our desire to keep that kind of material out of our wastewater which went to the City system and since there is no water to start with, there was no need to add water anywhere back in that unit to create a situation which would complicate things. It is a natural result ~~just seems very natural results~~ of these kinds of processes and our desire not to get it out of control.

Q Was there a feeling that there was a potential health hazard with PCBs getting out into the environment or into the wastewater?

A No, there is no -- no.

Q As of the time you became Plant Manager, had

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you ever heard anyone make that suggestion?

A No.

Q. Had you ever read it in any document?

A No.

Q As a reason for the goal of keeping PCBs out of your wastewater?

A No.

Q I have since read of reports that there are PCBs that have been found outside of a discharge from Anniston. Have you similarly read such reports?

A Yes, I saw some reports after I left the plant when analytical methodology was available. The reports I saw referred to low levels. I don't remember the numbers of PCBs in the water, yes.

Q Is it your opinion that those PCBs got there through the wastewater discharge or some other fashion from Anniston?

A I can only speculate. I don't know.

Q As you sit here today, you do know more about the subject than when you were Plant Manager, right?

A Yes.

Q A great deal more?

A Yes.

Q Is it your testimony that it is at least as

probable that the PCBs that had been discovered got out through the wastewater discharge as they got there some other way?

MR. SCHINK: He said he doesn't know how they got there and you are asking him to speculate about that.

MR. POPE: I asked him if one way of getting things there is more probable than another way and I just have.

MR. SCHINK: Answer the question if you can, if you have a basis for that kind of speculation.

BY THE WITNESS:

A If I were to speculate, I would suggest --

MR. SCHINK: You don't have to speculate.

BY THE WITNESS:

A I don't have to -- well, I don't know how to answer the question.

MR. POPE: Read it back.

BY THE WITNESS:

A ~~Nothing~~ Knowing what ~~that~~ I know now, I would suggest the more likely source of those PCBs could well be the soil in the general area of that plant after 30 or 40 years of manufacturing PCBs and rainwater runoff would be the most likely source of that PCB.

BY MR. POPE:

Q When you refer to the plant, are you including

the landfill within that?

A No, the landfill is across th physically different.

Q In your initial review of information ava to you with respect to PCBs and their characteristics, did you review any published scientific articles regarding tests or studies that had been done on the subject prior to 1965?

MR. SCHINK: The subject of what?

MR. POPE: The subject of PCBs.

THE WITNESS: What is the early part of your question?

MR. POPE: Why don't you read it.

(Question read.)

BY THE WITNESS:

A This review then is after I arrived at Anniston, the Anniston Plant?

BY MR. POPE:

Q As part of your process that you already testified to to gain more knowledge about PCBs.

A I did not review any published documents.

Q Was the main thrust of your search for additional information, did it relate principally to the manufacturing process?

A I couldn't call it principally. My m thrust was to find out what was available to Mo regarding the product properties, its safety, anything available to Monsanto, and I relied on the Medical Department to read the outside literature, capsulize and send it to the plant.

Q So in fact upon becoming Plant Manager or in that general time period when you became Plant Manager, you inquired of the Medical Department regarding the safety of PCBs, is that right?

A Yes, in addition to reading things that had already been submitted to the plant in writing.

Q What was that?

A That was part of that paragraph on safety and toxicity.

Q In the Standard Manufacturing Process?

A Standard Manufacturing Process, yes, right. The Medical Department, I guess, is generally author of that section or if not the author, at least the final reviewing authority.

Q But in addition to reading Standard Manufacturi Process, you also made inquiry of Dr. Kelly's office?

A Dr. Kelly's office and Dr. Francis at the plant.

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Certified Shorthand Reporter

Q Did you ask Dr. Kelly's office what he accumulated with respect to the safety of PCBs?

A Yes, not in those words.

Q What did he tell you?

A He reviewed for me the history as he recalled, what he knew about the material, the studies that Monsanto had done, the results of skin irritation and lung irritation, respiratory irritation, eye irritation.

These were based on animal studies plus his personal experience.

Q Did he tell you anything about liver damage?

A No.

Q What tests had Monsanto done as far as you know prior to 1965 that you were referring to?

A They had done a battery of tests commonly called in industry as the Acute Toxicity Test which includes the one referred to as the LD50, which is a test that determines at what level of exposure ~~to have~~ one fast the test animals succumb.

Then there is the eye irritation test with rabbits and there is a skin patch test with rabbits, and as I remember they had inhalation studies, I believe with the rat, and these were all designed to gather data on how to handle material in the work place, how to label

it, how to package it. That is what was available then.

Q Did you ask Dr. Kelly if there had ever been a chronic test done with respect to PCBs?

A No.

Q Why didn't you?

A That would have been at that point in time a very unusual question for anyone to ask. It just wasn't normal --

Q In 19 -- go ahead.

A -- for industrial chemicals, it was not normal for anybody to conduct chronic testing.

Q In 1965 is it your testimony it would be abnormal for a chemical company to conduct chronic animal tests with respect to a chlorine product? Is that right?

MR. SCHINK: He said with respect to an industrial chemical.

BY MR. POPE:

Q Industrial chemical containing chlorine.

A Industrial chemical of any kind.

Q I understand, but you are specifically dealing here with PCB which contains chlorine, right?

A Right, yes.

Q Were chronic tests being done by anybody in

1965?

A Yes.

Q By whom were they being done?

A Manufacturers of pharmaceuticals, manufacturers of registered pesticides were conducting these kinds of studies.

Q And the basic difference between a chronic study and an acute study is what?

A The chronic study is longer term period of exposure at lower levels of exposure.

Q Lower levels for a longer period of time and the focus of inquiry is not necessarily what the dose is, but rather what effect it has on a test animal, correct?

A Correct, and may I add I forgot to mention those companies petitioning the Food and Drug Administration for food applications or food packaging applications

Q On what do you base your statement that it would have been abnormal for an industrial chemical company to have initiated such tests in 1965?

MR. SCHINK: On industrial chemicals?

MR. POPE: That's what we're talking about, the industrial chemicals such as PCBs.

BY THE WITNESS:

A It is based on my personal exper
point in time, 1965, and I had been involv
dustry then at that point in time for abou
I had never heard such a te
for any industrial chemical as well as later when I became more intimately involved with the testing of chemicals because of subsequent assignments.

The information I was able to obtain then reinforced that understanding that industry did not conduct chronic testing for industrial chemicals.

BY MR. POPE:

Q Had you in 1965 attended any trade meetings where that statement had been made?

A No.

Q Did you inquire of officials in other chemical manufacturing companies in or before 1965 whether they conducted any chronic tests?

A No.

Q Did anyone prior to 1965 at Monsanto do a literature search or monitor current literature to determine whether anyone else was doing chronic testing?

A I don't know.

Q The standard battery of acute toxicity tests that you referred to earlier, when were they done?

A I believe there was a battery run in the '30s and repeated in the '50s, as I recall.

Q. In 1950 who did the test?

A Younger Laboratory.

Q In Ohio?

A No, St. Louis. I believe it is Younger Laboratory. There is another laboratory, it starts with a "S." My memory fails me. That is the best I can recall.

Q Why were the tests redone in 19 --

A The '50s, I don't know.

Q Subsequently you have not learned any reason?

A I was told but I don't remember. I believe it was a case of enough years had gone by, techniques had improved, let's repeat them, see if there is anything different.

That is the implication I was left with.

Q Would that fall within the area of Dr. Kelly's jurisdiction?

A Yes.

Q The decision to do such a test as well as seeing that it was carried out?

A Yes.

Q This laboratory that you had at Anniston in

1965, what kind of analytical equipment did it have, do you know?

A I don't quite know how to answer that. It had the typical pH meters, equipment to conduct titrations, a lot of what we called in those days involved wet chemistry which involved water solutions of materials. I don't have a list of all the equipment.

Q Did you have a gas chromatograph?

A No.

Q Mass spectrometer?

A No.

Q How about infrared?

A It may have had an early version of infrared, but I don't know, I just don't remember. It didn't have anything sophisticated.

Q Were your people in the laboratory analyzing the wastewater for the presence of pesticides?

A Yes, one of the streams.

Q How were they analyzing for that?

A I don't know, I don't know.

Q Did you ever talk over with any of the chemists that process?

A In a general way. I was more interested in the results rather than the details of how they got them.



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Certified Shorthand Reporter

Q And they were able to show you by their results they were able to analyze for pesticides, is that right?

A Yes, yes.

Q Would they prepare reports for you of these analyses?

A Yes. There would be summary reports each month, yes.

Q What were they summarizing for in the waste-water?

A Which stream are we talking about? Are we still on the insecticide?

Q I didn't understand your reference to streams. Is that a technical term or are you talking about coming from various places in the plant?

A I didn't mean to confuse. There are, as best I recall, three possible streams coming out of that plant. If memory serves me right, two of the three eventually end up in this Anniston Municipal Waste Treatment Plant.

The third one which consists of rainwater runoff would run into a nearby creek and on down to the water, the natural water system.

Q Is there a river there?

A Sorry?

Q Is there a river there?

A There is a river near ~~Kansas City~~ the City.

Q Would it run into, eventually end up at Logan Reservoir?

A That is the ~~Cusa~~ Coosa River and there are some creeks ~~of~~ of the two streams that end up in the City system, ~~One~~ one came out of the insecticide unit which received pre-treatment with oxygen or air and bacteria and that is the stream we referred to earlier, checking for insecticides.

The other stream, a smaller stream, would get what little water there was from the rest of the plant which included the sanitary, the rest-rooms and so on.

Q They would analyze for those two streams?

A They would analyze specifically for the insecticide stream and they would then analyze for the composite stream that went to the City system.

Q They would not take any sample at all from the third stream which was just the rainwater?

A Unless something unusual showed up they might want to back trace, that would not be a routine.

Q Did that take place while you were there?

A Obviously, yes. I don't remember the specifics.

Q So on the one stream they were analyzing for the presence of insecticides?

A Yes.

Q And in the composite, what were they analyzing for?

A These are the traditional parameters: Total solids, biological ~~chemical~~ oxygen demands, pH, turbidity; these kinds of things. I believe that's about it.

Q And they would conduct those analyses at least once a month and provide you with a report, is that right?

A It's more frequently than that.

Q Both the sampling and the reporting?

A The reporting would be once a month. The sampling would be, if I remember correctly, daily.

Q Would those reports have been turned over to a local governmental agency?

A Yes, they were also turned in -- the copy I saw would be the material that was transferred to the Alabama Water Agency.

Q Did this practice we have just been describing continue virtually unchanged during the entire period of

time you were Plant Manager?

A Yes.

Q Did the capacity of the laboratory to conduct these tests remain basically unchanged during that period of time?

A About the same, yes.

Q Didn't purchase any sophisticated equipment?

A No.

Q At any time did the levels of pesticides exceed what was required or expected by you?

A Yes, we had some occasional upset.

Q What is that upset?

A Well, when the system didn't perform as expected, this would happen primarily in the winter when the bacteria during an extremely cold day would stop functioning and we would notice this rise and we would have to go back and take corrective action.

Q I take it those reports would be brought to your attention immediately without waiting for the monthly to --

A True, yes.

Q Is there anything else during this period of time that was disclosed by these reports that we called to your attention immediately?

MR. SCHINK: Do you mean actually disclosed by the sampling analysis?

BY THE WITNESS:

A I cannot recall of any other situations of that type. I don't remember.

BY MR. POPE:

Q Those occasions where your reports were able to detect insecticide in your wastewater, what levels are we talking about that were detectable?

A Oh, I don't remember.

Q Is this parts per billion area?

A Did you say billion?

Q Yes.

A No, parts per billion was not common terminology in '65, so it would have to be more than that.

Q On those occasions where it was detectable, can you give us your best recollection of what was the amount detected?

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

Q As far as you know, did they have the capacity to detect the presence of pesticide in amounts less than 10 ~~percent~~ parts per million?

MR. SCHINK: They, you are talking about his laboratory in Anniston?

MR. POPE: His laboratory in Anniston.

BY THE WITNESS:

A. I don't recall.

MR. POPE: Why don't we take a break for lunch, Jim.

MR. SCHINK: Fine.

(At 1:00 o'clock p.m., a lunch recess was taken to 1:45 o'clock p.m. this same day.)



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