UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF ILLINOIS

SOUTHERN DIVISION

CHERYL KRUTSINGER,	)	
	)	
Plaintiff,	)	
	)	
vs.	)	No. 03-111-DRH
	)	
	)	
PHARMACIA CORPORATION,	)	
	)	
Defendants.	)	
	)	

VIDEOTAPED DISCOVERY DEPOSITION OF ROBERT KALEY

Taken on behalf of Plaintiff

April 30, 2004

ANITA J. DURBOROW, CCR

CCR License # 851 (G)

WATER_PCB-SD0000044455

I N D E X O F E X A M I N A T I O N

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UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF ILLINOIS
SOUTHERN DIVISION

CHERYL KRUTSINGER,	)	
Plaintiff,	)	
vs.	)	No. 03-111-DRH
PHARMACIA CORPORATION,	)	
Defendants.	)	

DEPOSITION OF ROBERT KALEY, produced, sworn, and examined on behalf of the Plaintiff, April 30, 2004, between the hours of eight in the forenoon and five in the afternoon of that day, at 190 Carondelet Plaza, Suite 600, St. Louis, Missouri, before ANITA J. DURBOROW, a Certified Court Reporter and Notary Public.

A P P E A R A N C E S

The Plaintiff was represented by Mr. Randy Gori of the law firm of Goldenberg, Miller, Heller & Antognoli, P.C., 2227 South State Route 157, Edwardsville, Illinois 62025.

The Defendant, Pharmacia Corporation, were represented by Mr. Joseph Orlet of the law firm of Husch & Eppenberger, LLC, 190 Carondelet Plaza, Suite 600, St. Louis, Missouri 63105-3441.

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IT IS STIPULATED AND AGREED by and between counsel for the Plaintiffs and counsel for the Defendants, that the deposition of ROBERT KALEY may be taken in shorthand by Anita J. Durborow, a Certified Court Reporter and Notary Public, and afterwards transcribed into typewriting, and the signature of the witness is not waived by agreement of counsel and the witness.

* * * * *

VIDEOGRAPHER: This is the video deposition of Robert G. Kaley the second. Today's date is April 30th, 2004. The time is 10:34 a.m. This is the case of Cheryl Krutsinger versus Pharmacia Corporation, case 03111MJR in the United States District Court, Southern District of Illinois. This deposition is taking place at the law offices of Husch & Eppenberger, located at 190 Carondelet Plaza, Clayton, Missouri. My name is Ed Foppe, I am the videographer representing Pohlman Reporting Company. The court reporter is Anita Durborow, also representing Pohlman Reporting Company. Counselors, will you please state your appearance?

MR. GORI: Randy Gori for Cheryl Krutsinger.

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MR. ORLET: Joe Orlet for Pharmacia Corporation formally known as Monsanto Company.

VIDEOGRAPHER: Will you please swear in the witness?

ROBERT KALEY,

of lawful age, being produced, sworn, and examined on the part of the Plaintiff, and after responding "I do" to the oath administered by the court reporter, deposes and says:

* * *

EXAMINATION

QUESTIONS BY MR. GORI:

Q. Good morning, sir, could you state your name for the record and spell it?

A. Yes, it's Robert Kaley, K-A-L-E-Y.

Q. And what is your occupation?

A. I'm retired.

Q. From?

A. From Solutia, Inc.

Q. Have you ever given your deposition before?

A. Yes, I have.

Q. How many times.

A. I would say maybe 10, 12 times.

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Q. Let me go over just a few brief rules before we get started into the deposition and you probably already know them. But if you could listen to my question before you answer and not talk over -- so we don't talk over one another it will really help out the court reporter. And the second thing I ask of you is that if you don't understand one of my questions, please ask me to rephrase it or ask it again so that I know when you answer you're answering the question that I've asked. Do you understand that?

A. Yes, that's fine.

Q. Tell me a little bit about your educational background.

A. I received a bachelor's degree in chemistry from Purdue University in 1968. I then attended the University of Illinois receiving a master's degree in analytical chemistry in 1971 and a doctorate degree in analytical chemistry in 1974.

Q. And can you tell me -- give me briefly your past employment?

A. Yes, I was employed by Monsanto Company out of the University of Illinois. I worked as a laboratory analytical chemist for Monsanto Company in various capacities until about 1985.

Q. Starting what year, I'm sorry?

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A. Oh, I'm sorry, in 19 -- I actually started in 1973 before I -- my degree was actually conferred.

Q. Can you go through your jobs then? So we're only talking your career as just limited to Monsanto, Pharmacia, Solutia?

A. That's correct.

Q. And when I say that and I think Joe may be able to get a better recitation for us on the record, when I talk at Monsanto, I guess what I'm really talking about is the old Monsanto, the Monsanto that existed prior to 2000 or 1999 which was the division responsible or who produced the PCBs in the time of question?

A. That would be my understanding when I speak of Monsanto that's who I'm speaking of also.

MR. ORLET: So if anybody needs to talk about the new Monsanto formed that was in 2000, that would be, let's term it new Monsanto although I don't think it will come up.

BY MR. GORI:

Q. So let's go from 1973 is your first job as a chemist?

A. Yes.

Q. And that was with Monsanto?

A. That was with Monsanto, yes.

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Q. Tell me what your first job was there.

A. I was a research chemist and performed analytical chemistry, did analyses of PCBs.

Q. And where is this location that you did this?

A. It was in St. Louis County.

Q. The Creve Coeur campus?

A. That's correct.

Q. Then how long were you a research chemist on PCBs?

A. I was a research chemist actually for probably five years.

Q. So until approximately 1978?

A. Yes, correct.

Q. Then what did you do after that?

A. At that point I became a research group leader managing a small group of analytical chemists doing largely the same kind of work that I'd been doing before except that I did have a small group reporting to me. But I did remain active in the laboratory also.

Q. And where were you a research group leader?

A. That was the same.

Q. Okay.

A. At the Creve Coeur campus.

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Q. And how long were you a research group leader?

A. Probably 'till, I think, about until 1981.

Q. Okay. And what did you do in 1981?

A. In 1981 I moved to the corporate research department, my previous employment had been in the Industrial Chemicals Company and I -- excuse me, I moved to the corporate research analytical laboratories in 1981.

Q. Okay. And did you continue to work on PCBs at that time?

A. Less -- some but less. The corporate research department had much broader responsibilities for support so I did do some PCBs analyses but less. I continued, however, to maintain my, you know, my expertise and awareness of the literature on those issues, so --

Q. And where did you -- and how long were you in this position?

A. I was in that position until 1985.

Q. What did you do in 1985?

A. In 1985 I moved our Corporate Environmental -- it was called the Corporate Environmental Policy Staff at the time, the Corporate Environment Safety and Health, I think that's what

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they -- the term they use these day for that department.

Q. Still at the Creve Coeur campus?

A. Yes.

Q. Still doing work PCBs?

A. Yes, that was my primary responsibility actually was product stewardship for PCBs.

Q. What does that mean?

A. Well, it meant a variety of things, it actually meant being a resource within the company for questions about PCBs. My responsibilities were to stay current with the PCB literature, to answer outside inquiries that would come into the company about PCBs, a variety of things like that.

Q. And how long were you in that position?

A. I was in that -- essentially I was in that position at various levels until 1977 when Monsanto spun off Solutia as a separate company and at that point I basically went to Solutia with the same responsibilities.

Q. And what did you do at Solutia?

A. I was director -- called director of environmental affairs but I did basically the same thing, I was an internal resource for the company on PCB issues and other issues around chemicals that

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Monsanto had formerly manufactured.

Q. Okay. So you were still doing work, what exactly -- what kind of work would you be doing on PCBs in 1977?

A. Well, it's still the same thing, the company still continued to get outside calls, Monsanto or Solutia as well as other companies have a variety of regulations addressing PCBs that I had responsibility to be sure that the various plants complied with the PCB regulations. So it continued to, you know, be an issue that required attention.

Q. Okay. Do you have any certifications or licenses in connection with the field that you practice in?

A. No, I do not.

Q. Who else in your -- are you the person most knowledgeable at this time with regards to PCBs in Monsanto's production of PCBs?

A. I believe I am, yes.

MR. ORLET: Randy, like we've discussed in the past, if there are -- obviously Bob is not a medical doctor or an epidemiologist, although he's, you know, generally Knowledgeable about the state of the literature but to the extent that there comes a time where Bob -- where you've

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exhausted Bob's knowledge or expertise and you feel you want to probe a particular issue further, just alert me to that and I can be more -- I'll be more than happen to try and find the appropriate person, whether it be a medical doctor, epidemiologist, so --

BY MR. GORI:

Q. In preparation for this deposition what did you do?

A. I spent a few hours with Mr. Orlet.

Q. Okay. And, I mean, more general than that. I mean, obviously you've been -- you've attended some of the depositions in this case. What is your familiarity with this particular case?

A. I consider myself fairly familiar with the issues in the case and with the -- some of the expert reports that had been produced in this case.

Q. What expert reports have you reviewed?

A. I've reviewed from plaintiff's side, I've reviewed Dr. Ordog's, obviously attended the first part of his deposition, I reviewed his deposition and reports. And I reviewed the reports, I believe, of Dr. Erickson for Pharmacia. I briefly reviewed Dr. Whysner's report and even more briefly reviewed Dr. Shield's.

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Q. Did you assist Dr. Whysner, Shield or Erickson in preparation of any of the reports?

A. No, I did not.

Q. How are you being compensated for today's testimony?

A. I'm not being compensated, I'm appearing as a representative of my former employer.

Q. Okay. Do you continue to receive a pension or any kind of retirement benefits?

A. Well, when I retired I took my retirement benefits as a lump sum so, I mean, I have my retirement benefits from Solutia Inc. and I hope they've some income frankly.

Q. Let's talk about -- can you briefly give me an understanding of what you believe this case is about so we can discuss then in detail Monsanto's involvement and some of your opinions on that?

A. Okay. My --

MR. ORLET: Let me just show an objection to the form of the question. Go ahead.

A. My understanding is that the plaintiff, Ms. Krutsinger, was an employee of Illinois Power Company and over a period of three days in, I believe, March of 2001 she was asked by her employer to take part in the servicing of a transformer which had had some sort

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of electrical malfunction, she did that. Subsequent to that job she developed, I believe, some skin conditions and other conditions which she has -- thinks were caused by her exposure to, I guess, PCBs or other materials during that -- during that job assignment.

BY MR. GORI:

Q. Now, do you expect -- you're familiar, obviously, through your employment with Monsanto with the epidemiological studies involving PCB exposures in persons and in animals, correct?

A. Yes, I have maintained awareness of that. I've studied that literature and continue to stay current.

Q. What did you do in conjunction with PCBs, I mean, I know we've talked -- you've talked about being a research chemist, I know you've talked about your other jobs in connection with PCBs, give me a little more detail of what you're actually doing in conjunction with PCBs?

A. Well, my hands on laboratory experience was doing analyses using instruments that were in the laboratory for PCBs themselves. There were several, I guess, broad classifications beginning -- well, certainly by the time I came to Monsanto in 1973 they

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were deeply into a variety of research projects involving PCBs trying to understand the behavior of PCBs in the environment, trying to understand the discharge of -- the potential for discharge of PCBs from their plants.

And all of those activities would generate samples which had to be analyzed for PCBs. And that was basically my job, I analyzed water and soil samples from the environment, I analyzed animal tissue samples that were being generated in testing studies of animals. I generated -- or I analyzed samples that were being generated in our laboratory to look for the biodegradation of PCBs so, I mean, that was primarily the kind of things I was doing.

Q. When did Monsanto start producing PCBs?

A. Monsanto purchased Swann Chemical Company in 1935 so at that point Monsanto essentially took over the existing process for the manufacturer of PCBs.

Q. When was the first time it was suspected that PCBs could cause adverse health effects?

A. Well, I think from the very beginning of the production of PCBs, Monsanto and other companies were concerned about the potential for health effects. In fact, I think as early as 19 maybe 35 Solutia -- not Solutia, excuse me, Swann Chemical Company had an

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outbreak of a skin disease in their plant, they went to Emery University and other universities to get physicians to look at that outbreak, and this was in their PCB production workers, it turned out that it wasn't PCBs that caused the outbreak, it was an impurity in one of the raw materials. But.

I think, you know, as early as the 1930s there were, you know, concerns and information available that caused Monsanto and other companies to pay attention, the potential for health effects for PCBs.

Q. And when you say that you believe that that skin condition was caused by impurity, what impurity was that?

A. The literature that -- the information I'd seen and what makes sense is we've learned through the years it was probably a chemical called styrene that was in the benzene and that that styrene when it went into the reaction was chlorinated like the biphenyl would be and that caused the skin reaction.

Q. How did -- how did they determine that it was the styrene versus the PCBs that caused this?

A. Well, there were a number of ways, obviously the company and the doctors that they hired to help them looked into a variety of possibilities of what

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could be the cause and one of the observations was that the workers in that department hadn't had any skin problems until this period of time. And one of the things that happened at the same time as the skin problem occurred is that they had changed their supplier of benzene. So they went back to the old supplier of benzene, when that happened there was no recurrence of the disease, of the skin problems, and some analyses of that material pointed out that styrene was probably the problem.

Q. Did -- when Monsanto took over production of PCBs from Swann Chemical, did that use the same formulas that they were -- that Swann Chemical was using?

A. They use the same chemical process, yes, it remained unchanged for all practical purposes, I mean, there were process changes over the years but there were not any drastic changes in the process that Monsanto employed.

Q. What other -- and you said from the very beginning that there was suspected adverse health effect, what other adverse health effect were suspected and when did they start being suspected?

A. Well, the other --

MR. ORLET: Show an objection to the

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form.

A. In the early 1940s, the late 1930s, the other issue was raised as a potential problem for PCBs was liver problems, there had been some reports -- there was an industry very prevalent in that time in which workers coded wire cable with a mixture of a material primarily polychlorinated naphthalene, N-A-P-H-T-H-A-L-E-N-E, that were used to coat this cable, and some PCBs were added into some of those mixtures.

Some of those workers did have liver problems and so there was some questions, suspicion that certainly one of those materials was responsible for those so actually there was a series of studies done by a Dr. Drinker at the Harvard Medical School but, I believe it's the Harvard School of Public Health that actually looked at the issue of which of these materials might be causing liver problems, they actually tested the materials in laboratory animals.

And when they did those tests they found that at certain levels, yes, certainly chlorinated naphthalenes and some of the chlorinated terphenyls products, actually a product related to PCBs but not the same, did cause these problems. Interestingly the outcome of that research that Dr. Drinker did was that

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he proposed a safe level at which PCBs and other materials could be used.

So really it was after that that research had been done and companies started paying attention to that level at which they could be used, then those kinds of problems basically were not seen anymore. And they were largely attributable to the polychlorinated naphthalenes anyway, but certainly in the literature there is some questions as to whether PCBs can cause those same liver problems.

BY MR. GORI:

Q. Now, so we've got skin, liver, were there any other suspected health effects?

A. No, those were really the only ones that developed.

Q. There was never any question about whether or not PCBs could cause lung cancer?

A. Well, as the years went through and epidemiology developed, certainly there were studies done primarily beginning in about the 1980s that looked at the association of a variety of cancers including lung cancer with PCBs and those reports have been published, you know, throughout the last -- really the last 20 to 25 years.

Q. Did you involve yourself at all with any

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kind of studies on these particular complaints or particular questions?

A. I was not actively involved in any of that, I'm not a trained epidemiologist so I was not actively involved in any of those kinds of studies.

Q. What was your job then, I guess I'm slightly confused?

A. Well, my job -- well, in the early days being past when I was a laboratory chemist, my job primarily to understand the company's history with PCBs and what we had done at various times and to remain current with the literature, what was being published in the literature in a variety of fields, whether it was, you know, environmental concerns, studies of human health, the chemistry continued to be aware of the analytical chemistry of PCBs, to be aware of the regulations around PCBs, things like that. So it was basically to just be as Knowledgeable as I could on issues that involved PCBs in some other chemicals.

Q. So you say you're not a trained epidemiologist, but part of your job was to review epidemiological studies?

A. Well, I would say to review as much as to read and understand.

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Q. Okay. Were you capable -- are you capable of understanding an epidemiological study?

A. Yes, I think I am, certainly.

Q. Were you ever trained in those?

A. No, I was not.

Q. Okay.

A. I have not received any formal -- I've taken like a several day course in epidemiology, but as far as receiving any, you know, in depth training or a degree or a certificate or anything like that, I'm not.

Q. Are you able to understand the conclusions of these studies?

A. I believe I am, yes.

Q. Okay. Now, if one study contradicts another study, how are you able to determine which study to rely upon?

A. When reading epidemiology studies, it's not so much a question of contradiction as it is a process of trying to look at all of the studies and look for consistency among those studies and to understand what we call kind of the weight of the evidence, what does all this information together means. So as I said, it's not really a question of contradiction, I don't know that any of the studies necessarily contradict

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one another.

Q. Can you rely upon an animal study to form an opinion on any various numbers of chemicals?

A. Well, certainly. Animal study have a role to play in the understanding of the potential for the health effects of any particular chemicals, certainly.

MR. ORLET: Can we go off the record for just a second, if you don't mind?

VIDEOGRAPHER: We're going off the record at 10:55 a.m.

(At this time a short break was taken, after which the following proceedings were held:)

VIDEOGRAPHER: We're back on the record at 10:56 a.m.

BY MR. GORI:

Q. Can a person -- could a scientist form a conclusion about the health effects on humans from an animal study?

MR. ORLET: Show an objection to the form of the question.

A. I believe it's inappropriate to form a conclusion about human health effects based on animal studies, I think you have to look at the whole body of the literature. Certainly if no human information is available, then there's a bigger emphasis placed on,

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you know, trying to understand what the implications of an animal study could. But, I think, certainly with the case of PCBs there is a large body of human literature and that's what a person would rely on most rather than the animal studies.

Q. Are there any known studies of humans and PCB exposures that actually have the humans being subjected to PCBs in a known quantity? And I can rephrase that if I -- that's --

A. Well --

MR. ORLET: Let me just show an objection to the form of that question.

A. There are studies where there have been measurements of either PCB levels in the workplace and/or PCB levels in humans which have been related to the epidemiology studies, yes.

BY MR. GORI:

Q. In those studies do the persons conducting them actually know the amount of PCB exposures these persons have had?

A. Well, I guess we need to clarify a little bit, if we can, what we're talking about with epidemiology studies. If we're talking about what are called mortality studies, where the study is actually of the cause of death, and most of the studies that

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talk about cancer or other things that unfortunately cause death in humans are these kinds of studies. Actually those are studies that people have died. And in those cases the actual individual exposure is not known.

In some of the studies of health effects of whether PCBs may be making a given person ill, there is the information which I talked about where they have workplace exposures, they know to some extent what PCBs -- whether PCBs were present in the air or on workplace surfaces, they may very well have a blood level of one of the subjects. So to that extent, yes, I do believe they have some idea of the exposure.

Q. None of the studies were -- there are no studies for humans where the humans were intentionally exposed to PCBs; is that correct?

A. That is certainly correct, yes.

Q. So these are -- these conclusions, or these epidemiological studies are studies where scientists have subsequently or epidemiologist have subsequently come in and tried to recreate what they believe is the exposure?

MR. ORLET: Object to the form.

A. No, the people -- I mean, people who worked in industries where PCBs were used in the electrical

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manufacturing industry, which is where they were most widely used, did have exposures to PCBs they, you know, whether it was, would be called intentional or not, I mean, they were exposed to PCBs in their workplace and people went in during the time that those people were working and did air measurements in those workplaces and did, you know, tissue sampling on some of these people. So, I mean, there was concurrent information about exposure levels, potential exposure levels in work.

Q. Can you tell me the names of those studies?

A. Certainly. There are the ones that spring to mind, there are NIOSH, did a lot of those studies, it's the National Institute for Occupational Safety and Health. I believe there were studies done at the Bloomington, Indiana Capacitor Plant, the Westinghouse Plant in Bloomington were they have air level studies. I believe there are, some of those studies done at the General Electric Capacitor Plants in New York where air level measurements have been made.

Q. Did any of those studies that we just talked about conclude that there were some adverse health effects on the persons who were working around these PCBs?

A. Well, none of them concluded that there were

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adverse health effects, they all looked for the potential and reported their findings. And in some cases there were associations with adverse health effects reported in some of those and some of them there weren't.

Q. What were the adverse health effects that were found?

A. Well, the most significant, I think, one is in the Westinghouse study. Again this is a study, it was a study of causes of death where people were exposed during the manufacturer capacitor, the capacitor's in Bloomington. So, again, back to your previous questions, the actual subjects of the study, their exposure wasn't tested but subsequently tests were made of the PCB level of air in the plant.

In that particular epidemiology study there was an association of working in the plant, not necessarily with PCBs but working in the plant with skin cancer called malignant melanoma and the authors were careful to point out that they couldn't attribute it to PCBs but it seemed to be associated with that plant. So that's an example of the kinds of reports. Again they certainly didn't conclude, in fact, they went out of their way not to concludes that PCBs caused that skin disease, that skin cancer, but it

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formed a piece of the broader literature on the potential for PCBs to cause human cancer and certainly some people, I mean, anybody that's reviewing that literature takes that study as one piece of a bigger picture of a number of studies to consider the potential.

Q. Are you familiar with the Yusho studies, the Japanese rice field studies or the Japanese rice studies?

A. Yes, there was -- I'm familiar with the incident that occurred in Japan, that was in the late 1968.

Q. And the conclusion of that study was, if you remember? And I'm sorry if I say conclusion, I know that you're differentiating the two. What did that study find?

A. Well, there have been -- there have been a number of studies of the Yusho population, in fact, you know, we're 35 years past that and those people are still being observed and studied. There were a number of health effects reported in that population, some among the adults -- it was actually a situation where an industrial chemical containing PCBs had leaked into rice oil that the people actually consumed, these people consumed very large amounts of

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that rice oil.

The actual causative factor in that situation has been determined not finally to be PCBs but to be an impurity, the rice oil that was generated by the thermal breakdown of the PCBs. But, I mean, there were effects on the adults, there was, I believe, some liver finding, certainly there were effects on the children. The children were born with dark colored skin with in some cases deformed fingernails so there had been a number of health effects reported out of that very serious poisoning incident.

Q. And what was that impurity that you talked about that was causing the thermal breakdown impurity?

A. It's a chemical or a group of chemicals called polychlorinated dibenzylfurans.

Q. And polychlorinated dibenzylfurans -- do you want that spelled now or later? Those are present in all aroclor; is that not correct?

A. They are not present in all aroclor but they've certainly been measured at trace levels part per millions levels in most of the aroclor products.

Q. Do you know if it's present in aroclor 1260?

A. I believe they had been reported at one to two parts per million in aroclor 1260, yes.

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Q. Is there a difference from being exposed to PCBs at room temperature at 72 degree Fahrenheit or if you've been exposed just after a fire incident or an incident involving heat?

MR. ORLET: Show an objection to the form.

A. Well, I'm not sure I quite understand the -- I mean, certainly the early information about PCBs was that being exposed to PCB fumes at elevated temperatures was to be avoided because like any material as the temperature increases the level of the material in the air increases, that's true for things like water or things like gasoline, it's, you know, strangely enough true for things like the table in this room, little particles of this table are probably evaporating into the air.

But, I mean, the fact that there has been some sort of a fire or some sort of a thermal incident doesn't necessarily mean the temperature is elevated, I mean, the questions are really separate, there's clearly, you know, if you're exposed to materials at elevated temperatures are the higher potential for exposure because of the evaporation. But because there's been an incident doesn't mean that it couldn't be at room temperature by the time somebody's exposed.

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BY MR. GORI:

Q. Okay. Are you prepared today to give testimony with regards to what it would take to be exposed to -- what it would take to be a significant exposure to exhibit any kind of health effects from PCBs? And maybe the more basic question is from your review of PCBs, is it your opinion that PCBs can cause adverse health effects?

MR. ORLET: I'll object to the form, but --

A. I believe there are conditions that can appear in humans at very high levels of exposure, very high body, what we call body burden, very high blood levels or fat levels, I believe those include skin conditions, rashes, other kinds of skin conditions, I think there is some consistent evidence that high level exposure to PCBs can cause temporary elevations in some liver enzymes. If you go to the doctor and you're having your yearly physical, he's going to take some of your blood and part of what he's looking for are a couple what are called serum enzymes. There's actually enzymes that occur in human blood, some of those can be indicative of potential liver damage. And there have been, I think, enough reports of those in highly exposed PCBs workers that certainly that can

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be acknowledged as a potential health effect.
BY MR. GORI:
Q. Could a person without elevated serum or adipose tissue levels experience adverse health effects from PCB exposure?
MR. ORLET: Show an objection to the form.
A. In my opinion, no.
BY MR. GORI:
Q. In your opinion, no? Do you know if Monsanto ever grouped together the epidemiological studies that were available and summarized them at any time?
A. Yes, I believe in the late 1970s a Dr. Gaffey employed by Monsanto at the time may have done a review of the available information in that timeframe.
Q. And do you know if Dr. Gaffey talked about individual's susceptibility to different chemicals?
A. I don't specifically recall that, no.
Q. Just a second here. And is this the -- I'll mark this as Exhibit 1. We can mark it at the end. But let me just show you, this is -- is this the Dr. Gaffey report you're talking about? If you could look at it and then give it back to me so I can show

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you where I'm specifically talking about. And who is Dr. Gaffey within Monsanto?

(Plaintiff's Exhibit No. 1 is marked for identification.)

A. He was director of epidemiology at this timeframe, I believe.

BY MR. GORI:

Q. How was the epidemiology department, your department and the medical department connected, if they were connected at all?

A. The epidemiology department, if there was a department, at the time this was done I think the department was Dr. Gaffey was part of the medical department. And the medical department, I believe at this time was part of the environmental policy staff. So, again, I wasn't involved in 1979, I was still in the laboratory but that's my understanding of the arrangement at that time. There may have been some -- they may not have been called exactly what I've said but that would have been the general organization.

Q. Are you familiar with Dr. Kelly?

A. Yes, I am.

Q. And how was Dr. Kelly -- or what was Dr. Kelly's position in conjunction with yours? Was he a supervisor or was he just in a different

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department?

A. Well, Dr. Kelly was medical director.

Q. Okay.

A. But Dr. Kelly retired in 1974.

Q. Okay.

A. So by the time this study was done and by the time I became part of that, Dr. Kelly had been retired for a number of years.

Q. And did you ever have any chance to work with a gentleman by the name of Mr. Eley?

A. Yes, I have.

Q. And how --

A. I've had that honor.

Q. And how -- who was Mr. Eley in connection with your employment?

A. Well, at various times various relationships were involved, when he and I first -- he joined Monsanto, I believe, before I did. He was the industrial hygienist in the medical department and may very well at some point reported probably indirectly to Dr. Kelly. At the time I was a laboratory chemist and I met Bruce at the time and knew him but didn't work directly with him, that really remained the situation until about six or seven years ago and Bruce actually joined the group that I worked with at

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Solutia, probably is still at Monsanto and Bruce and I worked very closely together over the past number of years.

Q. And let me get back to this review of epidemiological reports of PCBs that Dr. -- is William R. Gaffey, but you're telling me he's Ph.D. or M.D.?

A. He was a Ph.D. I believe.

Q. And this is the report you spoke of?

A. Yes, it looks like the same one, yes.

Q. And I do note citations in here from the 1980s, so you think that this may have been one that was later than the one you spoke of?

A. It may have been a review, I believe he did an update, I think, in the 1980s, I believe very early in the 1980s. It may have been '81 or '82 but I thought it was about the 1979, it may have been '81 or '82.

Q. Okay. Within this report -- and have you reviewed this report before?

A. I have read it not recently, I've certainly read it in the past.

Q. And do you believe that someone's individual susceptibility could take a role in having an adverse reaction to PCB exposure?

MR. ORLET: Object to the form.

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A. Well, I believe it's well known that people have different responses to different amounts of pharmaceuticals or foods or a variety of things. So I think at some level of exposure certainly some person or persons may be more susceptible to some kind of an effect.

BY MR. GORI:

Q. Are you familiar with the Meigs, M-E-I-G-S, or the Haswara, H-A-S-E -- can't even determine what that letter is, A-W-A, and the Kitatura, K-I-T-A-T-U-R-A studies?

A. Certainly I recognize the Meigs as an author of a study, the other two don't spring to mind or don't bring anything specifically to mind. But, you know, certainly there have been lots of papers written about PCBs, so --

Q. How about Hara, H-A-R-A?

A. No, I have heard that name, I believe he's one of the persons that may have studied the Yusho incident.

Q. Okay. Would you mind reading for me this paragraph right here of dermatological effects of PCBs?

A. Do you want me to read it to myself --

Q. Yeah, well --

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A. -- or out loud?

Q. Well, show it and tell me if you agree with it.

A. All right.

MR. ORLET: Object to the form.

A. Okay, I've read it.

BY MR. GORI:

Q. You've read it? Do you agree with those -- with the conclusion -- or I'm sorry. How would you like me to state that so we don't have to clarify it every time, the findings, how about that?

A. Okay. Let me -- I guess, let me try to answer what I think the question is and that is certainly I believe that these are accurate reports of what Dr. Gaffey found in the literature and I have no reason to question that the authors of those individual studies were not reported correctly what they found.

Q. Okay. Based on that it talks about how -- well, let me read it to you. Would you like to see that first?

MR. ORLET: If you don't mind, just so I know what you guys are talking about.

BY MR. GORI:

Q. Sure. There's about -- you may want to take

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a look at the places where I've read so we can -- or I can show it to you at each place.

VIDEOGRAPHER: We're going off the record at 11:16 a.m.

(At this time a short break was taken, after which the following proceedings were held:)

MR. ORLET: We're back on the record at 11:20 a.m.

BY MR. GORI:

Q. And before we get back into this summary of the epidemiological studies, can I ask you, again, and I'm sorry, you must have said it but I missed it, who was Dr. Roush in conjunction with your position?

A. Dr. Roush was Dr. Kelly's successor --

Q. Okay.

A. -- as medical director of Monsanto.

Q. When the press, meaning the local media or any media, asked for information on PCBs, did they turn to Dr. Roush typically, was he the one usually quoted? And I guess that's unfair. Was he quoted frequently in regards to PCBs?

A. Not that I recall.

Q. Okay. Who was the point person for the media when PCB -- when allegation of adverse health effects or environmental effects of PCBs were called

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into question?

A. I think that changed during the years.

Q. Okay.

A. And I don't know that I could name one specific person, certainly in general.

Q. Can you tell me a couple of the people maybe would be?

A. Well, I believe certainly when Dr. Kelly was employed, Dr. Kelly would be the person that would have responded to those allegations. Dr. Roush, when he succeeded Dr. Kelly may very well have responded to some questions about PCB health effects. Certainly when I became PCB product steward, I responded to some of those questions, not as a medical doctor but as a person Knowledgeable. So, again, within a variety of people.

Q. Okay. And there's a difference of -- in the literature there's a difference of reaction to different chlorinations in the PCBs; is that correct?

A. Certainly in the animal studies there have been a variety -- there are a variety of levels of PCBs, or variety of types of PCBs that depend on their chlorination level. And certainly animal studies have looked at potential health effects related to the level of chlorination, yes.

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Q. And would aroclor 1260 be considered a highly chlorinated PCB?

A. I believe that would be a fair characterization, yes.

Q. Within this report and it states and let me just -- let me quote from it and then you tell me whether or not you think that this is an accurate summary of an accurate evaluation of what these people have said, what these studies have said. In Smith, which is a 1982 study, "Smith found no chloracne the study of population of 324 exposed workers in the capacitor manufacturing in transformer repair, whose average blood PCBs range from 38 to 546 micrograms per kilogram. However there was a significant association of skin rash or dermatitis with blood levels of high chlorinated PCBs."

Would that -- would you expect these kind of skin rashes or dermatitis to occur in persons or is there a potential of persons who are exposed to or who are exposed to highly chlorinated PCBs to exhibit skin rash and dermatitis?

MR. ORLET: Object to the form.

A. I recall that study, I believe his termination or his reference to higher or lower chlorinated PCBs was not so much to the products,

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because in that particular study those people were only exposed to the lower chlorinated PCBs. It was really kind of a higher chlorinated PCBs among the lower chlorinated PCBs and, again, he doesn't report blood levels for those, for those exposed to the higher levels. I'd have to go back to the study to find out what blood levels he did find. But certainly I think it's probably an accurate representation of what he reported.

VIDEOGRAPHER: We're going off the record at 11:24 a.m. We're back on the record at 11:27 a.m.

BY MR. GORI:

Q. Let me ask you this question then, sir, do you know if -- unfortunately I'm not myself an epidemiologist, but do you know if this study has ever been contradicted by anybody, this Smith study? And I'll let you answer it that way and then I can clarify if I don't think that we've answered it correctly.

MR. ORLET: Object to the form.

A. I'm not aware of any publication that says Dr. Smith was in error in anything he said in his study.

BY MR. GORI:

Q. That's fine. Further on in his study he

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states that most studies have shown that occurrence of chloracne is not further associated with blood PCB levels, this suggest that personal idiosyncratic factors may be involved and/or that the high blood levels are an indicator of the existence of environmental contamination which actually produce chloracne by skin contact. Is it correct that studies have found that the personal idiosyncratic factors are involved in the adverse health reactions to PCB?

A. Could I --

Q. Sure, no problem. It's that paragraph right there and I started about halfway through.

MR. ORLET: Show an objection to the form.

A. Certainly the paragraph says, in what you've directly quoted and it does indicate there may be an idiosyncratic influence on the occurrence of chloracne. I think it's important to realize though that -- and I think it points it out in that paragraph they're talking at blood levels that are starting at 100 to 200 parts billion, so again I think I said before those statements may be true but they're talking about people that already have elevated blood levels. And, again, in this particular incident it was 100 to 200 parts per billions. Those are quite

high blood -- typical of occupational exposures but quite high, certainly higher than you would ever see in anybody environmentally exposed.

BY MR. GORI:

Q. Now, I'd like to point out to you within the same document, the document prepared by Dr. Gaffey, the effects of PCBs on human health which is the summary of many of the epidemiological studies at the time, he himself as a summary conclusion section, within that summary conclusion section I'd like to read it for you and see if you disagree with this.

The relation of -- relation of body burden to duration of exposure is less clear and appears to differ depending on the degree of chlorination of the PCBs. Nevertheless, the evidence is clear that higher exposure means higher blood PCBs level and that persons with occupational exposure have PC -- have blood PCB levels that may be an order of magnitude greater than that of environmental, environmentally, that is not occupationally exposed persons and that non-occupationally exposed persons is in parenthesis.

Occupational exposures to PCBs at high levels have been associated with the occurrence of chloracne but the relationship is not straightforward suggesting that actual risks of chloracne is also a

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function of individual's susceptibility and personal work habits as well as possible exposures to other contaminants. Dermatologic problems other than chloracne are associated with occupational exposure and may be related to exposure to high chlorinated PCBs. Do you agree with those conclusions?

MR. ORLET: Object to the form.

A. I believe Dr. Gaffey has correctly summarized the information that was available but, again, I would -- I would emphasize that the reviews that he is using to draw that conclusion are as the one we discussed earlier of people who were very highly exposed and with blood levels in the hundred of parts per billion.

BY MR. GORI:

Q. Does it matter then that the person may or may not -- does it matter then whether or not the PCB the person has been exposed to was a highly chlorinated PCB?

MR. ORLET: Object to the form.

A. Based on what Dr. Smith reported, certainly it appears at least he felt that that was the case, that the more highly chlorinated PCBs were those more likely to cause chloracne in those highly exposed occupational workers.

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BY MR. GORI:

Q. Now, would you expect the person with a -- exposed to a highly chlorinated PCB to have a lower blood level before they start to exhibit -- any types of lower blood level PCBs prior to exhibiting any types of symptoms?

MR. ORLET: Same objection.

A. I guess that's kind of another way of asking the previous question. And, again, I think if one expects Dr. Smith's observation that there seemed to be relationship between higher chlorinated PCBs and the appearance of skin conditions that that would be a logical conclusion, I think. However, again, I must say that he's talking about people that have blood levels of 100 to 200 parts per million as a starting point.

BY MR. GORI:

Q. What is -- what are the other skin conditions that you know or you believe could be caused by PCB exposure?

A. Based on our plan observations and things I've read, the most common skin reaction is a drying of the skin because PCBs like other organic solvents take the oils out of the skin, it much -- I think if anyone has ever spilled gasoline on their skin, the

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skin takes on a dry kind of look because the gasoline takes the oils right out of the skin. If that happens over a long period of time, you could get cracking or continued dryness or maybe some redness in there, that's the other primary skin condition that has been reported.

Q. The rash that these epidemiological studies talk about, is that -- is that something that you would expect possibly to be seen in someone exposed to PCBs?

MR. ORLET: I object to the form.

A. If they were -- I don't know exactly what -- rash is kind of a general term, it's hard to know exactly what these particular authors were talking about. I think to the extent that a rash is a redness or a little bit of a soreness, I think that's consistent with what I said before that there is, you know, there is a potential for PCBs to dry the skin and cause some symptom that looks like a rash.

Q. Would you expect that to be itching as well, for there to be itching involved in that as well?

A. Or what I would know, I'm sorry.

Q. When did aroclor 1260 stop being produced?

A. I believe that aroclor 1260 was among those, I don't believe, I know it was, among those that was

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stopped production in about 1970 when Monsanto withdrew from a number of businesses.

Q. Why was aroclor 1260 stopped in 1970 whereas other PCBs were continued to be produced?

A. When PCBs were discovered in the environment, the PCBs that were measured in the environment were particularly two products, aroclor 1254 which I would characterize -- we've been talking about high and low chlorinated, I'd characterize that as a medium chlorinated material, and aroclor 1260, those were commonly used in the electrical industry. Primarily 1260 was primarily used in electrical transformers.

Monsanto's goals during those early years of the PCB environmental issues was to think of ways, to implement ways to reduce the potential for PCBs to get into the environment. We knew and our customers told us that aroclor 1260 while it was an important component of the transformer fluids could probably be replaced with aroclor 1254. So the decision was made to stop making aroclor 1260 and continue to make aroclor 1254 for use in electrical transformers, so that's primarily the reason.

They couldn't go to even lower chlorinated

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materials because of the, you know, the electrical requirements for transformers but they did decide to quit making aroclor 1260.

Q. Were the suspected health risks any part of that decision making process?

A. No, the decisions in that timeframe were based on the -- what was being discovered in the environment and the desire and the need to come up with strategies to keep PCBs out of the environment.

Q. What year were PCBs discontinued?

A. Monsanto voluntarily stopped making PCBs in 1977.

Q. And why was that?

A. In about 1970 -- well, certainly in the early 1970s and then culminating in a report in 1972 the U.S. Government, a task force put together by the U.S. Government basically said that Monsanto -- you can't quit making PCBs, we need them in the electrical industry. We agreed and continued to make PCBs for electrical uses, but we notified our customers that as soon as suitable alternatives were discovered and tested and found to be appropriate, that they were going to quit making PCBs. So basically that's what happened about late 1976 our customers said we think we've got substitutes, we think they're going to work,

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I mean, Monsanto worked on some of those substitutes and tried to find ways to replace PCBs in this equipment. Once our customers told us that we could -- that they no longer needed PCBs, then we did voluntarily stop the manufacture.

Q. Did Monsanto itself come up with a substitute for PCBs?

A. We had fluids that we believed would substitute PCBs but they were -- they were found, for whatever reason, not to be as good as some of the other materials that the industry is now using.

Q. When did you find out substitutes?

A. That product -- I mean, really we started working on that kind of project, you know, late 1960s, early 1970s, continued working development through really through the middle of 1970s and once it became obvious that our candidate products and materials we were trying to sell for that application were not going to be what was used then that project was stopped.

Q. Was a substitute product more expensive to manufacture?

A. I don't know the answer to that, I do not know.

Q. Do you know -- okay.

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A. Certainly the products that are being -- some of the products being currently used are more expensive than PCBs were but that's other products, not ours.

Q. Who are those manufactured by?

A. Some of the silicon fluids, I believe, were actually manufactured by General Electric, I think they make their own silicon fluids.

Q. Do you know if General Electric had a substitute for the PCBs prior to when your substitute was manufactured?

A. One thing I'd like to, I think, point out is that if we're talking at transformers, which is really what I've been talking about, very few transformers really ever contain PCBs, only about five percent of transformers in this country ever contain PCBs. So we're talking about a relatively small market compared to what you might think. But as far as I know, prior to the 1976 timeframe, General Electric did not have substitutes, they were certainly among those people telling that government commission we talked about listen, we need PCBs in these applications where we have to have fire retardants, where we have to have the safety provided by this fluid we have to have PCBs, so, you know, as far as I know until they

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themselves started their program to work on substitutes they didn't have anything.

Q. Is Monsanto involved in telling the government whether or not PCBs were needed in industry?

A. Well, certainly we provided information to that -- to that committee about what we knew about PCBs, I don't know that we were specifically making industry specific claims for the need or not, I think primarily was the electrical industry that was making those kinds of, you know, those kinds of reports to the commission.

Q. Did any of your reports that you submitted to the government indicate that there are potential health effects of PCBs?

A. I've not looked at those for some time, I'm not sure what they've said, they may very well have talked about what we knew at various times, specifically I think the issues we talked about, the potential for skin problems.

Q. Were there any -- were you involved at all in any of the regulations involving -- let me go back, sorry. You said that transformers only account for about five percent of the PCB production or five percent were that PCBs would wind up?

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A. Excuse me.

Q. Sorry, I don't mean to misquote you.

A. Yeah, well, I think we may have had a miscommunication.

Q. Okay.

A. What I intended to say was that of all transformers that were manufactured, only five percent of those transformers contained PCBs.

Q. Okay. Where was the -- what was your -- what were PCBs primarily manufactured for?

A. And that gets us to that point and by far the primary use of PCBs of all kinds was for electrical equipment.

Q. Okay.

A. Capacitors and transformers and other electrical equipment.

Q. What dictated whether or not a transformer would contain PCBs?

A. The primary consideration was safety considerations, PCBs transformers were only used where there was a severe threat of either damage to property or a threat from fire to human life. So they were used in large buildings. In the times that they were used this building would have had a PCB transformer in it. They were used in public buildings, courthouses.

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There were PCB transformers in the White House.

They were used in electrical train systems, I don't mean little toy electric trains but like on the east coast where most of the electric diesel engines are used, they were used in those kinds of transformers where if you had a fire, property was going to be damaged and people were -- you were going to be hurt, so that's what dictated their use and, in fact, their use was required by many of the electrical codes in, you know, buildings, large buildings such as the one we're in today.

Q. Now, when you say only five percent of PCB -- or transformers contain PCBs, I think is what you said?

A. Yes, that's correct.

Q. Do you mean that only five percent contain more than 50 parts per million PCBs or do you mean that only five percent contain PCBs, period, meaning there was no PCBs within the oil in them?

A. My statement addresses the transformers that were intentionally manufactured to have askarel flame retardant PCB fluids in them.

Q. Okay. Does that -- and I'm going to make the distinction here because, I believe, the government says it's not PCB containing if it's less

than 50 parts per million in the transformers. Are you saying that they weren't manufactured with 50 parts per million or more or are you saying they weren't manufactured with PCBs in them at all?

A. The transformers were either manufactured as askarel flame -- it's a term which means flame retardant fluid.

Q. Okay.

A. They were either -- and it was usually PCBs. They were either manufactured as askarel transformers in which case they would contain a very high percentage of PCBs, anywhere from 50, 60 percent PCBs.

Q. Okay.

A. Or they were manufactured as non PCB, typically mineral oil transformers which were not intended to contain PCBs at all, there was no middle ground. The middle ground that, I believe, you're talking about occurred during the use of these various transformers. So they were either manufactured as one or the other, they weren't manufactured as something in between.

Q. And what accounts for that, I guess the contamination of the mineral oil in the ones that didn't -- let's just get specific here, the transformer that Ms. Krutsinger was in.

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A. Yes.

Q. Was that transformer intended to be a PCB containing transformer?

A. My understanding is that it was not intended to be a PCB containing transformer.

Q. How did PCBs get into that transformer?

A. Certainly, I mean, if we're talking about that specific transformer, I don't have any idea, I mean, there are theories and suppositions out there about transformers in general, but about that specific transformer, I don't know.

Q. Okay. And I guess since I don't know anything about this industry, what are the theories and suppositions?

A. Well, I think there are several things that have been discussed, one is that the electrical equipment manufacturers basically used the same equipment to fill PCBs transformers as they did mineral oil transformers. I don't know that this is exactly right, but I think you can conceive of a system where you got a big tank of PCBs, you've got a big tank of mineral oil and you have some sort of a hose that dips into the particular supply you want.

If you want a PCB transformer you're transferring material out of that, if you want a

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mineral oil transformer you take the hose and you put it in the mineral oil and pump from that tank, it's still going to have small levels of PCBs in it and that's certainly one way that they could have been contaminated, is the term they use, PCB contaminate.

The other is that the user of that electrical equipment often would service that electrical equipment for whatever reason, they might need to top off the level of oil in the transformer and supposition is that sometimes the utility workers weren't all that careful about whether they were topping off a mineral transformer, something that had little PCBs in it, or maybe a PCB transformer was something that had a little bit of mineral oil in it. Certainly the presence of PCBs in a mineral oil transformer would not degrade or would not have any bad effect on the electrical performance of that particular transformer. So from an electrical utility point of view it didn't really matter if there was a little bit of PCBs in there functionally.

Q. Now, have you tested the actual transformer that Ms. Krutsinger was in?

A. Did I personally test it?

Q. Or had it tested by Monsanto?

A. No, we did not.

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Q. Have you seen the transformer that Ms. Krutsinger was in?

A. No, I've not.

Q. Do you know that -- or do you know whether or not the -- I don't know even what government regulatory agency dictates putting on the PCB free labels, it's probably OSHA, do you know if those were put on to all non -- sorry, spell --

A. Askarel.

Q. Askarel?

A. A-S-K-A-R-E-L.

Q. Okay. Askarel transformer or were they put on -- were they actually tested before those labels were put on? I think there's two questions there.

A. Okay.

Q. Let me address the first one first. And my understanding of the regulations is that if a transformer is either known to or has been tested to show that it contains PCBs, the EPA requires that that transformer be labeled as a PCB containing transformer.

A. Okay.

Q. All right.

A. If we switch from transformers to capacitors, if I can for a minute, another piece of

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electrical equipment, the government also requires that non PCB containing capacitors be labeled as such. Capacitors these days are not supposed to contain PCBs at all, they can be used if they're old but typically they do not contain PCBs at all and they have to -- those manufactured without PCB fluids have to be labeled.

As such I do not believe that there are any regulation that require a utility to label a transformer as a non PCB transformer. So I have frankly seen a copy of the label that apparently was on the transformer that Ms. Krutsinger was involved in servicing, it states that this transformer has been tested and is shown to be non PCB based on the results of that test. I believe that that is a label that the utility put on to provide information to its workers and it is not required by any particular regulation.

Okay. To summarize a very long statement, what I think is that there is no requirement to label a non PCB transformer, I think it was done pursuant to a decision, you know, Illinois Power or some other utility might very well have made. But certainly they would have only put that label on it, says this transformer has been tested so they only put that label on subsequent to a test to show that it was a

non PCB transformer.

Q. Were you involved personally in any regulations or any kind of determination to tell the electrical companies or consumers what is PCB containing or not PCB containing? In other words, the 50 parts per million level that's been determined to be the threshold for considered PCB -- to be considered PCB containing?

A. My recollection is that that 50 PPM threshold was determined by the EPA on their own initiative, that we didn't have any inputs on that. Subsequent to that determination, a lawsuit was filed by an environmental group, I believe it was the environmental defense fund, at the time questioning EPA's decision making process and establishing that 50 part per million cut off. I would say that Monsanto or an organization of industry groups or group of industries may very well have made comments subsequent to that lawsuit, but I don't know the subsequence of those comments. But the number itself is an EPA number, EPA subsequently did some risk assessments and did enough work to justify that that number was an appropriate cut off.

Q. Was Monsanto involved at all in those determinations?

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A. Not in the determinations, we may have made comments on the appropriateness of that number, I don't really know whether you did or not.

Q. Was Monsanto involved at all in fighting and/or getting or talking about proposition 65 in California?

MR. ORLET: Object to the form.

BY MR. GORI:

Q. First of all, let me ask you the question, do you know what proposition 65 is?

A. Yes, I do.

Q. And what does that mean to you -- what is it to say about PCBs?

MR. ORLET: Show an objection to the form.

A. My understanding of proposition 65 is that the State of California based on a determination by any other regulatory agency, either national or state, for instance, the EPA, that a material is a probable or possible human carcinogen requires labeling in the State of California.

BY MR. GORI:

Q. Was Monsanto involved at all in lobbying efforts, any kind of efforts with regard to proposition 65?

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A. I believe that Monsanto did make a presentation to one or more groups during the discussions of that proposition, yes.

Q. And what was that presentation?

A. It was not me, I really don't know what the substance of that was. But I believe, I mean, it was to present what was known about the potential health effects of PCBs at that time.

Q. On what regulatory agency did California base their regulation about or their proposition with regards to the human carcinogenic effects of PCBs?

MR. ORLET: Object to the form.

A. The answers I don't know specifically which one or whether they designate that but it was my guess would have been it was probably the U.S. EPA.

BY MR. GORI:

Q. Has the U.S. EPA determined that PCBs are a possible human carcinogen?

A. Yes, the U.S. EPA has a classification system for chemicals in general, some natural, some industrial, and they have -- part of that system is to look at the totality of the evidence available on a particular chemical, and based on that evidence put the chemical in a box. And one of the boxes is possible or probable human carcinogen.

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What it takes to get a material like PCBs in that box is that it's been shown in animal tests to cause cancer in animals at high doses or whatever doses, but that there is inadequate information in the human literature to demonstrate that it's human carcinogen. So it's put in the box possible or probable which says, you know, the animals say, you know, they can get cancer from it, we look at the humans, we really don't see information to confirm that but based on the animal stuff we're going to say it could cause cancer in humans at some high dose.

Q. Do you believe a medical doctor who has taken the Hippocratic oath would be more prudent to consider it a probable carcinogen in humans?

MR. ORLET: Object to the form.

BY MR. GORI:

Q. Based on the animal studies?

A. More prudent than what?

Q. More probable -- I'm sorry, I'm putting in the box the probable human carcinogens.

MR. ORLET: Object to the form.

A. Well, I think it is put in that box to provide guidance to whoever wants to look at that, you know, that classification system and then it tells them something about that animal, about that chemical,

so that if it's in that box, I think it tells the physician or anyone that we have positive animal evidence, we have inadequate human evidence. You know, I don't know what you mean by prudent exactly other than I think certainly it would say that, you know, this stuff based on animal studies doesn't necessarily have a clean bill of health, we can't be assured from the animal studies that it can't cause cancer in humans.

BY MR. GORI:

Q. Would it be reasonable for a person to fear cancer then based on the U.S. EPA, the proposition 65 that it's a potential human carcinogen?

MR. ORLET: Object to the form.

A. I don't think it would be because I think we've got enough information from human studies to provide reassurance that PCBs are not a human carcinogen at levels that people have been exposed to.

BY MR. GORI:

Q. Has any other governmental agency -- well, first of all, has the CDC, Center for Disease Control, come to the conclusion on the potential of its carcinogenic effect on humans?

A. I don't believe the Center for Disease Control actually has its own classification system.

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I'm not aware of one.

Q. Are you aware of any governmental entity who has expressed a concern about it being a human carcinogen?

A. I believe there are other agencies that have classification systems that have looked at PCBs.

Q. And which ones would those be?

A. Well, the one that springs to mind is something called the National Toxicology Program or NTP, and they every two or three years, I think, it's supposed to be every two years but I don't think they quite make it, put out a book, what they call an annual, I guess it's a biannual report on carcinogens and they do address PCBs in their book.

Q. Do you know if the American Cancer Society has an opinion on whether or not PCBs are human carcinogens?

MR. ORLET: Object to the form.

A. If they have one I'm not aware of it.

BY MR. GORI:

Q. Okay. Do you know if -- did you do any kind of studies on the blood levels of persons throughout this country, the background blood levels for PCB exposure or for PCB in the -- have you done any studies with regards to the PCBs blood levels on

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persons in this country?

A. I've not done any hands-on study but I've certainly reviewed many of those studies as I can find, yes.

Q. Have you found that there is a different background level of PCB levels in persons from different parts of the country?

A. There are only about one or two studies that specifically address that question and they find some slight differences but nothing really major.

Q. Do you know what the background level is for those persons living in the Midwest?

A. I don't recall what that -- that study was done probably 15 years ago and I don't recall what those specific numbers were.

Q. Do you know what the -- what the purported background level number is for blood level throughout the country?

A. Yes, I have an idea of what. It's not a number, there's a range of numbers that have been reported, but I have, I believe, a good idea of what those ranges are.

Q. What is your blood level range?

A. In blood levels, in whole blood or whole blood serum the blood levels range from -- I won't say

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zero because it's not zero, but it's below the detection limit of a particular method up to probably 20 parts per billion of whole blood. The average is probably based on the literature that's available to us, the average background level in non-exposed non-occupationally exposed humans is probably five or six parts per billion, it may be a little lower than that these days, those numbers are 10 years old, it may be down in the, you know, the twos or threes or parts per billion at this point. But, again, there's a range of values and they can range certainly to 10 or 20 parts per billion in blood.

Q. The range is for the fat tissue burdens?

A. Yes, I believe I do have an understanding of that.

Q. What is it?

A. The most recent data -- fat is a difficult analysis not only to do but to understand the literature around -- it was not done very much in the early days. When it was done the level in the U.S. population in the mid 1980s was probably a part per million, a thousand parts per billion, you know, was not unheard of in background populations. The most recent data are done with a different analytical method typically. But even then, based on those data

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and some of those are quite current the background level in fat is probably about 300 parts per billion, maybe up to 700 parts per billion or so.

Q. Why would you express it to be higher in fat than in blood?

A. PCBs are kind of a fat like material, they like to be in fat, they like to be in what the doctors will call adipose tissue or in lipids. When you have your blood testing they test blood lipids, cholesterol, triglycerides, things like that. PCBs like to be in those kinds of tissues, in fat, fatty kinds of materials. Body fat, and certainly I've got enough, is almost 100 percent lipid, it's, you know, 90, 95 percent lipid. There's as little bit of water in fat, there's a little bit of connective tissue and things like that but it's almost all lipid.

Blood on the other hand has a very low level of lipids, what, typically one to two percent. The triglycerides, the cholesterol, certainly the bulk of blood is water, it's red blood cells, it's white bloods cells, so there's very little fat in blood. So really the ratio between fat and blood for PCB levels is mirrors to ratio between the level of fat or the level of lipids in actual fat tissues versus the level of lipids in blood and they're fat levels and when you

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look at studies that looked at both, it's typically 100 to 200 times higher than blood levels and that reflects the low percentage of fats in blood.

Q. Is background levels for the non-occupationally exposed?

A. Yes.

Q. Okay. Now, what year was the latest study that was done to determine the background levels of fat tissue -- in fat tissue?

A. I think the one that -- well, certainly the one I'm thinking of I believe was published about 2001.

Q. And whose study was that?

A. The first author is Stellman, S-T-E-L-L-M-A-N, and that's a very good study because it did both fat levels and blood levels so it provides a direct comparison of those background levels, it's very useful.

Q. Where did they get their studies or their cohorts from?

A. They were actually looking at a group of women testing the theory or the hypotheses that PCB levels could be associated with breast cancer, so it's a sub study out of a breast cancer study.

Q. Do you know where those women were from?

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A. I don't specific, I think it was the east coast but that would be my surmise but I could be wrong on that.

Q. Do you know if that study talked or found out what the persons fish intake was or what their occupations were and things of that nature?

A. As far as I know it did, as far as I know the group of women they may very well have that information, my recollection is that they did not have, you know, that specific kind of exposure information.

Q. Now, when you were a research chemist or throughout your entire time at Monsanto you worked hands on with PCBs?

A. Yes, I did, certainly during the first 10 or 15 years, yes.

Q. Okay. Did you wear any protective clothing when you worked for those PCBs?

A. No, I did not.

Q. Did you actually put those PCBs on you, on yourself?

A. Well, I didn't put them on myself, I certainly at times had small amounts on myself.

Q. Have you yourself been tested for your background levels of PCBs?

A. You know, I have not, do not know.

Q. Were people in your department warned or told that you were working with PCBs in the same area as them?

A. I don't know, I don't recall there being any specific warnings, I think it was pretty much general knowledge of what our particular group was doing.

Q. Was there any kind of signage anywhere that said, told people what it was?

A. No, there was not.

Q. Okay. And you told me that although it may not have been confirmed, there was always the thought that there was potential adverse health effects from working with PCBs or getting exposed to PCBs?

A. Well, in the chemical industry it's certainly you need to be always concerned about any of the chemicals that you're working with, and certainly PCBs were among those chemicals, so the medical staff and Dr. Kelly and others on the medical department were always, you know, monitoring the literature, answering requests about potential health effects and being as Knowledgeable as they possibly could about those health effects. So there was certainly, you know, we were curious to know what was out there and to know what the potential was.

Q. Did you -- did they recommend to you to wear protective clothing?

A. No.

Q. In any of the departments did you ever have someone recommend protective clothing?

A. To me personally?

Q. Yes.

A. No.

Q. Did you walk -- did you ever go to the Krummich Plant where they made the PCBs?

A. Yes, I did.

Q. Okay. Were you offered protective clothing when you were there?

A. I was offered protective clothing like hardhats and stuff like that just because of the presence of being in a chemical plant, not because of the PCBs.

Q. Were there any other dangers of chemicals there that would have caused them to offer you any kind of protective clothing?

A. I don't think there was any specific chemical specific protective wear, I mean, certainly again any chemical plant or any chemical facility has a number of chemicals all of which you need to be careful about. You know, I think, when we go to a gas

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station we're warned to be careful about splashing gasoline on ourselves and if you buy a home used pesticide you're warned to not, you know, don't splash it on yourself, if you do go wash, wear gloves, things like that.

So to the extent that you always have to be careful around chemicals I think, you know, the normal kind of protective equipment was provided. The men and women wore, you know, hardhats, they wore steel protective shoes. And I think that most of our plants, if not all, they would give them work clothes to wear and told to change those if they were soiled or splashed. But as far as chemical specific warnings and certainly around PCBs I wasn't aware of them.

Q. Was there signage up about any kinds of hazards at that Krummich Plant?

A. Not that I'm aware of and certainly not about PCBs.

Q. Did you notice anybody wearing any kind of respiratory protective devices when you walked through?

A. Not when I was there but I wasn't there all that often, I was -- my work assignments were at the -- excuse me, at the corporate office is in Creve Coeur so I was not there that often. I know

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respirators were available to people.

Q. Were they available to outside contractors?

A. You're way past what I know anything about.

Q. When you went to that facility, did you get any kind of manual for the hazards that might be there?

A. Not that I'm aware of.

Q. What did you do at the Krummich facility when you were there? And by the way, were PCBs manufactured any other places around this area?

A. Not around this area, no, they were not.

Q. Where were PCBs manufactured?

A. There were two sites, there was the site at the Krummich Plant in Illinois and then there was a site in Alabama.

Q. That's Anniston?

A. Yes.

Q. Were you involved at all in that lawsuit that was down there?

A. I had some involvement in it, yes.

Q. What did you do there?

A. Well --

MR. ORLET: Object to the form.

A. With regard to the lawsuit specifically?

BY MR. GORI:

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Q. Correct.

A. I was deposed a number of times.

Q. And what were those depositions about?

A. PCBs.

Q. Okay.

A. Sorry, I mean, I didn't mean that to sound flip but that's what they were about.

Q. Okay. And were you asked to render an opinion in that case?

A. No, I was not. No, I was a fact witness, you know, a corporate witness.

Q. And were any of the depositions involving personal injuries?

MR. ORLET: Object to the form.

BY MR. GORI:

Q. As opposed to environmental.

A. Well, the cases involved both aspects so to that extent I suppose I was but I was never deposed in a specific -- specific personal injury case that I know of.

Q. They were all environmental?

A. Well, the cases down there involve both property damage and personal injury claims, and I was not necessarily only deposed on one aspect or another, I was deposed, you know, for those cases in general.

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The fact is that down there the personal injury claims never got to the trial stage so, I mean, to that extent it was some property damage but certainly had any of the personal injury claims moved forward, I believe my testimony would have been, you know, usable in those cases.

MR. ORLET: Show an objection to the last question.

A. Sorry.

BY MR. GORI:

Q. Did you watch any of the proceedings?

MR. ORLET: Object to the form.

A. Yes, I did.

BY MR. GORI:

Q. Okay. Did you hear the verdict rendered?

MR. ORLET: Object to the form.

A. No, I didn't.

BY MR. GORI:

Q. Okay. Do you know that the jury found that Monsanto's conduct was egregious?

MR. ORLET: Object to the form.

BY MR. GORI:

Q. In contaminating the Anniston area?

A. I understand what the jury's verdict was, yes.

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Q. And did you hear any of the testimony talking about the PCB contamination within the Anniston area?

MR. ORLET: Object to the form.

A. Yes, I did.

BY MR. GORI:

Q. Okay. Who did you watch testify?

A.

MR. ORLET: Object to the form.

A. Boy, I don't know that I remember specifically at this point. Dr. Clapp, I believe, maybe Dr. Carpenter, maybe Mr. Metson.

BY MR. GORI:

Q. And were those individuals testifying in regards to personal injury or were they testifying with regards to environmental aspects of PCB exposure?

MR. ORLET: I'm sorry, I didn't mean to --

MR. GORI: That's okay.

MR. ORLET: Do you want to start over so I --

MR. GORI: Sure.

MR. ORLET: -- don't walk over your question?

BY MR. GORI:

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Q. Did those gentlemen testify with regards to environmental contamination or did they testify with regards to personal injuries?

MR. ORLET: Object to the form.

A. Depending on their area of expertise either one or both.

BY MR. GORI:

Q. Okay. Who was the -- was Dr. Carpenter the one who testified with regards to personal injuries?

A. Yes.

MR. ORLET: Objection to that last question.

BY MR. GORI:

Q. Do you remember what Dr. Carpenter's testimony was?

MR. ORLET: Let me do this, Randy, because it's awkward, can I just get a standing objection to the Anniston questions --

MR. GORI: Sure.

MR. ORLET: -- so I don't have to keep doing that?

MR. GORI: That's fine.

MR. ORLET: I don't want to disrupt you.

MR. GORI: Sure.

MR. ORLET: Okay, thanks. Why don't you

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ask that again.

BY MR. GORI:

Q. Oh, sure Do you remember what Dr. Carpenter's testimony was about personal injuries from PCB exposure?

A. Well, Dr. Carpenter had some very broad ranging opinions about personal injuries from PCB exposures.

Q. Okay. What were the personal injury claims in Anniston?

A. I don't remember specifically, frankly, I mean, again they were broad ranging claims.

Q. In Monsanto -- I'm sorry, in the Krummich Plant where was the PCB department?

A. I don't believe I actually -- I had been to where it was but I don't know enough about it, I've been to Krummich often enough that I think I can walk through the gate and walk you over to where it was, I don't really know.

Q. Do you remember at some -- how many time were you at the Krummich Plant?

A. Well, I've probably been there, you know, a total of maybe a dozen times but probably only two or three during the time that PCBs were manufactured there, if that.

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Q. During what time period were PCBs manufactured there?

A. Well, they were manufactured there beginning in the late 1930s until 1977.

MR. ORLET: And we've got to take a break.

VIDEOGRAPHER: Going off the record at 12:12 p.m.

(At this time a short break was taken, after which the following proceedings were held:)

VIDEOGRAPHER: We're back on the record at 12:19 p.m.

BY MR. GORI:

Q. So the last question was, I think, when were PCBs manufactured at the Krummich facility and you said from the 1930s until 1977, were they manufactured anyplace else after 1977?

A. Not by Monsanto.

Q. Okay.

A. And as far as I know not in the United States.

Q. Was there any health concerns at your own facility, Monsanto, or Anniston -- I keep saying Monsanto, I mean Krummich or Anniston, about persons coming down with any sorts of health effects, adverse

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health effects as a result of PCB exposure?

MR. ORLET: Show an objection to the form.

A. I believe we discussed earlier in the early 1930s the chloracne situation what was then the Swann Chemical Company. But as far as I know, I mean, certainly Dr. Kelly and, you know, the others, Dr. Kelly was with Monsanto from the late 1930s and then was medical director after he got back from the war until 1974. I mean, he paid attention to all of the departments and the health of all the workers. And as far as I know, he never found any reason for -- any concern particularly about the PCB workers.

BY MR. GORI:

Q. Do you remember a time ever when there was a concern about lung cancers in PCB exposure at Monsanto -- at Krummich?

MR. ORLET: Object to the form.

A. I remember that there was a kind of an abbreviated epidemiology study begun or undertaken in the 1970s that did raise the issue of lung cancer in the PCB workers.

BY MR. GORI:

Q. And George Roush, R-O-U-S-H, the doctor I believe you spoke about earlier.

A. Yes.

Q. Do you remember him being involved in that situation?

A. Well, he was certainly medical director at the time so it would make sense that he had certainly some supervisory role in that investigation.

Q. Do you remember what year that was?

A. I'm thinking it was '75, 1976, something in that general timeframe.

Q. And do you remember if there was excess number of PCB -- or sorry, an excess number of lung cancers at Monsanto or at Krummich?

A. I haven't reviewed those documents for some time. My recollection is that there was a -- there was a report of excess of lung cancer in the PCB workers, but I also think, as I recall, they didn't have any smoking histories on these people, didn't know whether they smoked or not and certainly that's, you know, by far the biggest cause of lung cancer.

I also think they looked at how long the people had worked in that department and strangely enough the people that had worked there -- the people with lung cancer worked there for a very short time so I think there was even some observations about that study that toxicologists talk about, dose response, if

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you have, you know, the bigger the amount you're exposed to it, the longer exposed the more likely to have the disease and I think they specify that they're really -- it didn't appear that there was any dose response in those workers.

As I recall it, I think the Monsanto people even said these results are part of a study to a group called the Eppley Institute to, you know, professional epidemiologists to take a look at those results and I believe they came basically to the same conclusions, so --

Q. Do you know if any other causes of that high incident of -- high incidence of lung cancer were examined other than just not knowing the smoking history or whether or not they, you know, looked at any other respiratory -- or sorry, any other chemicals or minerals that may have caused the excess lung cancers at the Krummich facility?

MR. ORLET: Object to the form.

A. The only -- I think there have been actually subsequent studies of Krummich where there may have been a lung cancer excess or not. My recollection is that I'm pretty sure that there is an excess of lung cancer in St. Clair County, Illinois in general, that that county has an excess of lung cancer. And I

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believe the fact is that if you compare the Monsanto results, the Krummich results to the St. Clair County lung cancer occurrence, that that excess really doesn't appear. So I think there's certainly a role of being in that county that has something to do with it. As far as other specific materials at the plant, I don't recall that there was ever anything determined.

BY MR. GORI:

Q. So even though -- do you know at Monsanto were there other suspected human carcinogens?

MR. ORLET: Object to the form.

A. At the Krummich Plant?

BY MR. GORI:

Q. At Monsanto in general, the Monsanto facilities throughout the country.

A. Oh, certainly, I mean, there are a number of suspected or, you know, classified materials that would be or could potentially be carcinogens.

Q. Do you know some of the potential human carcinogens that Dr. Kelly and Dr. Roush may have been concerned about?

A. Not specifically, no.

Q. Okay. Do you know why when a significant number of lung cancers came out of the Krummich

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facility they targeted PCBs as the potential rather than some other products that may have been there?

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

MR. ORLET: Object to the form.

A. Sorry.

BY MR. GORI:

Q. In 1976 I believe Dr. Kimbrough did a study showing of the, and you spoke about it early, the excess or the potential excess liver cancers that were found, what was Monsanto's reaction to Dr. Kimbrough's study?

MR. ORLET: Object to the form.

A. Dr. Kimbrough reported an excess of liver cancers in male rats that had been fed PCBs for basically two years. Monsanto had done similar studies or had sponsored similar studies where cancer had not been found. So I think the Monsanto reaction was to wonder about if there were potential differences between those studies, you know, and -- but I believe, you know, Monsanto came to accept the findings of Dr. Kimbrough's study.

BY MR. GORI:

Q. Now, you've said that Monsanto had done studies that showed contradictory, and I'm sorry I used that, results that differed from Dr. Kimbrough,

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did you just say that?

A. I did say that.

Q. Okay. Are you -- do you know the tenants of epidemiology as to determine how reliable an epidemiological study is?

A. I know there are several ways of looking at epidemiology studies, certainly the Bradford-Hill criteria are among, you know, the criteria or advisories as to what the epidemiologists used to look at those studies, yes.

Q. Would bias be one of the criteria to look at?

MR. ORLET: Object to the form of the question. You mean bias in terms of somebody cooking the books or do you mean bias in terms -- in the meaning within the field of epidemiology.

MR. GORI: Bias in the term of the field of epidemiology on who's conducting the study.

MR. ORLET: Which is inconsistent.

MR. GORI: Okay. Bias on the terms of the people who are conducting the epidemiological study.

MR. ORLET: Show an objection to the form.

A. The term bias in an epidemiology study has a

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very different meaning than it has to you and I and others that hear the term everyday. Bias in an epidemiology study is a function of the study in which the findings of the study as directed in one specific form by the way the study has been conducted. That is entirely different than the way you and I use bias on our daily talking about prejudicial influences or something like that. So, in fact, the term, the use of bias as a criterion to judge epidemiology studies has nothing whatever to do with who sponsored the study.

BY MR. GORI:

Q. Have you ever seen any epidemiological studies that came to the conclusions that females are more susceptible to the effects of PCBs than males?

A. Many of the epidemiological studies of humans that are done do look at females versus males and sometimes find different results for those. Again, I think we're talking about associations rather than causation in any particular study and we're not talking about whether PCBs cause effects but in isolated studies there are, I believe have been a couple studies where one particular end point or another may have been elevated in females versus males.

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Obviously that can happen with any material, certainly part of that is physiological, you expect breast cancer to be more common in females than it is in males although it occurs in males, prostate cancer are more common in males, I don't think that one can occur in females but -- so I believe there have been isolated reports of associations. But, again, I don't think those have been shown consistently across the study.

Q. You've seen -- have you seen pictures of Ms. Krutsinger right after her exposure in the transformer?

A. The answer is I'm really not sure when we were at Dr. Ordog's office there were some videos being played in the background that I glanced at but I didn't pay any particular attention to them.

Q. Are you here today to give an opinion as to what caused those adverse reaction?

A. No, I --

MR. ORLET: Object to that form.

A. Sorry.

MR. ORLET: You might answer it again.

A. I'm sorry. I -- no, I believe that that's a decision for a medical doctor to make, not me.

BY MR. GORI:

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Q. Okay. Would you think that a toxicologist would be able to make that determination?

A. I believe some toxicologists have enough knowledge of the effects of chemicals to have an opinion on that determination, yes.

Q. Okay. Are you prepared here to refute -- and you've said you've read Dr. Ordog's report, are you here today prepared to give any -- render any opinion as to any of the opinions that he has proffered in this case?

A. No, not particularly, no.

Q. Would you say that the epidemiological studies that Dr. Ordog bases them, bases his opinions on are flawed or are you prepared to offer any testimony that Dr. Ordog's opinions are based on flawed interpretations of epidemiological studies?

MR. ORLET: And, Randy, just so that we're all clear, are you using the term epidemiology in this sense in -- in instance to include the toxicology studies that Dr. Ordog had which were part of what he was talking about? Are you differentiating?

MR. GORI: I'm actually -- I am differentiating.

MR. ORLET: Okay.

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MR. GORI: And let me -- I'll rephrase just in case so we can get this straight.

BY MR. GORI:

Q. Are you here today to -- prepared to say that the method in which Dr. Ordog rendered his opinion was flawed on the certain -- on the different diseases Mrs. Krutsinger has?

MR. ORLET: Show an objection to the form.

A. I guess I'm -- I'm not, I mean, I will answer questions about -- you know, I certainly have some opinions about the literature that he relied on and some of the conclusions that he drew from that literature, I mean, you know, graciously provided us with a list of papers that he relied on and was using to help form his opinions, I took the opportunity to get those papers and look over them. I believe that some of the conclusions he came to were certainly different than the conclusion that I would come to from looking at those papers.

BY MR. GORI:

Q. Could reasonable people come to different conclusions?

A. I believe there are proper ways to look at that body of literature and, you know, I think

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actually looking at that literature, using the criteria we talked about earlier, I think most people would come to the same conclusion on that.

Q. Come to the same conclusion on which one are we talking about it? If you're going to prepare to offer an opinion then let me get -- what are your opinions with regards to the different, the Marquardt the Rom and the James, I think those were the text he provided at his deposition as well as maybe some abstracts or what testimony are you prepared to offer today with regards to those?

A. Well, again, I'm not sure that's really why I'm here today.

Q. Okay.

A. I can answer those questions, I believe the textbooks, the Marquardt you talked about, I believe there was actually one that Dr. Ordog took a role in preparing, I believe it was Eller Horn or Ellen Horn, may have even written a chapter on PCBs. Rom, I've reviewed those chapters on the parts on PCBs, I haven't read the whole books.

I believe there are -- those are generally fair representations of the PCB literature, I think you have to look at -- you can't just take one sentence or another out of those chapters, you have to

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look at the whole body of what's done in those chapters. You mentioned James, I think the James, et al, you know, review of PCB of health effects is a reliable and useful review.

The abstracts, I think as I was answering the previous question, that was where I was primarily talking about where I had gotten the actual papers on. I believe most of those would focus on immune effects in humans. I reviewed those and I believe that body of literature as a whole doesn't support any opinion that PCBs cause the immune effects in humans --

Q. Are you contradicting -- are you prepared to -- do you have an opinion as to whether or not Dr. Ordog's testimony about skin conditions is reliable based on the literature available?

MR. ORLET: Object to the form.

BY MR. GORI:

Q. And if you don't have an opinion, that's fine.

A. On that particular issue, I don't believe I do have an opinion.

Q. Okay. And I just want to get at the ones that you're going to have an opinion on, I just have to -- if we go to, wind up going to trial, if you're going to be asked certain questions I just have to be

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prepared to know what my response is going to be or to be able to cross-examine you on those. And I -- from right now you've told me just the immunol effects of PCB. Are there any other opinions Dr. Ordog had that you would like that you yourself have an opinion on?

A. Well, I think we're talking down a path where I don't think I would be asked those kinds of questions on any kind of a direct that my attorneys may ask. As far as I know I'm not going to be --

Q. Sure.

A. Any expert on any of those -- on any of these issues, but --

Q. Today you're being offered as a fact witness but because of your testimony and because of your experience you obviously can also form opinions and I obviously have to explore those opinions so in order not to be surprised at trial.

A. That's fine.

MR. GORI: Okay. I assume he's being offered only as a fact witness here today or is he being offered as both?

MR. ORLET: He's being offered as company representative on the topics that you've designated.

BY MR. GORI:

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Q. Okay. What else -- I'm sorry, what other opinions do you have with regards to Dr. Ordog's opinions?

A. Well, without -- and I don't know that -- as I sit here today I don't know that anything --

Q. Sure.

A. -- springs to mind, but --

Q. Sure.

A. That I would -- those are the -- I mean, you've kind of touched on the ones that we --

Q. He spoke about gastrointestinal issues with individuals exposed to PCBs, do you believe that the epidemiological studies or through your own experience that he's unable to give testimony based on gastrointestinal issues?

MR. ORLET: I'll object to the form.

BY MR. GORI:

Q. On PCB exposure?

A. No, I certainly can't have an opinion on his ability to testify to that. My review of the PCB literature as it affects human health would indicate that that is not an end point that's been reported in that literature, you don't see gastrointestinal problems in people who have been exposed to PCBs or animals for that matter.

Q. Have you seen epidemiological studies discussing gastrointestinal issues with persons exposed to PCBs?

A. Yes.

Q. And what do those studies show?

A. There are -- there are isolated reports of gastrointestinal effects in some populations, but when reviewed as a whole and I want to keep emphasizing --

Q. Sure.

A. -- the point you have to look at this literature as a -- in a total view that is not a fact that is consistently reported or frequently reported whatsoever.

Q. If it is reported in a study, could a person not then form a conclusion that it's a potential cause or if someone else exhibits a reaction that that person's reaction is consistent with what another -- with what a study has said?

MR. ORLET: Object to the form of that question.

A. I'm going to make -- I'm going to say if it's reported in a study that that is not the basis to form any kind of opinion on causation. I think it needs to be reported consistently in a number of studies where they've looked at other potential

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causes, looked at dose, all those, you know, all those criteria we talked about earlier. But a single study I don't believe -- whether it's PCB or any chemical provides any causative information.

BY MR. GORI:

Q. How many studies would it take before a symptom is consistent enough with exposure that you would say a person could render an opinion on?

A. Well, I don't think there's a number, I don't think there is any magic number, I think you have to look at the literature that is available to you before you can make that decision, and that may affect the strength of your decision or the strength of your conviction about that decision. But there's no magic number.

Q. And I forgot to ask you kind of a basic question -- and I'm sorry, let's not stop there. Were there any other opinions you held with regards to Dr. Ordog's testimony or report?

A. Not that I recall specifically.

Q. And I asked you if you formed an opinion or are prepared to offer an opinion at trial prior to this if you could present me with that opinion through your attorney?

A. I think that's fair, yes, I'd be happy to do

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that.

Q. And I had forgot to ask you a basic question, where do you currently live?

A. I live in St. Louis County.

Q. St. Louis County? And you don't have -- you're not employed right now, you're retired?

A. Well, I'm retired from Solutia, I consult on an as needed basis.

Q. Who do you consult with?

A. A number of companies and law firms, primarily around PCB issues.

Q. Have you testified on behalf -- as an opinion witness on behalf of Monsanto previously?

A. As a --

Q. An opinion witness in legal terms means --

A. I believe I have.

Q. Okay.

A. On -- at least once on analytical chemical -- chemistry issue specifically.

Q. And who did you testify on behalf of?

A. It would have been Monsanto.

Q. How long ago was that?

A. I would say 10 to 15 years ago.

Q. Okay. You currently are employed by -- or you were employed by Monsanto at the time?

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A. Yes, I was.

Q. Have you ever testified on behalf of a plaintiff in regards to a PCB exposure case, meaning someone who claims either an environmental or personal injury as a result of PCB exposure?

A. No, I do not believe I have.

Q. What are the environmental problems PCBs pose that cause such concern?

MR. ORLET: Show an objection to the form.

A. PCBs were first reported in the environment in 1966 by some Swedish researchers. Since that time they have been extensively investigated for a number of potential environmental effects. Some have been found to be relevant, some of them found not to be associated with PCBs. And it's very difficult to sort out PCBs effects from other chemicals that are present in the environment.

But certainly there have been, I think, some consistent reports of effects on mink reproduction, minks seem to for some reason be sensitive to the effects of PCBs. There have been reports of PCBs effects on birds but most of those have sorted out not to have been determined by the PCB levels but rather by pesticide level.

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Q. Okay. Are there any regulations with regards to PCB -- well, strike that. I think that's all the questions I have.

QUESTIONS BY MR. ORLET:

Q. Dr. Kaley, I just have a couple of questions for you. You've talked -- the term epidemiology has been used extensively in this deposition, I'm just wondering if you can enlighten us all with a general definition of what we're talking about when we're talking about epidemiology?

A. Well, epidemiology is the science which really studies the effect or the occurrence of disease in populations, meaning that's what the Centers for Disease Control in Atlanta look at, do a lot of epidemiology studies of the West Nile Virus has been a concern over the past number of years and so they'll go out and study populations that were exposed to the virus versus populations that weren't exposed to the virus, see what health effects may be associated with that. So it really focuses on the causes of illness and/or the causes of death in populations.

Q. You used a term I'd like you to explain to the jury, the term, I believe, was the Bradford-Hill criteria?

A. Yes.

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Q. Generally what are we talking about there?

A. Well, I guess 30 years ago now an English/British epidemiologist named Sir Bradford-Hill presented during a speech really a list of 10 or so criteria or he called them advisories of things that epidemiologists need to look at when they're evaluating epidemiology studies. And things like I they we've talked about consistency, things like consistency, if you have a number of studies, do you see the same end point, do you see the same disease in each one of those studies or a majority of those studies.

If you see it in a lot of those studies it may have some importance. If you see it at only one study then out of, you know, six or eight it probably is a chance finding. Questions about, I think, we've talked about the term dose response, you know, if material really causes the disease it probably causes more disease if you have more of that material.

Something called strength of the association, how many more people have, you know, have died from a particular cause or a particular exposure than people that weren't exposed so there are a number of points of little check marks you want to go down to see, okay, I'm looking at this body of information,

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you know, what about this particular criteria. Does it make any sense that some chemical would cause this disease based on that particular point.

Q. When looking -- when applying the Bradford-Hill criteria, do you apply it to a specific study in a specific point in time or do you apply it more generally across the body of literature?

A. It's specifically designed to look across the body of literature, it really can't be applied to a single study, you can look for some of these criteria in a single study but the criteria them self were recommended to epidemiologists to look at the whole body of literature.

Q. Mr. Gori mentioned a paper entitled -- or by an individual, a scientist by the name of James, are you familiar with that paper?

A. Yes, I am, I know that paper.

Q. A 2000 paper published fairly recent?

A. Actually I believe it was published in 1994 or 1993.

Q. Let's see if I have one. Is this the James that we were talking about that you mentioned earlier?

A. Yes, that's certainly the paper I was referring to --

Q. Okay.

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A. -- when I was asked that question.

Q. All right. Is the James paper, is that an epidemiology study in and of itself?

A. The paper by James and the number of other physicians and scientists is not an epidemiology study. It is what we call a review paper which is kind of self-explanatory, it looks at the whole body of literature and makes -- it applies these criteria in some sense that we were talking about to make a judgment about what the whole body of literature says about, in this case PCBs in human disease.

Q. And you mention there's not just Dr. James on the paper but there are some other individuals such as Carlo -- Dr. Carlo Tamburro, Dr. Raymond Harbison and some others, are you familiar with any of the scientists who participated in compiling this paper?

A. Yes, I am, I've known a number of the other people that did the work on this paper.

Q. And what is -- are these individuals such as Dr. Harbison and Dr. Tamburro, are they -- and Dr. James, are they well recognized scientists in the field of occupational medicine in epidemiology?

A. Yes, they are. Dr. Carlo Tamburro was -- unfortunately he's passed away, was one of the premiere liver experts, liver -- occupational liver

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experts in the world. Dr. Busch from Texas, another well known physician. Dr. Harbison was one of the earliest toxicologists that really earned the term toxicology and has done a lot of toxicology so, yes, I know a number of these people.

Q. And the -- tell me what the -- what Dr. James and the other authors how they laid out the paper that they wrote?

A. All right. This paper basically as I said is a review of all or most of the human epidemiology studies of PCBs focusing on not so much causes of death, which I think we talked about our mortality studies, but focusing on the causes of illness. And they've basically taken every organ system in the human body and reviewed the literature to see if that literature had anything to say about that organ system and then have come to conclusions about the fact whether there's an effect or a potential effect of PCBs on that organ system.

Q. Is this a well-recognized paper within the field of epidemiology of PCBs?

A. Yes, I believe it is. It's often cited, it was published in the Journal of Occupational Medicine which is a well known peer review journal in that field.

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Q. And what is the overall conclusion that Dr. James and his colleagues come to after reviewing all of this literature?

A. Well, I think, I mean, their findings are summarized in their abstract and basically they list liver, lungs, nervous system, a number of other systems suggest that the weight of the evidence, that's these Bradford-Hill criteria we were talking about, suggest the only adverse health effects to high occupational exposure are dermal, and that's effects on the skin, and that they believe or they report that the collective experience -- they use the term collective occupational experience, that means looking at all these studies provides no evidence that other organ systems are affected.

Q. And they use the term occupational exposure and we've used that term here today, what does the term occupational exposure mean and how is it different from some other type of exposure?

A. I believe the most important consideration is to think about the fact that if you want to test whether a chemical or any substance causes disease in people, you want to go look at the people that have been exposed for the longest time to the highest levels. And those typically with chemicals like PCBs

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or others are the people that worked with either made those materials or worked with them on their jobs on a daily basis, they were with them 40 hours a week.

In the case of PCBs we know they were heavily exposed because they have very, you know -- compared the background levels we've talked about, they have very high blood levels of PCBs, hundreds to some cases thousands of times higher than background levels of PCB. So the concept is -- the idea is look at the people that were exposed, look at the people that got, you know, the stuff on them, that it was in their workplace, let's see if they're -- if they are affected by these materials.

If they are not affected by those materials then it's vanishingly, you know, there's other hardly any chance at all that if somebody with background levels is going to show any effect.

Q. Can you describe just generally how one who has occupational exposure to PCBs would have had that exposure and the duration and that sort of thing?

A. Well, PCBs were used in, as I said, we've talked about them, the manufacturer of electrical equipment, they were used in very large quantities. So there were really primarily two ways that people would have been exposed. In many of the processes,

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certainly in the capacitor manufacturing process, there were opportunities for PCBs to be elevated in the air in those facilities because of the way they made the capacitors.

And the other situation PCBs, as other chemicals in a job, sometimes would be spilled, would be on workplaces and they could get these materials on the skin. In the very early days when, you know, inconceivable kind of these days, but, you know, people were allowed to smoke on jobs and around things so they could have, you know, even on a cigarette break they could have had their hands close to their mouth and gotten some in through their mouth. But primarily through the skin and PCBs at high levels in the atmosphere.

Q. Over what period of time would individuals occupationally be exposed to PCBs?

A. Well, in many cases their whole lifetime. But if you look at the studies, those occupational exposures that have led to elevated blood levels certainly were periods of, you know, three to five years up to decades.

Q. And is that on a daily basis?

A. Yes, that would have been on an eight hour a day work a day basis, yes.

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Q. And so is there some expectation that someone who is occupationally exposed to a chemical such as PCBs over a course of an eight hour day, 40 hour week for years would exhibit symptoms if the chemical caused a certain effect before someone who has a one or two or three time transient exposure?

A. I believe that is -- yeah, I mean, that is certainly the case. I think that's the point I was trying to make that these people who have those kind of daily workplace exposures over a period of years, if a material is going to cause some sort of health effect, that's where you could see it first. You would see it in those worker populations, those among the people working with the material, not in the people that are, you know, happen to be exposed over a period of a few days or something like that.

Q. And have the -- are the worker populations that have been studied generally Monsanto workers, Westinghouse workers and General Electric workers?

A. No, there've been many other population studies, some of the most powerful studies are studies of transformer repair workers in Washington D.C. There have been number of studies of utility workers. So a fairly broadly based work forces.

Q. And the body of literature of those

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occupationally exposed to PCBs says what?

A. Well, I think basically what Dr. James and others have said in this paper and other reviews that have been published by people like we've talked about, Dr. Kimbrough has published some reviews and the conclusion of those is that people exposed to PCBs even at high occupational levels are -- do not have any higher occurrence of illness or particular causes of death other than these skin effects.

MR. ORLET: Thank you, very much.

QUESTIONS BY MR. GORI:

Q. Sir, real quick, have there ever been -- or do you know of any body of literature that talk about acute reactions to PCB exposures?

A. I'm not sure -- nothing springs to mind, I'm not sure what you're --

MR. ORLET: Show an objection to beyond the scope.

BY MR. GORI:

Q. You just talked at length with Mr. Orlet about how all these studies seem to show that it's only exposures for long periods of time, but you're saying that you don't know of any literature that talks about acute reactions?

A. I'm not aware of, as I sit here of any

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particular study that talks about an acute reaction to, you know, a transient short-term exposure to PCBs, no.

Q. The value of having these organized before hand. Sir, have you ever seen this note to the editors from the Monsanto Company dated September 23, 1980? I'll mark this as Exhibit 2, PCB Hazards, Facts and Fallacies.

A. I'm sorry, I'm not sure I have seen that.

(Plaintiff's Exhibit No. 2 is marked for identification.)

BY MR. GORI:

Q. Although I don't have the full document, I think it's in response to a article that was written saying -- talking about the harmful effects of PCBs and that's your company's reply?

MR. ORLET: Show an objection to the form.

A. I do not believe I have seen this.

BY MR. GORI

Q. Okay. Could you read this paragraph right here for the record?

MR. GORI: Object to the form.

A. The second paragraph?

BY MR. GORI:

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Q. The first paragraph.

A. The first?

Q. Yeah.

A. In the decade of the '70s, polychlorinated, misspelled, biphenyls were frequently singled out by federal agencies, legislators, private interest groups and the news media as the symbolic example of why tough new toxic substance control regulations were needed in the United States. In the process the hazards of PCBs were greatly exaggerated, adjectives like deadly toxins, in quotes, and quote, potent cancer causing agents, close quote, were and still are typically used to describe PCBs in government handouts and news stories.

Q. Okay. Maybe that was not the paragraph I need you to read. I'm sorry, it was the second paragraph, I apologize.

A. That's fine.

MR. ORLET: Object to the form. Move to strike the last one.

A. This fact sheet is in no way intended to minimize the very real and acknowledged environmental concerns associated with irresponsible disposal of waste compounds containing PCBs, but rather to set the record straight on the human health hazards. PCBs are

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not, underlined are and not, human, quote, cancer causing agents, close quote. And they underlined are not, open quote, deadly toxins, close quote. As a matter of fact, PCBs are considered only mildly toxic on an acute basis when ingested by humans about the same order as common table salt.

Q. Okay. When it talks about acute reactions as a result of that, what -- why was the company talking about acute mildly toxic on acute basis if you don't think there's acute reactions to PCB exposures?

MR. ORLET: Object to the form.

A. I'm not aware who wrote this.

BY MR. GORI:

Q. Okay.

A. So I don't know on what they were basing that comment, that's really all I can say. As far as I know there are -- I'm not aware of reports in the literature of acute reactions from ingesting doses of PCBs.

Q. Where would -- where would the person who wrote this have gotten information within the -- within Monsanto.

MR. ORLET: Object to the form.

A. Since I don't know who wrote it I really can't answer that, I don't, you know, I mean, for all

I know it may have been written by an outside firm or something, you know, there's no -- the whole document isn't there and there's, you know, it just it says a note from Monsanto Company, I don't know.

BY MR. GORI:

Q. What does this bate stamp mean at the bottom? Does that mean that it was -- do you know, does that give you any significance whatsoever?

MR. ORLET: Object to the form.

A. I've seen other documents with similar numbers stamped on the bottom.

BY MR. GORI:

Q. And what have they meant in the past?

A. I believe in that particular case they have been produced by Monsanto Company in response to some document request.

Q. Does Dan R. Bishop or Larry O'Neal ring a bell to you?

A. Yes, I know --

Q. Who are they?

A. -- both of those gentlemen. They were in our public relations department at Monsanto at various times.

Q. If an article was written about the health effects of PCBs, would these two gentlemen be the

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people who responded to the media?

A. They may have been, they were certainly in the communications department.

Q. Where would they go for information about PCBs?

A. I don't know, I mean, certainly somewhere within probably the medical departments, I don't know for sure. It depends on the timeframe actually, probably.

Q. If they wrote this in 1980 where would they have gone to get that information?

MR. ORLET: Object to the form.

A. I mean, again, I don't think I would change my answer. Somewhere in the medical department, to whom specifically I don't know.

BY MR. GORI:

Q. Okay. Are either of those two individuals still alive today?

A. Dan Bishop certainly is not. Larry O'Neal I believe is.

Q. Okay. Where does Larry O'Neal live?

A. The last I knew he lived in St. Louis.

Q. Do you think he still is employed by Monsanto or Solutia?

A. No, I know he's not, he is retired from

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Monsanto.

MR. GORI: That's all the questions I have.

QUESTIONS BY MR. ORLET:

Q. Dr. Kaley, this document that you've been shown or this part of this document that you've been -- strike that. Dr. Kaley, this document, part of apparently a larger document that you've been shown, states that PCBs are not human causing agents and are not deadly toxins, are PCBs cancer causing agents?

A. Well, I think as we've talked today, PCBs can and do cause cancer in laboratory rodents when fed at very high levels. The weight of the human evidence is that PCBs do not cause cancer in humans.

Q. And what is the most recent study to -- well, strike that. You mentioned mortality studies a moment ago and a mortality study would be the type of study you would look at to determine if PCBs cause or have been associated with or cause cancer in humans; is that fair?

A. Yes, that's the most common study to look at whether PCBs cause cancer in humans.

Q. Have there been any --

MR. GORI: I apologize, what study did

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you point to?

A. I'm sorry?

MR. GORI: Which study did you point to or did you ask him about a study?

MR. ORLET: No, no, I haven't. He said earlier -- he used the term mortality study.

A. That's all, just the generic term mortality study.

MR. GORI: Got it.

BY MR. ORLET:

Q. Dr. Kaley, what is the most recent large mortality study that's been done that you're aware of?

A. The most recent study is actually an update of another recent study looking at causes of death, mortality of capacitor workers in General Electric Plants in New York done by Dr. Ranada (phonetic spelling) Kimbrough and other authors.

Q. Okay. Who's Dr. Kimbrough?

A. Dr. Kimbrough is one of the premiere physicians, she knows probably as much about the health effects of PCBs as anybody in this country. She, in fact -- we mentioned her name earlier, she, in fact, in the mid 1970s did and reported the first study that reported that PCBs could cause cancer in laboratory animals. Since that time she's -- at that

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time she was working for the Center for Disease Control, she's since worked for the EPA and has done a number of reviews.

This particular study she did of the General Electric workers was first published in 1999 and then an update was published in 2003 reporting on causes of death among those workers. And it provides very strong evidence among this and it's probably the largest worker cohort that's ever been studied. It provides very strong evidence that PCBs are not associated with cancer in this population

Q. Let me hand you, Doc, Defendant's Exhibit 152. I ask you to identify that document.

A. Yes, this document is the 2003 what's called the update of Dr. Kimbrough's original study.

Q. How long has Dr. Kimbrough been following those capacitors workers -- well, strike that. How long have the capacitors workers been followed, their health been followed?

A. Well, the study has gone back, I believe, to the 1940s through 1998 so, you know, 40 or 50 years they've -- I mean, the health experience has been monitored over 40 or 50 years.

Q. And how has the -- well, strike that. And these are workers who are being occupationally exposed

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to PCBs?

A. Yes, that's correct. They were -- it's actually a combination of two capacitor manufacturing plants in New York.

Q. And what has -- what has been kind of the track record of how those occupationally exposed capacitors workers have -- how have they done over that 40 year period?

MR. GORI: Objection.

BY MR. ORLET:

Q. Strike that, let me ask it again, that was a horrible question. What has that 40 years of following these occupationally exposed workers shown as to whether their exposure to PCBs has increased the rate at which they -- strike that.

MR. GORI: We've skipped lunch.

MR. ORLET: I've never asked these types of questions before, I guess, maybe it's because I haven't eat lunch. Let me try it one more time.

BY MR. ORLET:

Q. What has Dr. Kimbrough -- what has Dr. Kimbrough found as to the health of these capacitor workers?

A. Well, I guess the easiest thing is to let Dr. Kimbrough speak for herself. In the abstract of

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her paper she writes, these result expand on our previous observations and as before the data failed to demonstrate any causal association between occupational PCB exposure and excess of cancer mortality or any other causes of death.

Q. In fact, these workers who have been occupationally exposed to PCBs over the course of their work career, are they as a whole living longer or shorter than the average American?

A. Well, I think if you look at the results of study -- and I don't know about the -- well, yeah, they are compared to the average American and they are, in fact, living longer.

Q. And so the workers who were on a daily basis exposed to PCBs have a longer life expectancy than the average American who has -- does not have occupational exposure to PCBs?

MR. GORI: Objection as to form.

A. I would say based on the results of this study they are dying at a slower rate than the normal U.S. population with whom they're being compared in this study, yes.

MR. ORLET: Thank you very much.

MR. GORI: No further questions.

VIDEOGRAPHER: This is the end of the

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deposition. The time is 1:11 p.m. We are going off the record.

(Whereupon the deponent was excused, and signature not waived.)

COMES NOW THE WITNESS, ROBERT KALEY, and having read the foregoing transcript of the deposition taken on the 30th day of April, 2004, acknowledges by signature hereto that it is a true and accurate transcript of the testimony given on the date hereinabove mentioned.

_____

(ROBERT KALEY)

Subscribed to before me this _____ day of _____,2004.

_____

Notary Public

My Commission expires: _____.

Cheryl Krutsinger vs. Pharmacia Corporation
Reporter: Anita J. Durborow, CCR
Date Taken: April 30th, 2004

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NOTARIAL CERTIFICATE

I, Anita J. Durborow, Certified Court Reporter and a duly commissioned Notary Public within and for the States of Missouri and Illinois, do hereby certify that the witness whose testimony appears in the foregoing deposition was duly sworn by me; that the testimony of said witness was taken by me to the best of my ability and thereafter reduced to typewriting under my direction; that I am neither counsel for, related to, nor employed by any of the parties to the action in which this deposition was taken, and further that I am not a relative or employee of any attorney or counsel employed by the parties thereto, nor financially or otherwise interested in the outcome of the action.

_____

Anita J. Durborow, CCR

My commission expires August 13, 2007.

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COMES NOW THE WITNESS, ROBERT KALEY, and having read the foregoing transcript of the deposition taken on the 30th day of April, 2004, acknowledges by signature hereto that it is a true and accurate transcript of the testimony given on the date hereinabove mentioned.

Robert Kaley

(ROBERT KALEY)

Subscribed to before me this 26th day of May, 2004.

Susan M Amsler

Notary Public

SUSAN M. AMSLER
Notary Public Notary Seal
STATE OF MISSOURI
St Louis City
My Commission Expires: Dec. 7, 2004

My Commission expires: _____.

Cheryl Krutsinger vs. Pharmacia Corporation
Reporter: Anita J. Durborow, CCR
Date Taken: April 30th, 2004

ROBERT KALEY
Name of Witness

In re: Upon reading the deposition and before subscribing thereto, the deponent indicated the following changes should be made:

Page 10 Line 17 Should read: 1997
Reason for change: TYPO OR MISSPOKE

Page 11 Line 14 Should read: 1991
Reason for change: SAME

Page 16 Line 2 Should read Emery, not Emery
Reason for change Spelling

Page 18 Line 6 Should read: coated, not caded
Reason for change: Transcription

Page 28 Line 16, 17 Should read: dibenzo furans
Reason for change: Spelling

Page 28 Line 23 Should read: Aroclor (and throughout deposition)
Reason for change:

Page 39 Line 24 Should read: terminology, not termination
Reason for change: Transcription

Page 44 Line 10 Should read: accepts, not expects
Reason for change: Transcription

Page 44 Line 21 Should read: plant, not plan
Reason for change: Transcription

CASE: Cheryl Krutsinger vs. Pharmacia Corporation

DATE: April 30, 2004

REPORTER: Anita J. Durborow

WATER_PCB-SD0000044575

Pohlman Reporting Company



ROBERT KALEY
Name of Witness

In re: Upon reading the deposition and before subscribing thereto, the deponent indicated the following changes should be made:

Page 66 Line 25 Should read: their, not they're
Reason for change: Transcription

Page 75 Line 12 Should read: Matson, not Metson
Reason for change: Spelling

Page 101 Line 12 Should read are, not our
Reason for change transcription

Page 113 Line 16 Should read: Renate, not Ranada
Reason for change: Spelling

Page_____ Line _____ Should read:
Reason for change:

Page_____ Line _____ Should read:
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Page_____ Line _____ Should read:
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Reason for change:

CASE: Cheryl Krutsinger vs. Pharmacia Corporation

DATE: April 30, 2004

REPORTER: Anita J. Durborow

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