GLENN BROWN, et al. v. MONSANTO CO.

DEPOSITION OF R. EMMET KELLY, M.D.
TAKEN JUNE 13, 1990
VOL. IV

IN THE CIRCUIT COURT OF THE CITY OF ST. LOUIS

STATE OF MISSOURI

GLENN BROWN, et al,	)	
	)	
Plaintiffs,	)	
	)	
vs.	)	Cause No. 862-00694
	)	
MONSANTO COMPANY,	)	
	)	
Defendant.	)	

Volume IV
Deposition of R. EMMET KELLY, M.D.
On behalf of Defendant
June 13, 1990

QUESTION FOR CERTIFICATION

Pg. 46, Ln. 1

Q. I would ask you to bring it with you Friday so that you may fully amplify all the --

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	)	
Defendant.	)	

DEPOSITION OF R. EMMET KELLY, M.D., produced, sworn and examined on behalf of the Defendant, June 13, 1990, between the hours of eight o'clock in the forenoon and five o'clock in the afternoon of that day, at the offices of Communitronics, 1907 S. Kingshighway, St. Louis, Missouri, before TOD MINNIGERODE, a Certified Shorthand Reporter and a Notary Public within and for the State of Missouri.

A P P E A R A N C E S

The Plaintiff was represented by Mr. Thomas M. Carney of the law firm of Husch, Eppenberger, Donohue, Cornfeld & Jenkins, 100 N. Broadway, St. Louis, MO 63101.

The Defendant was represented by Mr. David McCrea, of the law firm of McCrea & McCrea, 119 South Walnut Street, Bloomington, Indiana 47402.

IT IS HEREBY STIPULATED AND AGREED by and between Counsel for the Plaintiff and Counsel for the Defendant, that this continued deposition may be taken in shorthand by TOD MINNIGERODE, a Certified Shorthand Reporter and Notary Public, and afterwards transcribed into typewriting and signed by the witness.

o-O-o

R. EMMET KELLY, M.D.,

of lawful age, being produced, sworn and examined on the part of the Plaintiffs, deposes and says:

EXAMINATION

QUESTIONS BY MR. MC CREA:

Q. Good morning Dr. Kelly.

A. Good morning, sir.

Q. Dr. Kelly, could you describe for me conditions which you would consider unsafe in a industrial setting with respect to the use of PCB's and worker exposure?

A. I think wherever a worker's exposed to repeated or continuous skin contact or breathing the fumes at elevated temperature or possibly in confined spaces for prolonged periods of time that would be unsafe.

Q. Doctor, could you give us your definition of a significant exposure to PCB's?

A. No, sir. It varies all over the place. I couldn't quantify that.

Q. After Paul Wright was indicted do you know if there was any review of the long term PCB studies which Monsanto contracted with I.B.T. to perform, was there any review by Monsanto?

A. Yes. Dr. Levinskas reviewed it.

Q. Did he review it as a result of the indictment, i.e., to look for particular shortcomings?

A. I don't know. I was gone from the company at that time.

Q. You don't have any independent knowledge of a review by Monsanto of the data as a result of the indictments?

A. Well, I don't know what you mean by independent knowledge. I have talked to Dr. Levinskas and he said I checked it all over, I checked figures and it looks fine to me. He said, I'm sure the government has reviewed it; they are as interested as we are. They have copies of the results, we have never heard anything pro or con from the government.

Q. Do you know which agency of the government was involved in reviewing it?

A. It would be the FDA. Remember the PCB work was not to the best of my knowledge a subject of this trial.

Q. I agree and that's stipulated.

A. Yes.

Q. Did Monsanto ever conduct any chemical analyses to determine if dioxins were a contaminant of PCB's?

A. I'm sure not only Monsanto did but the EPA did and at no time were dioxins found. In fact scientifically they could not occur from PCB.

Q. Did Monsanto conduct any studies to determine if dioxins were a byproduct of the heating of PCB's?

A. I can't be sure, but it certainly has been conducted by other people and the same answer is the government has stated -- the government meaning the EPA has tested PCB's as far as the presence or occurrence of dioxins under any kind of conditions and they do not occur for PCB.

Q. Do you know if there have been any studies in which trichlorobenzene and PCB as a transformer fluid have been tested to determine if heat produces dioxins?

A. I don't know if they have been tested together. Trichlorobenzene will produce dioxins under certain conditions.

Q. Would it be your opinion that there would be certain conditions in which dioxins could be produced as a result of heating the combined fluid of PCB and trichlorobenzene?

A. Yes.

Q. Do you know of any studies in which mineral oil contaminated with PCB's has been heated to test for the byproduct of dioxin?

A. I don't recall any.

Q. Do you know if the heating of mineral oil contaminated with PCB's can produce dioxin?

A. I don't know that. I would doubt it.

Q. Yesterday you mentioned that you called Paul Wright preliminary to the trial in Texas and chatted with him about the trial. Who asked you to call Paul Wright?

A. One of the counsels in Texas. I forget his name.

Q. What reason did he give you?

A. Well, he said he'd like Paul to testify but he doesn't want to testify. You know Paul, you want to call him and see if he's changed his mind.

Q. Dr. Kelly, yesterday you made reference to epidemiological studies of the Bloomington workers; can you tell us us --

A. I said the Bloomington people. I didn't say

the Bloomington workers, I said the Bloomington population who were exposed to the sludge of the Bloomington outflow of the city.

Q. All right, sir. Do you know of any other epidemiological studies other than that one particular study in Bloomington either of the citizens or the workers at the Westinghouse capacitor plant?

A. Well, I don't know if this was the Westinghouse people or not. I do not know if Brown and Jones' work in 1981 was related to the Bloomington study or not, Bloomington workers or not.

Q. Do you have a list of epidemiological studies on cards that you are referring to?

A. Yes, I do.

Q. Can you identify for us those studies and tell us what information was produced by each of those studies?

A. Yes. You realize this is pretty vast -- a small abstract of the studies but I'll give it to you. Baker Bureau of Epidemiology of the Center for Disease Control of NIOSH, Metabolic Exposure to PCB's in Sewage Sludge, American Journal of Epidemiology, 1980. 148 people, PCB levels 17 to 36 parts per billion, all negative findings.

SAFE, S-a-f-e, IEEE, technical bulletin No. 86,

health effects of PCB, and this is a direct quote, "relatively few adverse health effects." Gostasfawn, G-o-s-t-a-s-f-a-w-n, 1986, American Journal of Industrial Medicine; no increase in cancer.

Brown and Jones, 1981, United States Public Health Service, Archives of Environmental Health. He found an increase in liver cancer but the increase was inversely related to exposure. In other words, he found fewer cancers in people who worked longer than people who worked shorter intervals.

Smith, Communicable Disease, Center for Disease Control, 1982, British Journal of Industrial Medicine. I quote again, page 387 -- he worked with capacitor manufacturing -- quote: "None of the published occupational or epidemiological studies," paren, "including ours," close paren, "have shown that occupational exposure to PCB's is associated with any adverse health outcome except some clinical biochemical alterations."

That means some will have, some may have some liver enzyme changes. Kimbrough, Health and -- she's, I think we discussed her qualifications yesterday. Health and Environmental Digest, August, 1988, two quotes. "Several occupational studies have presented no conclusive scientific evidence that PCB's have caused cancer in

humans."

Another quote: "Thus despite positive laboratory animal data and except for chloracne exposure to PCB's -- except for chloracne, comma, exposure to PCB's has led to no convincing demonstrable health effects in humans." That's it.

Q. Thank you.

(Whereupon, Plaintiff's Deposition Exhibit No. 5 was marked for identification.)

Q. Dr. Kelly, have there been any epidemiological studies of Monsanto's workers?

A. There have been two. One by Zack and Musch, which was a mortality study and sometime after 1954, which was published, and the other by Gaffey of all Monsanto workers at the Krummrich or East St. Louis plant. That included the PCB workers but they were a small fraction of the total. Not a small, maybe ten percent of the total.

Q. I'm going to hand you what is marked as Plaintiff's Exhibit No. 5 and ask you if you can identify the exhibit?

A. Yes, sir.

Q. Is that the mortality study which you referenced?

A. Yes, that is true.

Q. Was this study conducted on workers at the

Sauget plant who were exposed to PCB's?

A. This study was devoted to death certificates.

Q. Of workers who had worked with PCB's?

A. That's correct.

MR. CARNEY: It might be simpler, I think we referred to that as the East St. Louis plant and since people in St. Louis know where that is more than Sauget it might be helpful.

THE WITNESS: Or Krummrich.

MR. CARNEY: Yeah, Krummrich doesn't mean much either.

MR. MC CREA: All right. We'll refer to it as the East St. Louis manufacturing plant of Monsanto.

Q. (By Mr. McCrea) Dr. Kelly, when was this report first made available to you?

A. It appeared in a medical journal sometime in '95 or '96 I think. She certainly didn't do it when I was there and I left at the end of ninety -- '74, so I can't tell you when I think it was published, but I don't know where, whether I saw it before it was published or not, I can't remember, but --

Q. Do you know where it was published?

A. It's easily found. I think it was in the Journal of Industrial Occupational Medicine or something like that. I don't know.

Q. And by publishing you would mean that it was approved by the individuals who publish periodical and distributed in the public domain?

A. Well, you mean the editor of the magazine, sure.

Q. Right, so this information would be in the public domain --

A. Yes.

Q. -- as a result of being published?

A. Yes.

Q. But you do not know in which publication it was printed?

A. Well, it's easy to find out.

Q. Did you know Judith Zack when you were employed at Monsanto?

A. No, she was not employed when I was there and I never met her. I never talked to her.

Q. Did you know David Musch?

A. No.

Q. On the second page it has Monsanto Company Department of Medicine and Environmental Health. Do you see that?

A. Yes.

Q. Did Monsanto have a department of Environmental Health when you were there?

A. I think we changed our name from Medical Department to Department of Medicine and Environmental Health sometime, one or two years before I left.

Q. And the address 1751 Legend Lane, St. Louis, Missouri, is the address of the Monsanto Department of Medicine and Environmental Health?

A. No, I don't know whose it is. My guess is it's Judith Zack.

Q. Yes, you're right. It's footnoted above, that would be her address.

Q. Can you turn to Page 5 of the study?

A. Yes, sir.

Q. Can you go down to the fourth line from the bottom on that page which reads, "While no industrial hygiene monitoring data were available to quantify the PCB exposure levels during the study time, interviews with plant personnel established the fact that PCB exposure levels did not vary considerably within the PCB department." Is that an accurate statement as far as you know?

A. Yes. I am really a little confused by what she means by the study time. Does that mean the study time means when this -- this is a mortality study, if you remember. She goes back to the death certificates of people who worked there from a period of 1945 to 1965, if

that's what she means, the study time.

Q. '35 --

A. '45 to '65.

Q. Is that statement accurate that Monsanto had no monitoring data?

A. No, that doesn't mean that at all. It says it wasn't available to her. I don't know where those records were, from 1965. She did this study ten years later?

MR. CARNEY: I'm going to object also that the question calling for speculation as to what the time period was. I don't think she indicates what it was and it might call for Dr. Kelly to speculate as to what she meant by that.

Q. (By Mr. McCrea) I think in the beginning of that paragraph, Dr. Kelly, the authors state under materials and methods, during the period from 1936 to 1977 PCB's were manufactured at Monsanto Company, Sauget, Illinois plant, which we understand is the same as East St. Louis?

A. Yes, sir.

Q. Then the sentence to which we're referring states, "While no industrial hygiene monitoring data were available to quantify the PCB exposure levels during the study time, interviews with plant personnel established

the fact that PCB exposure levels did not vary considerably within the PCB department." What -- to what is she -- to what are the authors referring when they state monitoring data?

A. Well, that's --

MR. CARNEY: Again, let me just object that it may call for the witness to speculate inside the mind of somebody else. It may be that Dr. Kelly will know but I caution him not to speculate.

A. If you look, Mr. McCrea, on page two in the abstract she says a total of eighty-nine workers exposed to PCB's for a minimum of six months during a period of 1945 to 1965. Now, I don't know if that's the study time, '45 to '65 or '36 to '77 or '45 to '77.

Q. (By Mr. McCrea) Wouldn't that indicate that she was looking at workers who were employed at the East St. Louis plant from 1945 to 1965 and she looked for death -- she looked for death certificates through 1977?

MR. CARNEY: Well, I'm going to object again. It also could mean the time that she did her study, which would be different than any of those dates. So I think we're in the realm of trying to speculate inside the mind of Judith Zack, and it might be more appropriate to ask her what she meant unless she says what she meant in the report, then you wouldn't have to speculate.

Q. (By Mr. McCrea) This is a study to determine the number of deaths and the cause of deaths of workers exposed to PCB's, is that correct?

A. Yes.

Q. And can you determine from this report, Dr. Kelly, the time period that those workers were exposed to PCB's?

A. No, because she studied workers who were exposed for twenty years, from '45 to '65.

Q. Right.

A. That doesn't mean that all the people stopped working in 1965.

Q. Correct.

A. Some may have worked up to 1972 and died, but she had a cut-off period of anybody who worked for six months during that period of '45 to '65 --

Q. Correct.

A. -- were included.

Q. Correct.

A. That was where the eighty-nine workers she studied.

Q. Correct.

A. So my -- now what she's saying if that's the study period then this PCB exposure levels during this study time refers to 1945 to 1965.

Q. Right, and she states there was no industrial hygiene monitoring data available to quantify the PCB exposure levels. Is that consistent with your recollection of what was done at the East St. Louis plant that there was no monitoring date?

A. No, that isn't what she says at all. She says it wasn't available to her. We did have some monitoring there, we did not have regular monitoring in 1945. I'm not sure how good our PCB analysis of air was. But we did have, not routine analysis but we had monitoring analysis at the PCB department. Whether those records were available to Zack in 1977, I don't -- they obviously weren't. Whether she asked for them and they weren't there or whether I don't know, but that does not by any matter of means state that we didn't monitor at that time.

Q. When did you begin to monitor for PCB levels?

A. Well, we didn't monitor it on a routine basis until sometime after I left. During my time we did not -- we did random analysis at times and I don't recall the date.

Q. Describe how you would perform a random analysis at the East St. Louis plant before your departure from Monsanto in 1974?

A. You would go in with an industrial hygiene

gadget called an impinger that had a solution that would dissolve a PCB and you would pump air in at a certain rate until you got a certain level of air whether that was a certain quantity of air, whether it was six cubic meters or ten cubic meters, then you would analyze it and see what you had with it, what you had there.

Q. With what frequency was that done before 1974?

A. Pretty irregular. I don't know the frequency.

Q. Was that data recorded?

A. Well, sure, it was recorded someplace.

Q. Was it reported to the plant manager?

A. Whether it was reported to the plant manager or the doctor or the safety department I don't know.

Q. Do you recall any of that data, any of the numbers?

A. No, but remember at that particular time we had a level that was decided on, if it were 1254 it was under one cubic -- one milligram per cubic meter, .5 rather, and if it were 1242 it would be under the allowable concentration at that time.

Q. Which was what for 1242?

A. One milligram per cubic meter.

Q. Was this data recorded and filed in the

medical department?

A. Yes. We did have it, yes.

Q. Was it ever expunged from the records?

A. Well, I don't think expunged, that has a connotation that I believe, removed.

Q. Well, was it ever discarded, or --

A. We had at Monsanto what we called a record retention system. It really is a record destruction system. Every five years you go through relevant data, I mean files and discard material that isn't relevant. So back in the days of the seventies some things were discarded because we'd be up to our neck in paperwork.

So if it isn't available now I'm sure it was discarded sometime either during my tenure or in the fifteen years since I've been there. I've never seen it since I've been back. I mean back as a -- on these cases, not back working for Monsanto.

Q. I understand. After your departure in '72, '74, monitoring became more routine?

A. Yes.

Q. Can you explain the difference between the random monitoring and the routine monitoring?

A. Yes. The routine monitoring was at a definite time, they did more of them.

Q. Did you ever see any of those results?

A. No, but I have talked to people about it, but I don't recall seeing it.

Q. In the East St. Louis plant where PCB's were manufactured what chemicals did they monitor on a routine basis after '74?

A. I don't know.

Q. Do you know if they checked for chemicals other than PCB's in the PCB manufacturing section?

A. Well, first of all I'm not -- I can't place in my own mind exactly where the PCB department was as to other departments, but sometime after 1975 the OSHA and put out standards of workplace levels and so whenever there was a standard it is my impression that the company took monitoring levels on that, but again I cannot answer your question as to how many other chemicals they monitored for, they did not monitor. I'm sure they did not monitor the PCB for any particular hazard it presented but there was a standard for it and they wanted to follow the standard.

Q. Who conducted the random testing before 1974?

A. Either Wheeler I believe would be the one.

Q. Is he still with Monsanto?

A. No, he retired ten years ago.

Q. Did you ever discuss those results with him?

A. He probably told me about them. I mean, I

don't know what you mean by discussing.

Q. Did you ever discuss the results as to whether they were at a level that exceeded what you thought was appropriate or safe?

A. Well, again, when you say appropriate or safe it depends, a standard is for an eight hour day for your life time so if you exceed a standard for one or two days or a week, that's still safe. You have to take the figure in relationship to what a standard is, and standard is a lifetime of forty hours a week and if it's twice that standard for a week it doesn't make a bit of difference.

Q. Are there standards which apply to a single day which are considered --

MR. CARNEY: Talking about today or --

Q. (By Mr. McCrea) -- safe or unsafe?

MR. MC CREA: No.

Q. (By Mr. McCrea) Before 1974 did you have in addition to the standard for exposure over a lifetime did you have maximum allowable contamination standards?

A. Concentrations?

Q. Concentrations.

A. Well, that's the same as the threshold limit value. I mean, it's just a little different. Some standards had been proposed that allow a set, a limit on fifteen minute exaggerated exposure, I do not know when

those came in. They were not very current before 1974.

Q. Doctor, the authors of this study of the workers at the East St. Louis plant describe a number of studies that were conducted throughout the world in the first several pages and I will draw your attention to page eleven which is the reference page for the cited studies, and with regard to references one through twenty-five, with which of those references are you familiar? Which have you read, of which do you have a working knowledge?

A. You mean without -- off-the-cuff without looking at the reports?

Q. Right. Are you able to discuss any of those studies based upon your having read them in the past, and tell us about them?

A. Well, let's start off with number one; I know that one. That was chloracne from the use of PCB's as a heat transfer agent that leaked or not -- Yes, leaked and these people had four or five cases of chloracne, some didn't even know they had chloracne till they saw the doctor.

Q. Where was that incident?

A. New England some place. The man was at Yale that wrote it, so I think it was in --

Q. When you say some of them didn't even know they had chloracne until they saw the doctor, can you

explain that?

A. Yes, they had a few blackheads and they didn't pay any attention to them and they went to the doctor because the doctor wanted to see everybody who was exposed and the doctor had seen people with demonstrable chloracne and he looked at these people with a few blackheads and said I think you got chloracne.

Q. So did that establish that a few blackheads was chloracne?

A. Not in my mind, but it did in his.

Q. So you disagree with that?

A. Well, no, I don't disagree with him, but here's a man that's got people working in the same environment with people with frank chloracne but if a man walks in the street with a few blackheads and has never even heard of PCB's that doesn't mean he's got chloracne.

Q. Did this article establish that there were workers who didn't know they had chloracne until they went to the doctor, the doctor looked at them, found a few blackheads and determined it was chloracne?

A. In his mind he thought it was chloracne. Whether he determined it, I do not believe he took biopsies of these people.

Q. Do you dispute that finding?

A. I can't dispute it because I haven't seen the

people.

Q. All right. What is your opinion of that finding?

A. Well, maybe they did, maybe they didn't. Whatever it was was pretty minor.

Q. If I called you in 1958 from the Bloomington Westinghouse plant and asked you if workers could have chloracne and not know and if chloracne could consist of a few blackheads what would your answer be?

A. I would have to see the worker. I don't believe I could make a telephone diagnosis.

Q. If I asked you in 1958 if a worker could have chloracne and not know it what would your -- just a second -- What would your answer be?

MR. CARNEY: I'm going to object to it.

A. That would be very unusual. That would be very unusual, I would say.

Q. (By Mr. McCrea) The next article, Doctor?

A. This next article is an epidemiological study of Yusho, poisoning caused by the ingestion that's taken by mouth of rice oil contaminated with a commercial brand of polychlorinated biphenyls, the Japanese Kanechlor and the PCB that was contaminated with benzofuran and chlorinated quaterphenyls.

Q. And the third article?

A. That's also by the Japanese -- That's a Chinese episode of Yucheng, I presume, Formosa. That's China.

MR. CARNEY: Taiwan.

THE WITNESS: Taiwan.

Q. (By Mr. McCrea) Doctor, would you go to page three where those articles are referenced, specifically paragraph three on page three?

A. Yes, sir.

Q. And let me read that into the record. The first two sentences, "Accidental ingestion of rice oil contaminated with PCB's has resulted in several outbreaks of common symptomatology, reported from Japan," parentheses, quote, "Yusho," quote, "disease, and Taiwan," parenthesis, "Yucheng," quote, "disease." Parentheses. "The most common acute symptoms observed were hyperpigmentation and acne-like lesions, discharge from the eyes, neuroendocrine disturbances, emesis and diarrhea." Doctor, did all of those individuals who had neuroendocrine disturbances have chloracne?

A. In the first place, I don't know what she means by neuroendocrine disturbances. I really don't know what she means by that, and I cannot say from those two pages you gave, two para -- sentences whether they did have chloracne but it is my impression that the vast

majority of the people had chloracne, the vast majority.

Q. That's your impression?

A. Well, I could get the article and look it up, but that's my opinion that he did, yes.

Q. Do you know any author who has made the statement that all individuals who suffered in Yusho and Taiwan had chloracne?

A. I can't answer that without a pretty extensive search through the literature but chloracne has been recognized by many authors and in many papers chloracne has been recognized as a hallmark of PCB -- of PCB effects, it's the hallmark of it.

Q. Doctor, what is the term emesis?

A. Vomiting.

Q. Vomiting?

A. Vomiting.

Q. And the next sentence, "There was a dose-response relationship between the amount of oil ingested and the proportion of persons reporting symptoms," is that self-explanatory?

A. I would think so. It just means that the more oil you ate the more people had symptoms.

Q. "After six years many of the patients still reported such symptoms as headache, stomach pain, numbness of the extremities, arthralgia and respiratory symptoms."

Did you read that?

A. Yes.

MR. CARNEY: Let me object here. You're reading from a summary of some literature and then you're just reading pieces of this summary of the literature in the record and I don't see any purpose to your just reading isolated sections of a summary of literature when we ought to have the literature itself so the witness can look at this literature that you are referring to in context rather than pull out, not only pulling out a sentence from the literature but pulling out a sentence from the summary of the literature which I don't think is appropriate and I object to it.

Q. (By Mr. McCrea) Doctor, what is arthralgia?

A. Pain in the joint, joints.

Q. All right, Doctor, the next two articles back on page eleven, number -- I would believe we went through 3, No. 4, have you read that one?

A. At some time in the past I have.

Q. No. 5?

A. That was a determination that of the chlorinated dibenzofurans in Kanechlor which is a Japanese PCB's.

Q. Do you recall having read that article?

A. I've read articles that showed the

determination; whether I read this particular one I don't recall.

Q. No. 6; do you recall having read that?

A. I don't recall the individual ones, Mr. McCrea. There were about fifty or sixty articles on Yusho and Yucheng in the years from 1972 to 19 -- up to now, and so I can't -- I may very well have seen it. I'm not certain I read it.

Q. Could you go to page four?

A. Yes, sir.

Q. Can you read the last sentence in paragraph 1 which states, "Chloracne, dermatitis, mild liver function abnormality" --

A. Wait a minute. We're on page four?

Q. Page four, paragraph one?

A. Last sentence in paragraph one?

Q. The first full paragraph?

A. Oh, the first one.

Q. Begins, "The Yusho incident" --

A. Oh, the first sentence in paragraph two.

Q. Fair enough. The last sentence in paragraph two, "Chloracne, dermatitis, mild liver function abnormalities and increased triglycerides levels were reported with some consistency from these studies." What is dermatitis?

MR. CARNEY: Let me object to your -- again you are now reading a summary from an article that is I assume available and then asking and I think in this particular case the doctor hasn't even indicated that he's sure that he's read the article. You're not showing him the article, you're just reading him a one sentence summary out of an article and I think without showing the doctor what the article that the summary comes from so he can --

THE WITNESS: This is the article, this particular one is the article in question. This is from Zack's article.

MR. CARNEY: Oh, this is from Zack's, I'm not --

MR. MC CREA: The article is "A Retrospective Mortality Study of Polychlorinated Biphenyls Manufacturing Workers, by Zack and Musch, Monsanto Company Department of Medicine and Environmental Health." This is your study.

MR. CARNEY: It's not my study.

MR. MC CREA: Well, Monsanto's study.

MR. CARNEY: All I'm saying is I'm trying to look over your shoulder because you don't have an extra copy for me. I thought you were reading from the summary but if that's the original article then I withdraw the objection.

MR. MC CREA: All right.

Q. (By Mr. McCrea) Doctor, what is dermatitis?

A. Dermatitis is an inflammatory or a condition of the skin.

Q. Is it your testimony that all individuals who would have dermatitis associated with PCB's would also have chloracne?

A. No. I never said that.

Q. Can you have dermatitis associated with PCB's and not have chloracne?

A. Sure. PCB acts as a paint remover, you put it on, your skin will get red.

Q. Can you have mild liver function abnormalities without chloracne?

A. It depends on what you mean by mild liver function abnormalities. If by that you mean a transient or very minor alteration in one or two of the enzymes you may have it, but then you have to decide where these enzyme changes came from. Here we're talking about people who ate Japanese PCB oil, it was contaminated. If you are talking about a mild liver abnormality without chloracne you have to check where did this person get this mild liver abnormality. Did he ever have hepatitis from eating shellfish in his life? Did he take three drinks alcohol in the last two days? You have to differentiate where he

got it from.

Q. Are these symptoms related to industrial exposures?

A. And I might also add, extend my last question, amplify my last answer, I mean. If a person has an acute episode of adverse effects from PCB's he can get mild liver abnormalities because he would -- these would occur long -- It takes some time for chloracne to show up. If a person were exposed to a leaking trans -- heat transfer unit, hot stuff came out and he breathed it for eight hours, he could develop liver abnormalities.

He would not development chloracne within twenty-four or forty-eight hours, but he would develop liver abnormalities. But I have to repeat chloracne is I think accepted by all the workers, the majority of the workers in the field as the hallmark of PCB adverse effects.

Q. Could a worker have increased triglycerides as a result of exposure to PCB's and not have chloracne, is your answer the same?

A. No. He could have it because he's too fat and also I think it's been disproved since 1977 when she wrote this, '77 or '78 because she's carried this study up until the deaths in 1977, followed through '77 so it's after probably '78; triglyceride is a fat. PCB is soluble

in fat.

So if you have exposure to PCB you will get -- if you have triglycerides for any reason you will get a higher level of PCB's in your blood because a PCB is fat soluble in triglycerides. So you could get increased triglycerides from any number of causes without chloracne.

Q. What is the consequence to the human body of increased triglycerides?

A. Depends how much. None, but some it's like too much cholesterol. If you're obese it may have adverse effects down the road.

Q. Doctor, I'd like to go back to page 3.

A. Three?

Q. Yeah, and the symptom of arthralgia, a-r-t-h-r-a-l-g-i-a. Did the Yusho and Taiwan poisoning result in reports of pain in joints?

A. I don't know. I mean, I'm not taking Zack's word for this. I'd have to read the results and see how many -- you have a thousand people in Yusho itself and I don't know how many in Yucheng. Certainly some of them may have pains in their joints, but the significance of it, I'd have to read the articles.

Q. Can you explain the mechanism by which the ingestion of the PCB oil in Yusho and Taiwan could cause arthralgia?

A. No, sir, I couldn't.

Q. Have you ever conducted any investigation as to the mechanism by which those substances cause arthralgia?

MR. CARNEY: Well, let me object. I think you're assuming facts that aren't in evidence and that's that there is a cause and effect relationship in your question.

Q. (By Mr. McCrea) Have you ever done any investigation as to that particular complaint in Yusho in Japan and the relationship to PCB's and how that was discussed?

MR. CARNEY: Are you talking about now an investigation about the Japanese PCB's that were contaminated with the furans?

MR. MC CREA: Right.

A. I have never had any Japanese PCB's that were contaminated with furans and only way you would test arthralgia, see the if the person has arthralgia is give people it; because you can't tell whether a dog or rat has pain in his joints.

Q. (By Mr. McCrea) Did you ever ask a single worker in the East St. Louis plant if he had pain in his joints?

A. I might very well have, I don't recall it. I

can't tell you positively; but let me tell you when you do an examination of workers in an industrial setting they are far from reticent about giving voice to a symptom. If they have symptoms they tell you.

Q. Dr. Kelly, are you familiar with the study at the Bloomington, Indiana capacitor plant where thirty-nine percent of the workers exposed to PCB's complained of joint pain?

A. What is the study?

Q. Are you familiar with the study?

A. Well, show it to me. I don't know it.

MR. CARNEY: I'm going to object. There's thousands of studies or at least hundreds, let me put it that way.

Q. (By Mr. McCrea) The study in which Dr. Raymond Suskind oversaw the morbidity epidemiological survey of the Bloomington workers using the Yusho symptoms as a guideline in which Dr. Alexander Blair Smith found that thirty-nine percent of the active workers in the Bloomington Westinghouse plant complained of joint pain.

MR. CARNEY: Would you -- Do you have that study? I'm going to object to claiming that you have a study that Dr. Suskind -- Is it a Dr. Suskind study?

MR. MC CREA: Dr. Suskind oversaw the project which was carried out by Dr. Alexander Blair Smith.

MR. CARNEY: Wait a minute, I don't know --

MR. MC CREA: Just a second.

Q. (By Mr. McCrea) Have you ever heard of that study?

A. Wait, just a minute, has it been published?

Q. No.

A. Well, how would I know about it?

Q. Well, this report wasn't published and I got it.

A. Yes, it was published.

Q. Where?

MR. CARNEY: Let me object. You -- number one apparently it was published according to Dr. Kelly and number two, you've asked for hundreds and thousands of documents from Monsanto and we've produced documents; so you have had of the advantage through this lawsuit of getting these Monsanto documents. Here you're asking about an unpublished study that you don't have and are not willing to show the doctor if you do have. I'm going to object to it.

Q. (By Mr. McCrea) All right, number one, let me read you a letter dated February 27, 1985?

A. Wait, what did you say? Let me read you what?

Q. A letter dated February 27, 1985 from Terry

L. Leet, Monsanto, 800 North Lindbergh Boulevard, St. Louis, Missouri to David P. Brown, NIOSH, Robert A. Taft Laboratories, 4676 Columbia Parkway, Cincinnati, Ohio.

"Dear David: Enclosed is a photocopy of the report on mortality of PCB workers at the Monsanto plant in Sauget, Illinois by Judith Zack and David Musch. As far as I know this is is final report, although the report was never published in the scientific literature."

A. What date is that?

Q. February 27, 1985?

A. Well, I would be very, very surprised if I am wrong in my statement, I was certainly -- My impression is the report has been.

Q. And I will represent to you that this report has not been published in the scientific literature and that we did not get it from Monsanto, that we got it by freedom of information request to the Center of Disease Control in Atlanta, Georgia.

MR. CARNEY: Well, I'm going to object, Mr. McCrea, you're testifying and making speeches. You can ask questions but you're not under oath. You're not a witness in this case, Mr. McCrea, and now you're trying to make these speeches. If you have a question you can ask a question but to make a speech where you're reading from documents or claiming that you got documents from a

certain place, I don't have the opportunity of cross-examining you as to where you got the documents. I'm not saying you're misleading anybody, but I think it's inappropriate for you to make these speeches not under oath about where you got certain documents.

Q. (By Mr. McCrea) Would you turn to the --

A. Well, can I finish my --

MR. CARNEY: Yes.

A. I said I would be extremely surprised if I am wrong but I'm going to see you again on Friday and I will check to see if I can find -- it would be easy enough to find tomorrow whether the Zack report was published. If it was published I'll give you the citation; if it wasn't I'll admit that I was confused.

Q. (By Mr. McCrea) All right. We know at least as the February 27, 1985, if you can find that?

A. Well, no, we don't know that. We know that fellow didn't find it.

Q. No, it says as far as I know.

A. As far as he knows, well --

Q. Just a second. "As far as I know this is the final report," comma, "although the report was never published in the scientific literature."

A. May I see that.

Q. It's right in your stack.

A. In what stack?
Q. In what I gave you.
A. In the Zack report?
Q. Right, it's part of it.
A. What page?
Q. Well, it comes right after -- It's right before the final report.
A. Oh, I see. Oh, I see. Well, I'll be extremely surprised but I'll look it up.
Q. Now, Doctor, you asked me about unpublished reports. I would be the first to agree that it's very difficult to get ahold of an unpublished report, but you do not, do you have -- Have you ever tried to get unpublished reports?
MR. CARNEY: In what area, what type of reports?
MR. MC CREA: On PCB health effects.
MR. CARNEY: From who?
MR. MC CREA: From Centers for Disease Control.
MR. CARNEY: What particular time?
A. I don't think I have.
Q. (By Mr. McCrea) All right. But at any rate you are not familiar by any means available to you with the data that thirty-nine percent of the active workers at

the Bloomington Westinghouse plant complained of joint pain or arthralgia?

MR. CARNEY: I'm going to object to that question. Here you're asking him about a report that you haven't identified as to date, as to the -- where it was published, if it was published.

MR. MC CREA: Didn't we already state it wasn't published?

MR. CARNEY: You haven't said who put it out, what organization.

MR. MC CREA: Alexander Blair Smith, NIOSH, Centers for Disease Control under the guidance and auspices of Raymond Suskind.

MR. CARNEY: When was it published?

MR. MC CREA: It was never brought out.

MR. CARNEY: When was it prepared?

MR. MC CREA: It was prepared about 1979, 1980.

MR. CARNEY: Do you have a copy of it you could show?

MR. MC CREA: Yes, I do.

MR. CARNEY: Well, it would seem to me that you are asking somebody if they have ever seen a report and if you have a copy I think it would be very simple for the jury to see if he knows by showing him the documents.

MR. MC CREA: I'll be happy to show him the report, and but I'm also stating that there are a number of unpublished reports.

MR. CARNEY: And he may have seen it or he may not have. I think if you're going to want to find out if he's seen it --

A. I can simplify this by saying I've never seen it.

Q. (By Mr. McCrea) Or heard of it?

A. Or heard of it.

MR. MC CREA: Break.

(Whereupon, a short break was taken.)

Q. Dr. Kelly, would you please turn to page eight of the Zack Musch study?

A. Yes, sir.

Q. And the first full paragraph states, "This investigation dealt with the mortality experienced in the cohort of eighty-nine male workers involved for at least six months in the production of PCB's between January 31, 1945 and December 31, 1965. The only cause of mortality which showed a statistically significant excess in observed deaths was circulatory diseases exclusive of arteriosclerotic heart disease." Can you interpret that for us?

A. Interpret the whole sentence?

Q. Yes, sir.

A. She's stated she found more deaths in this group of circulatory diseases exclusive of high blood pressure disease. Arteriosclerotic disease is known as hardening of the arteries.

Q. What does the phrase statistically significant mean?

A. Well, this will take a little explanation. If you have time, I'll be happy to do it.

Q. Explain it to the jury if you could.

A. Fine. Whenever one's study carries out an epidemiological study there are four main rules that have to be observed. One, the condition has to be -- the study has to be reproducible, repeat -- you have to be able to repeat it the same way. In other words, if you find high blood pressure in one case, diabetes in another case but no high blood pressure, tumors of the stomach in a third but no high blood pressure, or no diabetes they aren't reproducible. So the condition has to be reproducible.

Secondly, there must be a dose response. In other words, if you're studying a worker group of people who work ten years should have more of a condition than the people who work two years. If you find an excess of brain tumors in people who work two years and don't find it in people who work ten years that is a big flaw in an

epidemiological study.

The third, there has to be a dose response -- or no, the third would be there would be no confounders in it. Now confounders is a term that really means obscures the results. If you were studying deaths from heart disease and don't pay any attention to obesity, that's a confounder that will throw out your study and a fourth is it has to be a significant excess.

Now this is to answer your question; there are statistical methods for showing whether there's a statistical significant excess, statistically significant. That means if you had a group of twenty people and three people had the condition and you had the control group of twenty people and one person had the condition on the surface it might look like you've got three times as much illness here as you do here but that also could occur by chance and there are statistical ways of evaluating these figures.

I'm not a statistician so I won't bore you with that but there are ways, and they generally have what they call a P factor which means the probability that this might be due to chance is a certain percent, five percent, twelve percent or something of that sort. Now to put a figure on it I would have to say it has to be run by a statistician to see if these eight cases or whatever he

had, she had, was statistically significant. Well she says they were, so I'll take her word for it. Does that answer your question?

Q. And how do you interpret that for the jury with respect to these workers dying of circulatory diseases who were exposed to PCB's, what's the significance of that for the jury?

A. Well, that's the question; because we were having workers who died from these illnesses but two of them had rheumatic fever and rheumatic fever by no stretch of the imagination can be connected with PCB exposure. The other one was cerebrovascular disease, to the best of my knowledge was an infected veins in the leg. She had phlebitis like Nixon had, I mean the employee had phlebitis in the lower legs, like Nixon had. That is no relationship.

What she is saying is a statistically significant excess, but you have to look at the cases and see what other causes there are for the excess. Just because there's an excess of deaths doesn't mean it's caused by PCB's and occurred to PCB workers and that's what she says.

Q. Do you know if anyone in the scientific or medical community has ruled out any of the deaths caused by the circulatory disease as not being related to PCB?

A. Well, I think I'll have to turn that question around; I've never seen anybody in any scientific literature say that rheumatic fever or phlebitis was caused by PCB's.

Q. With respect to this study do you know if anyone has suggested that those deaths of the workers in the East St. Louis plant resulting from circulatory disease were not caused or contributed to by their exposure to PCB's?

A. Well, I'm sure there are an awful lot -- I mean, I can't give you the names, but she supposes one would postulate that there may be a relationship, she's got an awful lot of factors in there. She doesn't say that it's caused by PCB's. She goes on to say a great deal of things about the lipids, about the triglycerides associated with heart disease; but it's been proven that -- accepted by the scientific community that high triglycerides are not caused by PCB. That's an association with high PCB's in the blood.

So I don't take this as gospel at all. I mean, if she has an excess of -- How many did she have? Eight I believe. Let me look. She had nine other diseases of the circulatory system, expected four, 3.98. Two of these were rheumatic fever, one was phlebitis. That would bring it down to seven, and that's not statistically

significant.

Q. Where do you see the two with rheumatic fever?

A. Well, I checked with her, I checked the raw data. I know it was two had rheumatic fever.

Q. And that was one of the questions which the Monsanto attorneys asked our plaintiffs, correct?

MR. CARNEY: I'm going to object. I don't think Dr. Kelly was at the depositions of the plaintiffs and he already testified he never saw the depositions, so I don't know how --

A. I don't know what you mean by that sentence, by that question, Mr. McCrea?

Q. (By Mr. McCrea) Yesterday, when I read you a list of signs and symptoms which I took from the depositions in which the Monsanto attorneys questioned our plaintiffs, one of the health conditions was rheumatic fever, which they asked our plaintiffs?

A. I don't know if they asked them. I think there were a hundred and twenty questions or something that allegedly were asked.

MR. CARNEY: Yeah. Dr. Kelly doesn't know what questions were asked, and are you claiming that rheumatic fever was caused by PCB exposure?

MR. MC CREA: Am I claiming?

MR. CARNEY: Yes.

MR. MC CREA: I would not think that PCB exposure would be good for a person who had rheumatic fever and it could contribute to morbidity and/or mortality?

MR. CARNEY: So PCB's could cause rheumatic fever?

MR. MC CREA: Did I say that?

MR. CARNEY: No. I'm asking you, is that what you're saying?

MR. MC CREA: No, I'm not saying that, I'm asking the doctor. Number one, I'm not a doctor, you're not a doctor --

THE WITNESS: Is there a question on the board right now?

MR. MC CREA: No, we're moving very slowly.

THE WITNESS: That's all right.

Q. (By Mr. McCrea) Doctor, you interpreted data supporting this report. You actually went to the files of Monsanto and got data that doesn't appear on the exhibit?

A. That's correct.

Q. Do you have that data with you?

A. No, I don't.

Q. Could you bring it with you Friday?

A. I doubt it, but --

Q. I would ask you to bring it with you Friday so that you may fully amplify all the --

A. Well --

Q. Just a minute --

MR. CARNEY: Just a minute. Let him finish the question and I'm going to make an objection.

Q. (By Mr. McCrea) So that you may show us the data to which you're referring so that we may use that data to develop further questions. If that courtesy would be extended it would be appreciated.

MR. CARNEY: Well, you know, I'm going to instruct the doctor just not to answer that at this point and indicate that you have not -- you have had this case pending for a number of years and you have not asked for this data and you've had the right to ask for this data and now to have Dr. Kelly who's retired from the company and has been for fifteen years to go back in and try to find some data, when you haven't given the courtesy of asking for it in the last two or three years when you could have I think is highly improper.

MR. MC CREA: I asked the doctor a question, he gave me an answer. His answer was based on data he reviewed at Monsanto Company. I'm asking him to supply the data which he reviewed to support his answer. I didn't know he reviewed the data until he told me ten

minutes ago. How can I ask something about which I have no knowledge?

MR. CARNEY: You have the report you say for at least a year and you know that there's data, backup data for the report like there would be for any report.

MR. MC CREA: I don't know that there's any data other than what's in here.

MR. CARNEY: You think that was just a made-up report?

MR. MC CREA: I assume that when they have these umpteen pages of data that that's it. I didn't know that they had broken these categories down and that that information is on file at Monsanto. They might have lots of other information there that we'd be interested in.

Q. (By Mr. McCrea) Doctor, all I'm asking you to do is give them a call and ask them if they can make that data available to you and bring that with you Friday.

MR. CARNEY: Well, I'm going to instruct the doctor not to respond to these requests that you are making at the last minute. You have been asking questions of Dr. Kelly over a period of a week and a half and I think this is is third day you've indicated that you aren't able to --

MR. MC CREA: Mr. Carney, what does that have to do with the request?

MR. CARNEY: Well, I think you are being a little bit unreasonable here after three days of asking Dr. Kelly questions, and I asked you to continue the deposition this afternoon and you're not going to do that. I asked you to continue the deposition last week when we had the -- to get, to not impose on Dr. Kelly any further and you're bringing him back now a third time so you can go back and regroup and ask more questions, and now you're asking for documents into the third day of your cross examination. I think it's improper and I'd like to conclude this deposition. We're in the third day of your examination.

THE WITNESS: This is a little --

MR. CARNEY: And I would think -- I'd like to just say one other thing, that we're talking about death certificates and those are public records that you have access to as well as Dr. Kelly. Probably better access to them.

MR. MC CREA: Not if I don't --

THE WITNESS: I know you instructed me not to answer --

MR. MC CREA: Not if I don't know their names.

THE WITNESS: You instructed me not to answer, but this may simplify it, but at the break I went

out to call the epidemiology department to find out whether the Zack study was published or not. All of them are out of the office at a convention. So I'm afraid I won't be able to do it.

MR. MC CREA: Well, I appreciate you're doing it.

THE WITNESS: Well, how can I? They are all gone.

MR. MC CREA: Oh, you can't; but I appreciate the fact that you made the call.

THE WITNESS: Yeah, okay.

MR. MC CREA: I'd like to certify the request made to Dr. Kelly that he bring the data to which he made reference in order that we may examine that data to cross-examine the doctor.

Q. (By Mr. McCrea) Dr. Kelly, what other data did you review other than the cause of death from rheumatic fever for the two individuals?

A. Well, that's all I say that I reviewed. This was the one, I called Bill Gaffey, he was also an epidemiologist who is no longer with the company, and I said what were these eight cases that we had and he told me one was a phlebitis, two were rheumatic fever and I don't know what the other one was, I think one was a stroke.

Q. Do you have the names of these eighty-nine people who died?

A. No, sir, I don't.

Q. Your counsel suggested that I could go down and get their death certificates. Do you know how anyone could do that if you don't know their names?

A. You'd have to ask Counsel.

Q. How do I do that, Tom?

MR. CARNEY: Well, why don't you ask Dr. Kelly.

MR. MC CREA: He said to ask you.

MR. CARNEY: Well, as I understand it I'm not under oath. As I understand it the deposition is Dr. Kelly, if you would focus on that maybe you could finish this deposition.

A. Well, I would say maybe you should call over --

Q. (By Mr. McCrea) Call over?

A. Call Zack, wherever she is.

Q. You don't know the names of those folks?

A. Oh, no, I don't.

Q. This study, the results of the study are in tables attached to the narrative, is that correct?

A. That's correct.

Q. And there are two reports, do you understand

that the document which I gave you includes the draft and then it includes the final report, the first half of the document, Dr. Kelly, is the draft?

A. Uh-huh.

Q. The second half is the final report, are you with me on that?

A. Yes, uh-huh.

Q. Can you go to the final report; do you have that?

A. Yes.

Q. There's a reference to page two, is there not, to Monroe County, Indiana, second paragraph?

A. Yes.

Q. Can you interpret that for us?

A. Well, it says that Monroe County Board of Health conducted biochemical tests among Bloomington Indiana, residents exposed to PCB's. Serum levels of GGT, that's a liver enzyme, and plasma triglyceride levels were found to show a direct relationship to serum PCB's.

Q. Can you explain that to the jury in terms they can understand?

A. Well, they found that people who had higher PCB levels have higher enzyme levels and higher triglycerides. How much higher I can't explain, whether they were abnormal values I can't explain because it

doesn't say.

Q. This report, they calculated the number of deaths they would expect in an average group of workers, is that a fair way to state it?

A. Wait a minute, back -- Now we're away from Indiana, we're back on Zack?

Q. We're back on the mortality study.

MR. CARNEY: Which page?

MR. MC CREA: The tables at the end of the final report.

Q. (By Mr. McCrea) Statistically, Dr. Kelly, the authors of this study made a prediction as to how many deaths should occur in this group of eighty-nine workers, is that a fair way to state it?

A. No, it isn't.

Q. Can you explain it?

A. Well, yes. They used standard mortality tables to say what, if they carried out this study in the way usual epidemiological studies are carried out they would have standard mortality which means that certain people, people of a certain age, certain sex would be expected to die of this illness, whether these things were -- they used as a control on males of the United States, males in Illinois, other males in the chemical company, other males in St. Charles County -- St. Clair

County, I don't know what you used as a control.

Q. You have no reason to doubt the accuracy of their format?

MR. CARNEY: Well, let me object, I don't know what you mean by accuracy of their format. He just testified that they're a control group. You could use males of the United States, males of St. Clair County, males of other chemical workers at Monsanto, and he doesn't know what the control group is, so I don't understand your question, it's vague.

Q. (By Mr. McCrea) Do you have any reason to believe that the protocol used by Zack and Musch was not done pursuant to acceptable scientific standards?

A. Well, I just don't know if it was, frankly, because I do not know what she used for the controls. In the Gaffey study of all the employees when they used the controls for the United States they showed an excessive lung cancer. When they idea a control the people in the neighboring county, St. Clair County there was no excessive lung cancer. So I think it depends on an epidemiological study who your control group is.

Q. Doctor, do you feel qualified to comment on this mortality study?

A. Yes, I do.

Q. And do you find any flaws in the study from

an epidemiological standpoint based upon your education, your training and your knowledge?

A. Yes, I do. I find flaws in the fact she stated that there was an increase in statistically significant increase in non-arteriosclerotic heart disease and she tried to make some assumptions that these may be related to PCB exposure, when some of the things have never, ever been considered to be associated with PCB exposure, namely rheumatic heart disease and phlebitis or inflammation of the veins in the lower legs, inflammation of varicose veins, certainly those are flaws.

Q. Any other flaws?

A. Well, I'm not sure about what her control group was.

Q. Any other flaws?

MR. CARNEY: You want the doctor to read the study?

MR. MC CREA: No, only to tell us what flaws there are in the report.

MR. CARNEY: Off the top of his head without reading it?

MR. MC CREA: He's familiar with it.

Q. (By Mr. McCrea) Doctor, you're familiar with this study?

A. Beg your pardon?

Q. You're familiar with this study?

A. Well, I am familiar with it, but I haven't gone into detail.

Q. You have been asked about it in other depositions?

A. Yes, but not in those particular terms It says here general mortality studies were made in comparison to the general United States population. I think that's a flaw. If you've got a bunch of industrial workers and you're in an industrial community where there's smog and God knows what else you have got a different mortality rate than you do in the standard United States population.

Q. What effect does smog and everything else have on the mortality rate?

A. Well, I think it's obvious that city dwellers seem to have a higher incidence of lung diseases and a higher incidence of mortality than people in less contaminated areas.

Q. All right. Any other flaws?

A. Well --

MR. CARNEY: I'm going to object again to the question because I think you're, you know, unless you give the doctor a chance to read the report, you know, may or may not contain information about confounding factors such

as smoking for example. We know that smokers have higher death rates, and I think in order to answer that question I don't mind you asking it to get his recollection. I know he's read the article, but I don't think he's put it to memory so that he has that kind of detail about a multi-page -- you have got a quarter of an inch thick report that he's looking at.

Q. (By Mr. McCrea) Doctor, is it your opinion based on medical probability that the smog from an industrial area contributes to a higher incidence of lung disease; is that what you're saying?

A. Well, yes, but let me clarify something, that you are picking small bits out of here, you neglected to mention that on the last page of this report the author stated, "The high S.M.R." --, that's standard mortality rate for white males -- "is for the most part explained by the excess of deaths from circulatory diseases exclusive of arteriosclerotic heart disease. This cause of death category concludes deaths from rheumatic heart disease, cerebrovascular disease and other forms of heart disease all of which are unlikely to be related to exposure in the workplace." And that's what the author says and that's what I said before was that I did not believe that it was related to the work.

Q. Well, then you agree with the author?

A. I agree there, certainly, yes. I didn't realize that she had come to this conclusion until I read this last bit.

MR. CARNEY: Again I think that just points out you're asking the doctor to read a sentence out of a thirty page report or however long it is without giving him the opportunity to review it. When you ask in that kind of detail I think it's inappropriate to just ask him to read a sentence without having a chance to review the article. Turns out what he said earlier his testimony the author happens to agree with.

Q. (By Mr. McCrea) What were the number of expected deaths?

A. Twenty-three.

Q. 22.88?

A. Yes, that's twenty-three.

Q. How many people died?

A. Zero.

Q. How many more deaths were there than expected then, 7.12?

A. 7.12. Remember again we're saying this, we are using all standard mortality rate for all males in the United States.

Q. Not the St. Louis area?

A. Huh?

Q. Not the St. Louis area?
A. Or the St. Charles area, that's correct.
Q. St. Charles?
MR. CARNEY: Well, St. Clair.
A. St. Clair.
Q. (By Mr. McCrea) St. Clair area?
A. Right.
Q. You have given us your explanation as to why those rates are higher?
A. Yes, and also she did not -- there may be other confounders in this. What I said about the four rules of epidemiology, I don't think she has corrected for smoking in here at all, she's not corrected for alcoholism, she's not corrected for obesity.
Q. Are there smokers in the general population of the United States?
A. Yes.
Q. Are there people that abuse alcohol in the general population?
A. Yes.
Q. Are there people that are obese in the general population in the United States?
A. Yes.
Q. Is there any indication that there were more smokers or more abuse of alcohol or and more obesity in

the people in the plant than there were in the general population of the United States?

A. Well, you're asking for a flaw and I said you have to rule out those confounders. So if she is talking about diseases of the respiratory system where she has got four as opposed to 1.53. If she hasn't ruled out smoking and compared smoking in this group with an average amount of people, of males in the United States, that's a big flaw.

Q. All right. Doctor, can you go to table 4?

A. That's where I read this last one from.

Q. And the S.M.R. for all causes of death was one point, was 131, is that correct?

A. That's correct.

Q. So that would mean it was 131 percent increase or a 31 percent increase of observed deaths compared to what they thought they would find?

A. Well, that's correct. Now again, if you notice there's an asterisk on all other diseases of the circulatory system, that means that scientifically significant, the others are not.

Q. Yeah, the others are not?

A. Under 131, that could be explained by any number of factors including chance, a 131 S.M.R. over 100 is not statistically significant.

Q. Is it suggestive?
A. No, I don't think so.
Q. What does suggestive mean in epidemiology?
A. I don't know if they use that term, I don't know. I'm not an epidemiologist.
Q. Could it be probable?
A. Huh?
Q. Could it be probable?
A. No, I don't think so. Could occur by chance, could occur by a lot of reasons, but she only picks one thing as scientifically or as statistically significant, the others she didn't.
Q. There were 4.46 expected malignant neoplasms and eight people died of that.
Q. What is a malignant neoplasm?
A. It's a cancer.
Q. So in this study that number was almost double?
A. Yes, sir, but again, there are confounders. She did not check it for smoking and she did not say that this was statistically significant. That's the point I made earlier.
Q. If it was twenty-one points higher would it be statistically significant?
A. That I don't know, but if it were

statistically significant she would have put an asterisk on there and said it was. But I can't say whether twenty -- if we had instead of eight if she had twelve would that be significant? I don't know, but according to her, her figures shows that this is not statistically significant and also she did not check her smoking and the majority of these cancers were lung cancers.

Q. Diseases of the circulatory system, expected 11.17 and observed 16, is that correct?

A. Yes, sir.

Q. Diseases of the respiratory system were about the same, digestive system, slight increase, all other diseases, about the same, external cause of death, what's that mean, like somebody gets in a car wreck?

A. Maybe you're shot or a car accident.

Q. They expected 2.38 and there was only one. Now that wouldn't have anything to do with PCB's, would it?

A. No of course not, but it shows that, I don't know. I mean, external cause of death, if a man is killed in a holdup or it's an auto accident on the way back from work that has very little to do with PCB exposure.

Q. On the S.M.R. the numbers that did exceed a hundred are one, two, three, four, five, six, seven, eight, nine, ten. The numbers that are less than a

hundred are one, two, three, four, five, six, correct?

A. Well, correct; but it doesn't mean a thing. When I say correct, I mean you added them up correctly but it doesn't mean a thing.

Q. Now if this report --

MR. CARNEY: Just a minute, you're interrupting.

A. It doesn't mean a thing because the only thing that is statistically significant is the increase in all other disease. The circulatory disease --

Q. (By Mr. McCrea) Dr. Kelly, if I -- Excuse me.

MR. CARNEY: Just a minute.

Q. (By Mr. McCrea) Were you finished?

A. No, because if you have -- take this, we have one case of a death from genitourinary it's kidney and bladder, expected half a death, so we have got a figure of 196 but from epidemiological and scientific point of view that proves nothing so the fact that you have added these up over a hundred proves nothing.

MR. CARNEY: I assume you don't think, Mr. McCrea, that the fact that there were six or seven diseases where it was less than expected that that means PCB was actually a benefit with regard to those diseases?

MR. MC CREA: No, that's -- you're the people

that subscribe to that, that PCB's are a health cure.

MR. CARNEY: I don't think that -- I tend to agree with Dr. Kelly that having one death for more or less or any amounts that are not statistically significant, I wouldn't make any point one way or another about those. I couldn't say that PCB's are a benefit or a harm based on that study. So I would agree with Dr. Kelly.

MR. MC CREA: Well, we may have you testify.

MR. CARNEY: Well, if you want to take my deposition, you're welcome.

Q. (By Mr. McCrea) Dr. Kelly, did you report, did Monsanto report this information to its workers?

A. I don't know, this was finished in what, 19 -- after 1977, so I don't know.

Q. Now Dr. Zack and Mr. --

A. She isn't a doctor.

Q. She's a what, master, has her master's degree?

A. Let's see what it says. Master of public health.

Q. And she was hired by Monsanto to do this work so they felt she was --

A. Just a moment. She was hired by Monsanto after I left. Doing this work was part of her duties.

She was not hired by Monsanto to do this epidemiological study. I don't know when she was hired, it was sometime after 1974 and when she started this study I don't know, but I do not believe she was hired to do this work.

Q. Was she competent?

A. I don't know her at all.

Q. Has anybody at Monsanto suggested that she was not competent?

MR. CARNEY: I'm going to object. There's no foundation that Dr. Kelly knows about her since she was hired after he retired.

Q. (By Mr. McCrea) Have you heard anyone suggest that she was not competent?

A. But the same -- Well, I can't answer that. I'm not sure that I ever heard anybody say that she was the best epidemiologist west of the Mississippi.

Q. Would you turn to page ten of the draft report, the last sentence. The last sentence states and this sentence, this was part of the report dated -- I don't see a date -- I don't know when the draft report was prepared, but the last sentence states, "A future study of this cohort could evaluate the mortality of workers involved from the initial through the final year of PCB production and thus have more power to detect any possible hazards of PCB exposure." Did Monsanto do another study?

A. Well, first of all to answer the question, I don't know.

Q. All right. Thank you.

A. But let me say that if you read any epidemiological study that's almost standard boilerplate, "Let's do a further study down the road and see if we find out anything else." It's not unique to this study.

Q. Doctor, your interpretation of the study for the jury is what?

MR. CARNEY: I'm sorry, what?

Q. (By Mr. McCrea) Your interpretation of this mortality study for the jury is what?

A. It's that --

MR. CARNEY: I'm going to object to the form.

THE WITNESS: Sorry.

MR. CARNEY: Go ahead.

A. That it showed no scientific statistical evidence of any illness associated with work with PCB.

Q. (By Mr. McCrea) All right. Doctor, let's move to the exhibits and if your counsel could hand you the exhibits which are numbered pages 1 through 261 and we'll have the court reporter mark that as a single exhibit and then if Counsel and I can agree to reference the various documents by exhibit number and page numbers.

MR. CARNEY: That's agreeable.

(Whereupon, Defendant's Deposition Exhibit No. 6 was marked for identification.)

Q. (By Mr. McCrea) Doctor, what is the exhibit number on there?

A. Six.

Q. Doctor, the court reporter has marked a stack of documents with Plaintiff's Exhibit No. 6; do you have that in front of you?

A. Yes.

Q. And does that show pages numbered 1 through 261 on the bottom of the entire stack?

A. Yes, sir.

Q. Doctor, you have had those documents for a couple of days. Are there -- Have you had a chance to look through them or not?

A. Well, I skimmed them, I really haven't gone through word by word.

MR. CARNEY: Let me just mention that yesterday was the first time that you gave these documents to me. I did not give these to the doctor to have overnight and I think he thumbed through them during a break for maybe five minutes. So he hasn't had a chance to read them more than a five minute just thumbing through.

Q. (By Mr. McCrea) Doctor, would you turn to

the first document which was page one?

A. Yes, sir.

Q. Can you identify the document?

A. It's a material safety data sheet form submitted by the -- of the United States Department of Labor, presumably filled by Monsanto Company on Inerteen 100 dash 2 -- dash 42.

Q. Will you turn to page two at the bottom and give us the date of the preparation of this document?

A. 1/26/72.

Q. Doctor, what is a material safety data sheet?

A. It gives information about the safe handling of various materials.

Q. Did you ever suggest on any labels which you used at Monsanto that the worker should read the material safety data sheet before working with the particular chemical?

A. No, sir. I have never seen that type of information on any label; no matter what company's product it was.

Q. If I called you in 1972 and asked you if I as a worker at the Bloomington Westinghouse plant should read and understand the material safety data sheet before working with Inerteen 100 dash 42 in order to secure my health, what would your answer be?

A. I would say, "You are working at the Bloomington plant, of the Westinghouse Electric Company?"

Q. Yes, sir.

A. "And you have foremen there and you have manufacturing people who have information of their own and information they received from us concerning the safety of working with PCB's." I would say ask your foreman about it.

Q. And if I told you my foreman doesn't know anything what would you tell me?

A. Go to the plant manager.

Q. And if I told you he can't answer my questions?

A. I would say have the plant manager call me.

Q. If I asked you to send me a material safety data sheet, would you do it?

A. Yes.

Q. What does it mean form number OSHA dash 20 at the upper righthand corner?

A. Haven't the slightest idea.

Q. Why is an emergency telephone number printed on Section 1?

A. In case there's a spill or some -- these safety date sheets have been used primarily and were originally designed for use during the transportation of

materials and they were used in case there was a truck extent or something like that and there's a whole bunch of drums spilled and that's why they have all this other data, not only health data but fire and explosion, what to do about spills, leaks and precautions.

Q. It's your testimony that material safety data sheets were intended for the people who transport the chemicals?

A. Oh, I said primarily.

Q. Primarily, and the number 314 694-1000, who would answer that phone?

A. Oh, the telephone you mean.

Q. Correct.

A. Well, that depends when it came in. I mean, if it came in at nighttime, the night watchman would do it. If you said we have got a fire here, he's got a list, fires, explosions, here's the people you call.

Q. And there were people?

A. Yes, there were people -- If he said we've got a person here who wants to know about the toxicity of this particular product, it would come to the group, in the medical department. We had our own people, a list of those with the night foreman and if it came in in the daytime it would come to our, the medical department, unless it was a fire.

Q. Did you have people with specialized knowledge to answer questions with regard to potential problems from Inerteen 100 dash 42?

A. Well, yes. We didn't have specialized knowledge about fire and explosion, that was outside our realm. We certainly didn't have specialized knowledge about what you would do to get the stuff out of the ground, whether you dig it up or put kitty litter on it or God knows what, but we certainly had expertise as far as what safety precautions should be used in cleaning it up.

Q. Your testimony was you didn't have specialized knowledge with respect to fire and what to do if it got in the ground?

MR. CARNEY: Are you talking about Dr. Kelly or Monsanto?

MR. MC CREA: Monsanto.

A. Oh, Monsanto did. I said the medical department was responsible for the health and safe handling. We had people in the manufacturing group that would be available and the transportation group that would be available to tell them how to clean it up.

Q. (By Mr. McCrea) So there were various people with specialized knowledge who could answer questions regarding the use and/or emergencies involving Inerteen 100 dash 42?

A. Oh, yes.

Q. What is Inerteen 100 dash 42?

A. Inerteen is a Westinghouse product that consists of PCB's and seventy percent and a certain amount of trichlorobenzene. I don't know which PCB it is, whether it's 1248, 1252 and I believe the trichlorobenzene is around thirty percent. I don't know what 42 means, whether that's 42 percent trichlorobenzene, but it is a significant amount of trichlorobenzene in it.

Q. It says chemical family, chlorinated aromatic? What is a chlorinated aromatic?

A. Well, it's a -- an aromatic chemical is one that has the benzene ring in it. Chlorinated means it has the chlorine molecule on it, chlorine atom on it.

Q. Do you list the hazardous ingredients of Inerteen 100 dash 42?

A. We list the thing as a whole.

Q. That doesn't tell you what's in Inerteen 100 dash 42, does it?

A. No, it did not.

Q. Why not?

A. I don't see why you need to tell the ingredients. You tell them what to do and what the hazards are.

Q. Well, it's got a section, Section 2,

hazardous ingredients, were there hazardous ingredients in Inerteen 100 dash 42?

A. Yes.

Q. And but you don't know what they are today?

A. What do you mean I don't know what they are today? Sure I know what they are today.

Q. What were they?

A. PCB's and trichlorobenzene.

Q. What does it mean TLV, under hazardous ingredients, it has a column TLV.

A. Threshold limit value.

Q. Explain it to the jury.

A. The threshold limit value is a figure that shows the amount of the material that can be at the safe level of a material that can be in the air in an eight hour day over a worker's lifetime.

Q. If you exceeded that level by four or five times for one day would that be a problem?

A. No. Are you assuming that here is a truck spill on Interstate 70 --

Q. No, in a plant, in a plant. That doesn't apply to a truck spill, does it?

A. Yeah, sure it does.

Q. TLV.

A. The man isn't going to be taking a TLV when

he's got a truck leak out on Highway 70.

Q. That applies to the person using it?

A. That's correct, but it also applies primarily as I said to transportation, that was what this -- the genesis of this. That's what these things started with, the Department of Labor, not OSHA, not NIOSH.

Q. And if you exceeded the TLV by three or four times for one day for a week or a month would that be problem?

A. I don't think so.

Q. And if Westinghouse called you on January 26, 1972 and asked you if you exceeded the TLV by three or four or ten times for a one one day period your answer would have been the same?

A. Yes, I would say get it under control but I don't think you're going to have any trouble; because there are reports of people, places where they have exceeded it for a considerable period of time with no ill effects.

Q. And if I called you from Westinghouse and asked you that same question, Dr. Kelly, are there reports of people who were exposed to excessive levels of PCB and trichlorobenzene and would your answer be yes, there have been and they suffered no ill effects?

MR. CARNEY: Well, let me object to the form

of the question. When you ask about excessive levels you have not defined that. So it's a vague question.

A. Yes, I'd say what levels?

Q. (By Mr. McCrea) Four or five times the TLV.

A. For how long?

Q. A week.

A. I'd say that wasn't going to bother anybody.

Q. Ten times the TLV for a month?

A. I would say you better -- there have been -- I would say there have been no reports of any ill effects in the electrical industry. In 1972 you're calling me I will say there have been no reports of any illness in the electric industry from using PCB or we're talking about here Pyrenol. We certainly do not recommend that you exceed the TLV ten times for a month but there have been no reports of ill effects. You certainly should -- well that's it.

Q. By stating to the caller that there have been been no reports of ill effects that indicates that in all of the industry situations with all of the exposures there were no problems?

A. No, it doesn't at all. I said there have been no reported ill effects.

Q. And you would have communicated that in 1972 and intended the caller to rely on that statement?

A. I would tell the caller -- he asked me, if -- Let me get this very definite. You've told me that this caller has said we're going ten times the maximum allowable concentration for a month, what do you think is liable to happen or is this all right?

Q. Correct.

A. I would say one, no, it isn't all right, you should get back, you should police up the thing so that you get back under the allowable concentration. If you ask me then I would say as far as I know there are reports in the literature that shows people who have worked in exposures over the TLV for longer periods than a month and have showed nothing with the exception of some foreign places where they have showed chloracne, but we do not recommend that you keep doing this.

Q. If I called you in 1972 and I say, "Dr. Kelly, we just tested our manufacturing area and we found out that for the last six months the ambient air levels have exceeded the TLV by three or four times and we have workers complaining, complaining of lassitude, of loss of appetite and loss of libido, but they do not have any chloracne, should we be concerned?"

A. I would say yes, you should be concerned because you have exceeded the TLV and you should examine the workers to see if they have any demonstrable physical

effects.

Q. I have said Dr. Kelly these workers are complaining of lassitude, loss of appetite and loss of libido, but -- and we know they have had a heavy exposure but -- or at least it's about two times the TLV but none of them have chloracne. Dr. Kelly, in your opinion, based on your experience with Monsanto do you feel there is a causal relationship between their exposure and those symptoms?

A. No.

MR. CARNEY: I'm going to object. Are we talking about what type of plant? I don't think he mentioned PCB's but I'm assuming that you are talking about a plant with PCB's where they are exceeding the levels and I think he has said two times --

A. Well, I'd say these people do not have chloracne. You have examined them I presume?

Q. (By Mr. McCrea) Yes.

A. And they have no other findings?

Q. Yes.

A. They have no other findings, physical examination is negative, laboratory examination is negative, I would say I would -- if these were negative and they have no chloracne I do not believe that these symptoms were a result of their exposure at work.

Q. Thank you, Dr. Kelly. Section 3, physical data; can you briefly explain that to the jury?

A. Well, I don't know what there is to explain. The physical data means is it a solid, is it a liquid, is it a gas, what's the specific gravity, is it soluble in water, what's its vapor pressure, does it have an odor?

Q. So it's odorless oil?

A. Colorless oil, it says.

Q. Colorless?

A. It says aromatic odor.

Q. Aromatic odor, sorry, I couldn't read that on my copy. So that just tells you those things?

A. Yes.

Q. Fire and explosion hazard data, section 4, flash point COC 180 degrees C. What does that mean?

A. Well, again, I'm not a fire and explosion expert. Flash point means at what temperature does this material explode, I believe. I can't answer that, that's an fire question, it gets a little involved. I don't know what C.O.C., that's a type of test that they do; but 180 degrees C is a pretty high temperature inasmuch as a hundred degrees C is boiling water, so you've got to get it up there before it ex -- before it catches on fire. I can't -- I can't explain it any more than that.

Q. Special fire fighting procedures. It says

where respiratory protection when fighting fires, where exposure to vapors or gases is possible, why? Why is that in there, Doctor?

A. Why is it in it? Because we want them to wear a respirator around a fire where this is burning.

Q. And what are the concerns?

A. Well, I don't think you want to inhale the product of combustion of any fire.

Q. But Doctor, this material safety data sheet doesn't concern anything but Inerteen 100 dash 42?

A. Well, I know that, but if Inerteen is burning and you've got a lot of fumes coming off you want to wear respiratory protection. If you got a bunch of clothes and papers burning in the garage, I'd advise the same thing. You don't want to be around a fire where you can inhale a lot of fumes, that's not good for you.

Q. All right, sir. Next it says and I can't read the small print --

A. "Highly toxic gases, chloride" --

Q. Above that is what I am talking about. It says something fire and explosion hazards?

A. Oh, I can't read it, I --

Q. All right. At any rate, it says, "Highly toxic gases, chloride and chlorine could be evolved in fires of this product." Is that a correct statement?

A. Yes, sir.

Q. The next page, section 5, "Health Hazard Data," and it says, "Threshold limit value, not available." You've already defined the threshold limit value, why was it not available?

A. The mixture.

Q. Why was there no, why were there no numbers for the threshold limit value?

A. Because it hasn't been run on a mixture, it hasn't been set by the government hygienist group on the mixture. They had set it for trichlorobenzene.

Q. What was it?

A. And I presume they had set it for --

Q. PCB?

A. The PCB.

Q. But not the combination?

A. Not the combination.

Q. All right. It says effects of overexposure, what is overexposure, what does that mean?

A. If you get too much -- I don't know if I can define exposure, you get either inhalation or absorption through your skin, that's the exposure and you get too much.

Q. All right. Break time.

(Whereupon, a short break was taken.)

Q. Dr. Kelly, back on the record after a short break.

A. Yes, sir.

Q. Under section 5, Health Hazard Data, which is page two, Exhibit 7?

A. Yes, sir, what --

Q. What's the exhibit number?

A. Six.

Q. Of Exhibit 6, there is a box under section 5, health hazard data and the first heading you explained threshold limit value, the next one is effects of over exposure. Can you as the medical director of Monsanto Company give us a working definition of overexposure for Inerteen 100 dash 42?

A. No, sir.

Q. If I called you up on January 26, 1972 and informed you that I was a worker at the Bloomington Westinghouse plant and I would like to you to define overexposure for this product you could not do it?

A. Well, I couldn't do it as a matter of figures. I would tell him how to avoid overexposure which I believe is what the man would want.

Q. If I asked you for a definition of overexposure could you do that?

A. Well, I would say tell me what you're doing

and I will tell you whether you're overexposed or not. Remember this overexposure was not my definition, that's government's definition, that's Department of Labor. Maybe you should call them and ask what's overexposure.

Q. But Monsanto is answering and supplying the information in that box, correct?

A. Yes, sir.

Q. TLV has a definition, correct?

A. Yes, sir.

Q. But there is not a working definition for the common man of overexposure, he says under what conditions is there overexposure, you couldn't tell him?

A. Well, I guess I could tell him. I would say if you're breathing the material at elevated temperatures and if you're breathing material at amounts over the accepted TLV for the ingredient of this material and if you're getting your clothes repeatedly or continuously soaked and contaminated with the clothing, that's overexposure.

Q. If he asked you for a definition of overexposure on a long term basis could you give him the same answer?

MR. CARNEY: Are you talking about safety data sheet?

MR. MC CREA: No.

Q. (By Mr. McCrea) If a worker called in 1972 and asked you to define over exposure to Inerteen 100 dash 42 over a period of ten years could you have given him a definition?

A. Well, I wouldn't be able to tell him what, tell him what his working conditions were over ten years. I mean, if he would explain his working conditions to me I could tell him whether that was overexposure or not.

Q. If he said he detected the odor of Inerteen every day he was in the plant every day for ten years, maybe not all day but during portions of the day and he asked you, "Doctor, do you think that amounted to overexposure and should I be medically monitored?" What would you tell him?

MR. CARNEY: Objection to the form.

A. No. That's not overexposure, the threshold limit value is much higher than the odor threshold.

Q. (By Mr. McCrea) The threshold limit value is much higher --

A. You can smell it. You can smell it well below the threshold limit value.

Q. If he said that, "I worked in the plant for six years and once a week we would open the vapor flume and this is the Muncie transformer plant, my eyes would burn, my nose would drain, my throat would burn," do you

think that was overexposure, Doctor?

A. Well, I'd have to ask him how much. How long were you in there? How long did the eyes burn? How long did your nose burn? How long did your skin itch?

Q. Thirty minutes a day once a week for four or five years.

A. I would have to see it for myself. I would not be able to answer whether exposure in a plant based on a telephone description of somebody's job, I would not be able to answer that.

Q. If a worker called you and stated that he had headaches twenty-five percent of the time that he was working in the area with PCB's would you think that was overexposure?

MR. CARNEY: I'm going to object, I don't think you've given enough facts. Describe the conditions, describe the other chemicals, describe the severity of the headaches. I think there's a whole myriad of facts that you'd have to give to be able to answer the question.

A. I wouldn't answer them. I would say, "Look, I don't know what the cause of your headaches are. What you should do is go and see your plant physician and ask him to find out what the cause of your exposure is" -- I mean, "what the cause of your headaches is, and whether or not exposure to PCB has caused these headaches." I would

say, "We do not have headaches in our workers, but I don't know what the situation you're working in is."

Q. (By Mr. McCrea) It would be your response then that you don't know if headaches can be a symptom of exposure to PCB's?

A. That isn't what I said. I said I do not know if you're headaches are coming from your PCB exposure.

Q. Well, if he said he works in PCB's and that's all he works in and he experienced headaches, would you consider that as a sign of overexposure?

A. No. I would not, because there are a myriad of causes of headaches, ranging from brain tumors to constipation.

Q. You understand we're talking about a worker --

A. Yes, a worker --

Q. -- with PCB's?

A. -- working with PCB and he says, "I have got headaches, am I overexposed to PCB?"

Q. The answer would be no?

A. I would say, "You're not giving me enough facts. I don't know whether there are other causes, other conditions that may be giving your headaches. I do not know what the conditions of your presumed overexposure is. I don't know if you're overexposed."

Q. If he called you and said that he's experienced nausea?

A. I would certainly not make a diagnosis over the phone on an interstate telephone call.

Q. But he's just asking for your advice and he wants to know could that be an indication of overexposure, what would your answer be?

A. I don't believe it would.

Q. He said he's experienced vomiting, what would your answer be?

MR. CARNEY: You're asking -- first of all, I think the Doctor said he wouldn't make a diagnosis. He told you how elaborate his examinations are, and now you're asking him to say if somebody calls him up and says they have had vomiting and he works with PCB's --

MR. MC CREA: He just want his advice as to whether or not that would be an overexposure to PCB.

A. My advice would be get yourself examined and find out. I can't tell him whether that's an indication or not, barring everything else, no, I wouldn't dream of doing that.

Q. (By Mr. McCrea) If he said he's experiencing loss of weight, and he wants to know if that could be a sign of overexposure, what would you say?

A. I would say find out what the cause of your

loss of weight was.

Q. He said he experienced edema, what would your answer be?

A. Edema where?

Q. I don't know?

A. Well, I sure wouldn't know either.

Q. He says he experienced abdominal pain and he wants to know if that could be a sign of overexposure, what would that be?

A. I would say you better get your abdominal pain diagnosed.

Q. Dr. Kelly, would you read the effects of overexposure as published by Monsanto Company?

A. Yes, sir. Skin irritation, in the form of chloracne, systemic intoxication leads to nausea, vomiting, loss of weight, edema and abdominal pain.

Q. Emergency and first aid procedures?

A. Yes, sir. May I add something to that effects of overexposure? You realize we are talking here about acute overexposures, we are talking here about the individuals who inhaled the material at elevated temperatures from the heat transfer units. We are talking here also about a safety data sheet that's supposed to, was originally designed to cover transportation accidents where there's a fire and what we would expect if you had

overexposure at fire, you would get, you may get systemic intoxication, which would lead to nausea, vomiting, loss of weight, edema and abdominal pain.

Q. Doctor, where does it say the effects of overexposure from a fire in Section 5, Health Hazard Data? Where does it say the that?

A. It doesn't state that at all. You're trying to cover all the bases in two lines.

Q. I want to ask you where it states --

A. It doesn't state it.

Q. Is it your --

MR. CARNEY: On this page or on the prior page? It talks about fire right in the section immediately adjacent to it.

MR. MC CREA: I understand that. I'm asking the doctor where in Section 5 it suggests or implies that the overexposure is the result of a fire as he just testified.

A. No, it does not.

Q. (By Mr. McCrea) It says effects of overexposure, period, correct?

A. Is that right?

Q. There's no --

MR. CARNEY: I don't see any period.

MR. MC CREA: Well, I didn't mean, Tom, a

period like that, (indicating). What I meant was effects of overexposure, period, no more information.

MR. CARNEY: Well, there's some words below that. I thought I was trying to be accurate.

A. What is your question, Mr. McCrea?

Q. (By Mr. McCrea) My question is that nausea, vomiting, loss of weight, edema and abdominal pain according to you in your testimony would not be signs of overexposure; yet on the material safety data sheet published by the company for whom you worked during the time period you worked they're all listed as effects of overexposure; how do you explain that?

A. Well, I'll explain it very easily. I wrote and I put this down because those symptoms did occur from overexposure from inhaling the material at elevated temperatures.

Q. Where do you get the information that nausea resulted from exposure to inhaling the materials at elevated temperatures?

A. In the article by Dr. Spoyer about the three people that inhaled the material in a jury rigged heat transfer unit where they were exposed for one to three days of the material leaking at elevated temperatures where they had nausea, vomiting, loss of weight, edema and some abdominal pain due to an enlarged liver.

Q. Now you wrote this and you mentioned edema but you don't explain where it is. Can you tell us now where the edema occurred?

A. No, I don't.

Q. But you wrote it?

A. I wrote it eighteen years ago and I don't know where the edema was.

Q. Do you appear down at the bottom under any of the initials JAG, HOH, GTG, WVP?

A. No, sir, I'm REK. I'm not on any of those.

Q. But you did write this?

A. Yes, I wrote that part, I wrote the health hazard data certainly.

Q. What is meant by edema?

A. Swelling.

Q. Where?

A. Any place, you have edema under the eyelids, you have an edema of the legs from heart disease, you get edema a lot of places.

Q. What areas of the body can be effected by edema from overexposure to Inerteen 100 dash 42?

MR. CARNEY: Objection to the form of the question.

A. I don't know. It's never been reported to my knowledge.

Q. (By Mr. McCrea) I thought you put this down as a result of your report?

A. Yes, but one of the ingredients of Inerteen was a PCB which was used in the heat transfer unit.

Q. You included edema as an effect of overexposure based on a report which you read, where did the edema occur in that report?

A. I don't remember where it occurred; but I really don't know what difference it makes. If they did have swelling any place, it wouldn't make much difference whether it was swelling under the eyes or in the legs.

Q. How do you explain the abdominal pain as a result of overexposure to PCB's or Inerteen 100 dash 42?

A. Involvement with the liver.

Q. And what involvement with the liver causes the pain?

A. Swelling of the capsule of the liver.

Q. How do you explain loss of weight as a result of overexposure to Inerteen 100 dash 42?

A. If they are nauseated and they are vomiting and their liver isn't working very well, at subpar functioning you could have loss of weight.

Q. How do you explain edema?

A. I can only explain it if the liver were so swollen that it would press on the veins leading into it

which would give an edema, but that doesn't seem a very prominent to me. I -- if I remember writing this in 1980, 1990 I probably wouldn't put edema in. I'd put the others in.

Q. Emergency and first aid procedures under Section 5, Health Hazard Data again, page two, states "Remove from exposure, remove contaminated clothing, wash contacted area with large amounts of water and soap, refer to physician." Define contaminated clothing. Did you write this portion?

A. Yes.

Q. Define what you mean by that.

A. Contaminated clothing is wearing apparel that has something on it that you don't want.

Q. It says refer to a physician. Do you -- did Monsanto have a method in place wherein they educated local doctors on the effects of overexposure to PCB's and what the local doctor should do?

MR. CARNEY: Let me object to the form of the question, it's compound.

A. Well, to answer your question, no, we did not. We did have numbers that any physician could call us and ask for information about the first aid or further treatment of workers and as I said in my thirty-eight years with Monsanto I probably had less than five calls.

Q. (By Mr. McCrea) A doctor calls you in 1972 and he says, "Dr. Kelly, I'm Dr. Smith in Bloomington, Indiana. I have a worker from the Westinghouse plant who has skin irritation in the form of chloracne, systemic intoxication which led to nausea, vomiting, loss of weight, edema and abdominal pain. What should I do for him?" What's your answer?

A. Remove him from any exposure to PCB. Here we have a man who has exposure, sufficient to give him chloracne, sufficient to give him deranged liver function. Remove him from exposure, send him to a dermatologist for the treatment of the chloracne, give him a high carbohydrate diet for his liver, follow him closely and call the plant and say, "I have this man who has what I have diagnosed as a condition resulting from PCB. I think you ought to look into this matter." And then I would call the plant myself if I had gotten that call.

Q. If he asked you if there were any other signs or symptoms that he should check for what would you tell him? What would you have told him in 1972?

A. I wouldn't have told him anything. He told me everything he needed, he had liver problems and he had skin problems. And --

Q. If he asked you if he should check --

MR. CARNEY: Just a minute.

A. He had liver problems and he had skin problems, they are treating the whole individual. He doesn't care what other symptoms he has. He wants the man to get well, so he's treating his liver and he's treating his skin.

Q. (By Mr. McCrea) If he asked you to be on the lookout for any other consequences to his health what would you tell him?

A. I'd say check on any possible peripheral neuritis.

Q. Anything else?

A. No. I'd probably also say you ought to report this case because that would be the first in the literature.

Q. If he mentioned he had joint pain and he wanted to know if that was a cause of the exposure what would your answer have been in 1972?

A. Same as today. I don't believe it's related.

Q. If he said he had loss of libido, what would your answer be in '72?

A. I would check out other causes.

Q. If he said he had lassitude what would your answer have been?

A. Well, I'd say if you have got loss of weight and you have liver problems you could very well have

lassitude.

Q. He said he was irritable, would you have related that to the exposure?

A. I don't know. I mean, it all depends, you'd have to tell me more about the situation. Just irritable, how long, when? But I think you're a little unrealistic because the doctor would be call me about the man's medical condition at the present time. He would not be interested in the symptoms. He'd be interested in is there anything else of a major condition that I could expect and I would give him the only other one that I would think would be important.

Q. If he asked you if there were any medications which he should not give to the person, what would you tell him?

A. I would say don't let him take any alcohol.

Q. Why?

A. Because alcohol has an effect on the liver. If you drink alcohol you destroy some liver cells.

Q. Is that particularly true if a person's been exposed to PCB's?

A. No. But it's true of everybody in the United States.

Q. If he said he wanted to go out and have something to drink would you tell him no, you shouldn't,

because of the PCB exposure?

A. I'd say not because of the PCB exposure; I'd say you presumably have a liver problem. If you have a liver problem you don't want to add any other problems to it and alcohol is one of them.

Q. And would that hold true for a person who has a mild liver problem?

A. What is meant by mild?

MR. CARNEY: Objection to the form.

Q. (By Mr. McCrea) What is meant by mild is what we discussed in the Zack article as reported in the City of Bloomington, Indiana which stated in 1976 the Monroe County Board of Health conducted biochemical tests among Bloomington, Indiana residents exposed to PCB's, serum levels of gamma glutino --

A. GGT.

Q. GGT, and plasma triglyceride levels were found to show a direct relationship to serum PCB levels. If that doctor called you and said, "Dr. Kelly," and said "This individual has elevated GGT and plasma and triglyceride should he drink alcohol?" What is your answer?

A. First of all you have made several earlier comments about the Zack article in this question and when I answered the question you said liver problems. Zack did

not say these people had liver problems. She said they had -- that the levels of GGT and the triglycerides were proportional to the PCB levels.

Q. Correct.

A. She didn't say they were increased as I saw them.

Q. That's true.

A. So if this man said this person has high triglycerides and I said that doesn't bother me, particularly alcohol bringing up high tri -- gives you high triglycerides anyway. I'd say as far as the GGT is concerned I'd say how high is it, and if it's elevated twice as much I'd say he shouldn't take alcohol until it comes down.

Q. All right, sir. Any other medications that you would advise the doctor not to administer to this individual with these symptoms which Monsanto has listed under its Health Hazard Data, January 26, 1972 for Inerteen 100 dash 42?

A. I'd have to remember what medications were being used in 1972. I mean, there may have been some and I am more familiar with them but I can't answer that right now.

Q. You stated that you had less than five calls from doctors, can you recall any of them?

MR. CARNEY: I don't think that was his testimony.

MR. MC CREA: He said during the time that he was medical director at Monsanto he probably had less than five calls from physicians.

MR. CARNEY: I don't know that he said -- I think he had a total of five calls with regard to problems with PCB's. I don't think they were all from doctors, as I recall.

A. No, one was a call that I initiated myself to the Indiana one.

Q. (By Mr. McCrea) To the whom?

A. The Indiana one, where the heat transfer outfit.

Q. Indiana?

A. It was Indiana, in Indiana, it was written up by Dr. Spoyer, the Department of Industrial Hygiene or Public Health of Indiana. Another one was this, a thermometer company someplace in New England where the people had some of the women had chloracne from dipping their hands into the material, that was the first call I had so I wanted to see it because I wanted to see what they were doing and I said why don't you use some sort of a gimmick that you don't have to put your hands in there and it went away. That was number two.

The third was from some company, I believe it was the Crown Chemical Company in the East someplace where the man said again we had an exposure but -- he didn't, again, but he said, "We had an exposure of people inhaling hot PCB's from a heat transfer unit. These people are -- have some nausea. They do have" -- I don't know if he said they had vomiting or not. "What do you think?" I said "Well. Obviously, correct the situation, get them out of there and watch for liver involvement," and I followed it up in a week or so and he said, "Yes, they did show some slight jaundice." Followed up in couple months and they were all well. I can't -- so I said less than five, I don't recall any others. Those are the three. I never got a call from anybody in Bloomington, Indiana.

Q. Reactivity data, hazardous decomposition products, it lists CO, can't read it.

A. Yes, carbon monoxide, carbon dioxide, smoke, soot, chloride and chlorine.

Q. And that was the information known in '72?

A. That's correct.

Q. Would you now list furans?

A. I think we would, yes, if we were making it still.

Q. Would you list anything else?

A. Well, in this Inerteen we would probably list

dioxin.

Q. Anything else?

A. No, sir.

Q. Spill or leak procedures, do you know what is meant by an improved chemical landfill?

A. Sure. It's a landfill that's approved by government authorities.

Q. Did Monsanto dispose of its PCB's in an approved chemical landfill in 1972?

A. I think they burned it in the incinerator we had over at the East St. Louis plant.

Q. Did they ever use landfills?

A. I don't know whether they did or not. They may very well have, I don't know.

Q. Do you know where your PCB's were disposed?

A. No, I don't.

Q. Were there PCB's that were disposed from 1936 to 1974?

A. Is that a question?

Q. Yes.

A. What was the question?

Q. Were there PCB's that were disposed by Monsanto from 1936 to 1974?

A. Yes, I am sure there were.

Q. But you don't know when you started, you

don't know anything about that?

A. No, I don't know when landfills were first approved.

Q. Under special protection information, respiratory protection, Bureau of Mines approved respirator for organic vapors, if I called you in 1972 and I said, "Dr. Kelly, when should I as a worker wear a Bureau of Mines approved respirator for organic vapors for Inerteen 100 dash 42?" What would you tell me?

A. I'd say you have to tell me what you're doing and I'll tell you whether you need a respirator at that time.

Q. If I told you I was working an F-30 near the capacitor impregnation tanks?

A. I'd say I do not know what the levels would be at that capacitor impregnator plant. I believe you will have to ask your plant safety man about that. I said we recommend against inhaling of fumes at elevated temperatures.

Q. And if I ask -- Go ahead, excuse me.

A. And I don't know if there was a TLV located at that particular time because remember now we're talking about capacitors, we're not talking about Inerteen. That's a transformer fluid, it's not used in capacitors.

Q. If I asked you for the best guidelines

available as to when I should wear a Bureau of Mines approved respirator based on this information in your material safety data safety sheet what would you tell me?

MR. CARNEY: Other than what he's already said?

MR. MC CREA: Correct.

A. I don't know. I don't think I have anything else to add to it.

Q. (By Mr. McCrea) What are the best guidelines, what can you tell me?

A. Well, if the material is used at elevated temperatures for more than a short time and I couldn't quantify a short time because I don't know how long he's working and I'd say he ought to put a respirator on. If you're in doubt put one on.

Q. Did you ever issue a warning to that effect?

A. We told them to avoid inhalation of the fumes at elevated temperatures and when they are in confined spaces and there are any number of ways that you can do that. One is not go in there, No. 2 is wear a respirator, No. 3 is have changes of air and No. 4, would be a kind of vacuum, a collection of the fluid, of the material.

Q. Did you ever issue a warning that workers should wear a Bureau of Mines approved respirator when working with Inerteen 100 dash 42 at elevated

temperatures?

MR. CARNEY: Objection. He just answered that question, you're getting awfully repetitive.

MR. MC CREA: I did not get an answer.

MR. CARNEY: I think he did answer. You didn't like his answer. He said he didn't did warn about elevated temperature and there's a number of ways you can do that. He didn't spell out all the ways.

MR. MC CREA: I agree that was the answer. I'm asking did he ever warn a worker that he should wear a Bureau of Mines approved respirator when working with Inerteen 100 dash 42 at elevated temperatures?

A. I don't remember ever talking to a worker.

Q. (By Mr. McCrea) Did you ever put it in writing?

A. I said avoid it. I left this to the users.

Q. Did you ever put it in writing?

MR. CARNEY: Are you talking about --

MR. MC CREA: Just a second. Just a second please.

Q. (By Mr. McCrea) Did you ever put in writing a warning that a worker should use a Bureau of Mines approved respirator when working with Inerteen 100 dash 42 at elevated temperatures?

A. I don't know if I did or not.

Q. Under Section 8, special protection information, local exhaust for vapors. If a worker called you and asked you under what conditions a local exhaust should be used for vapors, what would you tell him in '72?

A. I would say, "I can't give you a general statement on this. I don't know in the first place whether local exhaust could be available for your particular application and other modalities must be used." I would also say I don't know -- Well, I would say, "I think you will have to ask the manufacturing people in your group as to where this should be done." This says if this local exhaust needed; yes, it's needed if there are vapors around there, but I can't define how much vapors is at somebody's plant.

Q. If I asked to you define that, could you?

A. How much is too much?

Q. Yes, sir.

A. No, sir. I can't define how much is too much. Too much is what will give you harm.

MR. CARNEY: I didn't get a chance to object but I'm going to object to the form of that question, because it's vague.

Q. (By Mr. McCrea) Special Precautions, Avoid Skin and Eye Contact. If I asked you in 1972 to tell me why I should avoid skin and eye contact and what is meant

by that, what would your answer have been?

A. There is two questions now, let's separate them, will you?

Q. If I asked you why to tell me why I should avoid skin contact?

A. Because the material may be harmful. If you get enough of it on you and it gets absorbed.

Q. Did you ever issue a warning that PCB's go through the skin and can poison the body?

MR. CARNEY: Let me object to the form of the question. It contains undefined terms. A warning to who?

MR. MC CREA: To the workers.

A. I said I gave the warning to avoid the skin contact, on a gasoline truck; it says avoid smoking, it doesn't say this is going to blow up if you smoke around here. I mean, to answer your question, no, I did not, in those words, but I said, avoid skin, repeated or continuous skin contact, that's certainly --

Q. (By Mr. McCrea) That could mean everything from irritation to poisoning of the body with PCB's?

A. Was that a question?

Q. Yeah. Did you tell them why to avoid skin contact?

A. No, but if you tell a person what to avoid, you are avoiding any illness. You don't have to tell them

what illness is it he's avoiding.

Q. But if the worker thinks it's going to result in a little skin irritation it may not bother him. If he knows it's going to poison his body it could.

A. Well, I don't agree with that because we have had these warnings for forty years and we've had no trouble, no report of illnesses.

Q. We'll debate that at another day, Doctor.

A. I cannot hear that.

Q. We'll debate that at another day.

A. That's fine.

Q. Special precautions, eye contact, why should you avoid eye contacts, why should you avoid PCB's in the eye?

A. The same reason you'd avoid putting turpentine in your eye, it's irritating to your eye.

Q. Is that all?

A. That's all.

Q. Can it be absorbed through the eye into the body?

A. A drop of it, sure, it would be, but that would be of no consequence. It's the local effect you're worried about.

Q. Avoid inhalation of vapors. What's the reason for that?

A. Because you're getting absorption of the material through your lungs.

Q. All right. Doctor, turn to page three. Can you identify for us what Capacitor 21 is under Section 1?

A. No, I can't.

Q. Did you prepare this?

A. Yes, sir.

MR. CARNEY: Are you talking about the entire document?

A. No. The health hazard, the data.

Q. (By Mr. McCrea) You prepared the data?

A. Yes, I gave the data to J.T.G., who was Jack T. Garrett, who was in our department and he put this in, he was also the environmentalist in our department.

Q. Okay.

A. At the time I prepared that I knew what Capacitor 21 was.

Q. Can you go to Page 5? Can you tell us under Section 1 in the material safety data sheet what Inerteen PPO is?

A. It's a transformer fluid that contains some PCB, I don't know which one and a certain amount of I believe trichlorobenzene. I'm not a hundred percent certain.

Q. Can you go to page 7? Can you tell us what

Inerteen 54201 KJ is?

A. I would not know what the other thing outside of it does contain PCB's.

Q. Can you go to page 9? Can you tell us what Aroclor 1242 is?

A. That's a PCB chlorinated to 32 percent.

Q. Anything else other than PCB?

A. No, sir.

Q. And can you go to health effects, excuse me, can you go to Section 5, Health Hazard Data. Is that precisely and identically the same as the health hazard data for Inerteen 100 dash 42?

A. Yes, sir.

Q. And you prepared that information?

A. Yes, sir.

Q. And gave it to Mr. Garrett?

A. Uh-huh.

Q. And he put it on the sheet?

A. Yes, sir, or he gave it to the person that made the final editing of it.

Q. Please turn to Page eleven, what an Aroclor 1016, MCS if I am reading that correctly, 1016?

A. That is an Aroclor, a PCB chlorinated to fifteen percent, and I think MCS was a phrase used when it was used for other than electrical uses.

Q. It's chlorinated to sixteen percent?
A. That's correct.
Q. And the same effects of overexposure appear but the second line, Emergency and First Aid procedures is blank; is that a fair statement?
A. Yes.
Q. As to what appears in Section 5, Health Hazard Data, page 12?
A. Yes, sir. 1016 as I recall was a more or less an experimental product that was never used widely at all, if at all, in the industry.
Q. But it was on the market on the date of January 25, '72?
A. No, I can't say it was on the market. They may have shipped out experimental quantities or they may never have shipped any, I don't know.
Q. All right. Next page, thirteen. Can you identify this exhibit, Dr. Kelly, which is titled Monsanto Product Specification, Monsanto Industrial Chemical Company, date effective June 10, 1975 which would be after your departure from Monsanto?
A. Yes, sir. I can identify it not anymore than what you just said, its a product specification of 1016.
Q. All right. Sir. Page fourteen, can you identify this Monsanto document which at the top has

Monsanto, Monsanto Company Corporate Medical Department, Toxicity Information, Toxicity Information on Aroclor with looks like a trademark sign, 1016, capacitor dielectric?

A. Well, it's just what you said.

Q. Have you seen this document before?

A. No, I haven't. This I believe also occurred after I left.

Q. Under the sixth paragraph it says, "Aroclor 1016 has a negligible vapor pressure at room temperature and it is not expected to present a significant vapor inhalation hazard under ambient conditions." Does that mean it doesn't evaporate?

A. That's right, ambient means the air in this room.

Q. It says, "However, precautions should be observed to avoid inhalation of increased vapor concentrations, which may occur if Aroclor 1016 is used at elevated temperatures." Is that --

A. Is that a question?

Q. No. It states that, correct?

A. Yes.

Q. Why is that stated?

A. That reason if you heat it up, more comes off and you shouldn't breathe the fumes.

Q. Under the last paragraph, environmental

hazards, it states, "During the past several years evidence has accumulated to indicate the polychlorinated biphenyls are widely dispersed throughout the environment and that they can have adverse ecological and toxicological effects." Do you agree with that statement?

A. Yes, but remember we have got to define what is a meant by toxicological effects. Toxicological effects on shrimp, toxicological effects on birds?

Q. Does that -- Would you define that for us? What is meant in that paragraph when Monsanto states toxicological effects?

MR. CARNEY: Let me object to the question. I think this document is dated 11/4/1975, at least that's the date that appears at the bottom of the left-hand side and I think there is no foundation that Dr. Kelly wrote this or even saw this document. He may be able to answer your question but if you're asking him to say what does some words mean where he didn't author them might be asking for speculation.

A. I have an answer. This is under environmental hazards?

Q. (By Mr. McCrea) Yes, sir.

A. At that particular time in 1975 the environmental hazards were to avian species which were birds because they will lay eggs with thin egg shells and

when they would try to nest on these eggs there would obviously be no progeny, no chicks. It was also had toxicological effects on lower marine organisms, shrimp and species below the shrimp so that's what they meant by adverse ecological, it's bad for the peregrine falcon, the bald eagle and the toxicological effects on the bald eagle and peregrine falcon. You had to read that in context with environmental hazards what you're talking about. They are not talking about people there.

Q. Was there a risk to people as a result of the environmental contamination by PCB's?

A. No, sir. There was none.

Q. Is it your opinion today based on all of the knowledge which you have from Monsanto Company and your sixteen years of experience since last working for them that there is no risk to humans from environmental contamination by PCB's?

A. Yes, and you could add to that all the government publications and all the government writers and all the scientific community have stated there's no risk to humans from the PCB's that are presently from the environment.

Q. Is it your opinion today that there is no risk to humans from the presence of furans in the environment?

A. Yes.

Q. Is it your opinion today that there's no risk to humans from the presence of dioxins in the environment?

A. Well, it depends on what you mean by environment. If you spill a bunch of material that contains dioxin in somebody's backyard that's one thing, but if you take the general public throughout the United States there's no risk but there may be isolated cases where there's spillage of dioxins that could put people at risk.

Q. If I called you today and asked you if you know of any particular environmental situation which presents a risk to the health of humans from PCB's, furans or dioxins what would your answer be?

MR. CARNEY: I'm going to object to the question, it's compound, you have lumped three things together that are totally -- that are dissimilar and so I object to the form.

MR. MC CREA: I agree but I did it to save time.

MR. CARNEY: Well, I think that's a --

Q. (By Mr. McCrea) If I called you today, Dr. Kelly, and I asked you if you know of any particular situation involving PCB and contamination of the environment which presents a risk to human health what

would your answer be?

A. My answer would be if you were asking me I do not know of any. If you're asking people in the government --

Q. I'm asking you --

A. Yes, but you're calling me and I have got to give you my answer. I'm not going to answer yes or no to the people calling me. I'm going to explain what the situation is; and I'm going for explain that dioxin is not only a toxicological problem, it's a medical problem. I would also say that the government has paid three hundred million dollars to buy out or clean out Times Beach because of the problem there although there have been no cases of any illnesses to individuals at Times Beach, so I would have to explain to them that here is my opinion, here is what your elected representative's opinion is.

Q. All right, sir, fair enough.

MR. CARNEY: When we were talking about dioxin, they are not PCB's?

A. Yes, dioxin.

Q. (By Mr. McCrea) We started with PCB's. If I called you --

A. Yes, but wait, PCB's and dioxin are a hundred percent different and there is no dioxin in PCB.

Q. (By Mr. McCrea) Yes, I understand. Dr.

Kelly, if I called you today and I asked you if you know of any use of an electrical equipment that presents a risk of contamination of the environment that could cause problems to human health and I'm talking about electrical equipment containing PCB's or PCB's and trichlorobenzenes, whatever, what would your answer be?

MR. CARNEY: I'm going to object to the form of the question, it's vague.

A. Is there any use? Do you use use or misuse --

Q. (By Mr. McCrea) Use.

A. Use?

Q. Not misuse, use.

A. I would say that the only risk would be in a transformer that could be effected by a fire and there were no precautions to prevent the spread of that material throughout the buildings. There is a risk there, there's a risk that would involve expensive cleanups. I would say that the risk to human health in those particular building occupants and in the fire department personnel has been minimal, did not show any harm to those workers in the building or in the people that take care of the fire.

Q. Are you talking about specific instances like Binghamton?

A. Well, Binghamton, yes, or One Market Plaza.

But I haven't finished yet, have I?

Q. No, I don't think so.

A. No, I don't think so. So I would say you have to qualify what you mean by risks. There are certainly a financial risk and there is a possibility of a medical risk.

Q. And how long have you known that there's a possibility of a medical risk to an individual as a result of a transformer burning and contaminating a building?

A. '81 or '82.

Q. And how did that information come to you?

A. It's in the newspapers, eventually it was written up in some scientific articles.

Q. If a worker from the Bloomington Westinghouse plant called you and informed you that for fifteen years he worked in the plant and the carousel which was used to test capacitors after they had been manufactured would have explosions on an almost daily basis, sometimes several times day, sometimes maybe none for a few days and that when these explosions would occur in the Bloomington Westinghouse plant fumes would permeated the plant and that he was exposed to these fumes for a period of fifteen years, and he wants to know if he should be medically monitored for adverse -- for possible health problems, what would you tell him?

MR. CARNEY: I'm going to object again. I don't think you've given enough facts in your question. Dr. Kelly is not familiar with the Bloomington plant. You don't indicate on what the exhaust facilities were, what the area was, whether the explosions were caused any fumes and burning of PCB's, to what extent, and a whole myriad of things. So I'm not sure it's possible to answer without all the facts.

You can try to answer it again.

A. Well, I would tell him in the first place, yes, I think you ought to be examined. I would say no amount of exposure can give you a disease you don't have, and so if he doesn't have anything the exposure was not sufficient to cause it obviously because it wasn't there. I would say also I am not in a position to evaluate the extent of your exposure. This is something that you should talk to your manufacturing people about, I don't know these conditions and I can't give you an expert advice on it.

Q. (By Mr. McCrea) If he asked you to recommend doctor who has expertise in the toxicological effects of PCB's, who would you recommend?

A. What year is he calling me?

Q. He's calling you today.

A. Today, and he's in Bloomington?

Q. Correct.

A. I'd have too look it up. I'd have to look it up in the journal -- I mean in the Directories of the Industrial Medical, Occupational Medical Association, see who's in Indiana. I'd have to look up people who were certified in occupational medicine and see who's certified around Bloomington.

Q. He also informed you that he has made inquiry of the Old Monroe Medical Society which includes all of the physicians that were in Bloomington and there's not one physician with expertise in the toxicological properties and possible adverse effects of PCB's and he wants your advice as to a doctor?

A. Well, I would say then go to the best internist in Bloomington and find out if something is wrong with you. If he has to just call me.

Q. If he asked you to recommend a medical protocol, in other words, the tests and clinical evaluation that should be performed, what would you recommend?

A. I would recommend --

MR. CARNEY: I'm going to be object. We're talking about something so unrealistic, a Bloomington worker or any non-medical person asking for a medical protocol would be highly unlikely. We're getting off into

never-neverland here.

A. I would tell him to have the doctor you select call me after you see me and I'll be happy to discuss the case with you, and tell me if I have any further suggestions on tests he wants to run I will tell him.

Q. (By Mr. McCrea) He wants to know what tests should be run?

A. Well, I'm not going to tell him. I'm not treating him. I'm not going to tell him to go to a doctor and say, "Look, this doctor three hundred miles away said this is what you should do to me." The Doctor would say go to that fellow then.

Q. If he asked you for treatment what would you do?

A. I'd say no, I don't treat you. I diagnose people, but I don't treat.

Q. If he came to you and gave you the history which we have recited, what medical protocol would you, Dr. Kelly, institute for this individual?

A. I would do a complete history and physical examination, non-occupational as well as occupational examination. I would do a complete examination including neurological and dermatological examination. I would run a battery of clinical tests, the S.M.A. 21 with special

reference to liver enzymes.

MR. CARNEY: Let me have just -- We've got one minute left on the tape and before we cut out on this tape I think we have to -- We have agreed to continue this deposition on Friday, the day after tomorrow at 8:30 and you agree that you will finish in one more day?

MR. MC CREA: You're going to bring the lists of all the cases until which he's testified which we have requested, correct?

MR. CARNEY: I don't -- as I have indicated to you I don't think there is any such list.

MR. MC CREA: Have you made inquiry?

MR. CARNEY: I have not made inquiry, but all I'm saying is you have never requested it in the three years -- Are we going to go on Friday or not and are you going to complete on Friday?

MR. MC CREA: I don't, Tom --

MR. CARNEY: You represented to me the last, two days ago or last week that you would need one more day. We have now gone a day and a half. Are you saying now in two and a half days we can finish or not?

MR. MC CREA: It might take more than one day. Are you, can you do Kowan's in less than four?

MR. CARNEY: That would be my estimate, yes. But I --

MR. MC CREA: It might take more than one day and I would like for you to bring with you the list of cases in which Dr. Kelly has testified. I also would like for Dr. Kelly to bring the raw data which he reviewed relative to --

THE WITNESS: I didn't review it. I said I called Bill Gaffey and asked him.

MR. MC CREA: Okay, that takes care of that. Break.

(Whereupon, a short break was taken.)

MR. MC CREA: But I'll represent that we'll finish on Saturday.

MR. CARNEY: And you will finish on Saturday?

THE WITNESS: Well, I'm not representing that I am going to be hanging around all next week.

MR. MC CREA: But we'll go on Friday?

MR. CARNEY: Go on Friday and if necessary go on Saturday.

MR. MC CREA: Absolutely.

(Deposition continued.)

NOTARIAL CERTIFICATE

STATE OF MISSOURI)
)
CITY OF ST. LOUIS)

I, TOD MINNIGERODE, a Certified Shorthand Reporter and a duly commissioned Notary Public within and for the State of Missouri, do hereby certify that pursuant to agreement there came before me at the offices of Communitronics, 1907 S. Kingshighway, St. Louis, Missouri,

R. EMMET KELLY, M.D.,

who was by me first duly sworn to testify to the truth and nothing but the truth of all knowledge touching and concerning the matters in controversy in this cause; that the witness was thereupon examined under oath and said examination was reduced to writing by me; that the deposition is to be continued by agreement of all parties; and that this deposition is a true and correct record of the testimony given by the witness.

I further certify that I am neither attorney nor counsel for nor related nor employed by any of the parties to the action in which this deposition is taken; further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto or financially interested in this action.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on July 27, 1990.

My commission expires June 3, 1991.

[Notary Public]

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