IN THE CIRCUIT COURT
TWENTIETH JUDICIAL CIRCUIT OF ILLINOIS
ST. CLAIR COUNTY

FRANCES E. KEMNER, et. al.	)	
	)	
Plaintiffs,	)	
	)	
VS.	)	NO: 80-L-970
	)	
MONSANTO COMPANY,	)	
	)	
Defendant.	)	

REPORT OF PROCEEDINGS

Before the HON. RICHARD P. GOLDENHERSH

JURY TRIAL

March 6, 1986

APPEARANCES:

Mr. Rex Carr
Mr. Jerome Seigfreid
On Behalf of the Plaintiffs;

Mr. Kenneth Heineman
Mr. Joseph Nassif
On Behalf of the Defendant.

Debra M. Musielak, CSR, CM
Official Court Reporter

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EXHIBITS

BE IT REMEMBERED, that on the 6th day of March, 1986, the same being one of the regular judicial days of said court, the above-styled cause came on regularly for hearing before the HONORABLE RICHARD P. GOLDENHERSH, one of the Judges at the St. Clair County Building, 10 Public Square, in the City of Belleville, County of St. Clair, State of Illinois. Whereupon the following proceedings were had:

COURT CONVENED:

THE COURT: Good morning.

RAYMOND SUSKIND

(being called as a witness on behalf of the Defendant, having been previously sworn, having resumed the stand, continued to testify as follows)

CROSS EXAMINATION

BY MR. REX CARR

Q. Dr. Suskind, we have previously discussed these 36 persons that you followed over the period of four years up to 1953, have we not, sir?

A. Yes, we have.

Q. And, you did indeed -- you've told us here earlier that you did not follow those persons, have you not, sir?

A. The 36?

Q. Yes.

A. We did have an opportunity to examine some of them in 1979.

Q. No, no, no. I'm talking about up to '53, you've told us here earlier that from '49 to '53 that you did not follow those 36 persons?

A. Except in 1950 we did. In 1950 we followed up four plus two of the original 49, yes.

Q. But in your -- if you refer to Plaintiff's Exhibit 1751, you say here that 36 persons were followed over a period of four years?

A. I didn't follow the 36, sir.

Q. I think that's what you stated previously that you did not follow the 36?

A. I followed some of them.

Q. Now, Doctor, you have made the statement here and you have made the statement -- well, for that matter, under oath, that you followed these 36, by here I mean in Exhibit 1727, you make the statement that --

A. I didn't say I followed, sir. It says 36 persons were followed. Doesn't use the word I.

Q. Well, Doctor, you have sworn in other places that you followed, did you not?

A. No, I don't think so.

Q. Sir?

A. No.

THE COURT: I'm sorry, Doctor, I didn't hear your answer.

A. No, sir.

THE COURT: Thank you.

Q. (by Mr. Carr) Doctor, you recall you gave an affidavit in the case in the Federal Court in Charleston, West Virginia, that was being tried there? Mark this as an exhibit.

MR. CARR: This is the only copy I have here this morning, counsel, so -- the pertinent portion is where the yellow tab is, Counsel, to save you some time.

THE COURT: What's the number on that, Mr. Heineman?

MR. NASSIF: 1753.

THE COURT: Thank you.

Q. (by Mr. Carr) Doctor, you recognize your signature on this affidavit that's part of 1753, do you not?

A. Yes, I do.

Q. You recognize it as an affidavit that you made in the case of the Estate of James Atkins vs. Monsanto Company in the Federal Court in the Southern District of West Virginia at Charleston, do you not, sir?

A. Yes, I do.

Q. Doctor, if you'll turn --

MR. CARR: Your Honor, may I offer this exhibit into evidence, if it please the Court?

THE COURT: Any objections?

MR. HEINEMAN: One moment, Your Honor. I don't have any objection.

THE COURT: All right. It's admitted without objection.

Q. (by Mr. Carr) Doctor, turning to the page with the yellow tab, in the bottom of Paragraph 6, I'd like you to read out loud, if you would, that last paragraph, that last sentence in Paragraph 6.

A. It reads, "Over the next four years, I, along with colleagues in the Kettering Laboratory, followed the health effects of 37 of the Monsanto workers."

Q. Doctor, that is your statement under oath, is it not?

A. It is my statement, sir, yes.

Q. And you said in that statement under oath that, I, along with colleagues, followed these 37 workers, did you not, sir?

A. Yes.

Q. And that is in direct contradiction to what you said this morning and the day before yesterday, is it not,

sir?

A. No.

Q. Doctor, did you not say this morning before I gave you the affidavit that you did not follow these workers?

A. Personally, yes.

Q. And do you not say here I followed these workers?

A. I, along with colleagues of the Kettering Laboratory.

Q. Along with, you and your colleagues at the Kettering Laboratory followed the health effects of these 37 workers, did you not say that, sir?

A. Yes.

Q. You said I followed them, didn't you, sir?

A. Yes.

Q. That is in direct contradiction?

A. No, sir.

Q. Sir?

A. No, sir.

Q. Doctor, is this some kind of new speak? Did you not tell us before I showed you the affidavit that you did not follow these workers?

A. No, it's not.

Q. Didn't you tell us that?

A. No, it isn't a contradiction.

Q. Excuse me. Did you not say that when I started this examination this morning of you, and have you not said it the day before yesterday that I did not follow these workers? Did you not say that?

A. Personally, right.

Q. And in this affidavit you say I followed these workers, don't you, sir?

A. Yes.

Q. Now, Doctor, do you see a statement I did not follow the workers is directly contrary to the statement I followed the workers?

A. No, sir.

Q. You don't see any contradiction between those two statements, I did not follow workers, I did follow the workers?

A. No, if I can explain --

Q. Doctor, it calls for no explanation.

A. Yes, it does, sir.

Q. It's like you are saying the other day that the word yes means no, isn't that what you are saying, Doctor?

A. No, sir.

Q. It's not like what you said the day before yesterday, yes means no?

A. No, sir.

Q. Doctor, if I tell you I gave you this pin and then ten minutes later I say I did not give you this pin, do you consider that that is a contradictive statement?

A. No, sir.

Q. You don't consider that contradictive. All right. Doctor, you also -- we have been discussing Plaintiff's 1752, do you have 17 -- just one moment, Doctor. You gave that affidavit in the Federal Court for a particular purpose and at the request of the Monsanto attorneys in that case, did you not, sir?

A. Yes, I believe so.

Q. Yes, the plaintiffs in that case wanted something of the Court and the defendant in that case, Monsanto wanted not to give them that something, and Monsanto attorneys came to you and asked for an affidavit and that affidavit you have in front of you is the affidavit you gave, is it not, sir?

A. Yes, it is.

Q. And they used that affidavit for their purposes to defeat the request of the Monsanto workers, did they not, sir?

A. No, sir.

Q. They didn't use that affidavit at all?

A. They used it, but not -- this wasn't part of the actual trial, sir.

Q. Excuse me. Did they use that affidavit to defeat the request of the workers in that case?

A. No, sir, not to my knowledge.

Q. Did they just use that affidavit just as exercise of how to write affidavits?

A. This was to identify my expertise, sir.

Q. Doctor, you know it was more than that, it was -- That's what it was for, sir, if you look through it, that's what it's for. Doctor, it was for the purpose of defeating their request?

A. Absolutely not, sir.

Q. Oh, Doctor.

A. If you look through this, this simply identifies my expertise and my experience. That's all it does, and my CV is attached to it.

Q. I know your CV is attached to it.

A. What it does, sir --

Q. Excuse me, Doctor, let me ask you the question, please.

A. I'm simply responding to your question, sir.

Q. I submit you are not. Doctor, read the last -- if you want to -- the last half dozen statements in which you are resisting giving out the release of this morbidity study on your part. You say premature release of any part of my

study will in all probability render the study unpublishable, do you not?

A. I do, and that was true.

Q. Excuse me. Do you not say, I state from my own personal knowledge and based upon personal experience that the most prestigious journal, such as the Journal of American Medical Association and New England Journal of Medicine refuse for publication any studies which have been released prior to submission for publication. Don't you say that, sir?

A. I do, sir.

Q. And don't you say again that I have no plans to testify voluntarily on behalf of either plaintiffs or defendant's in the within lawsuit and would refuse any proffered offer of compensation as an expert at least unless my study was published prior to the trial, and I was therefore confident of validity of my results and confident that publication would not be jeopardized. I would resist the disclosure or use of my study by either plaintiff or defendant prior to the time I released the final version of the study for publication. Do you not say that, sir?

A. I do, sir.

Q. And, Doctor, that's Paragraph 20, and Paragraph 19 tells -- discusses that this study itself will be one of

considerable significance and interest and premature publication would have an adverse effect on your reputation, isn't that what you say?

A. I do indeed.

Q. Paragraph 18 says again, submission for publication will provide a further check upon the reliability of my study conclusions. Paragraph 17 says premature release of any part of my study will render the study unpublishable. 16 -- Paragraph 16 says, I do not consider my tentative study to be supportable without further analysis. Release of my tentative study results will inevitably result in public debate. It is anticipatable that the company will attempt to attack the credibility of conclusions unfavorable to its position, and the plaintiffs will likewise seek to cast doubt. Paragraph 15 you discussed meeting with the representatives of NIHS and drafting the document. Paragraph 14 talks about the data in the preliminary draft. Paragraph 13 discusses the epidemiological study that you performed. Paragraph 12 talks about the medical examinations on the participants including the plaintiffs. Paragraph 11 talks about the purpose of the study was to ascertain the long-term health effects of exposure to 2,4,5-T. Paragraph 10 talks about the study protocol which you developed. Paragraph 9 talks about you and Monsanto working together to conduct the

study. Paragraph 8 talks about your continued interest in the long-term health effects of 2,4,5-T going back to 1949. Paragraph 7 talks about the clinical examination in 1953. Paragraph 6 talks about the Nitro accident and your following these workers up to 1953. Paragraph 5 talks about the accident that occur. Paragraph 4 talks about the accident that occurred. Paragraph 3 talks about your tenure at the University of Oregon. Paragraph 2 talks about your tour as a medical officer, and Paragraph 1 talks about your employment from '69 to present.

Now, Doctor, was not -- have I not accurately summarized all of the paragraphs of this affidavit, sir?

A. I believe you have.

Q. And isn't the affidavit for the purpose of and used so that you would not be required by the Court to turn over to the Plaintiffs the results of your so-called morbidity study?

A. It is a study--

MR. HEINEMAN: Objection, Your Honor. May counsel approach the bench?

(The following Side Bar conversation was had outside the hearing of the jury.)

MR. HEINEMAN: Your Honor, I think that last question is misleading because I think if I'm not mistaken

that this document was prepared and drafted by the University of Cincinnati physicians, excuse me, physicians, lawyers.

THE COURT: Yeah, I know what you mean.

MR. HEINEMAN: University of Cincinnati lawyers to prevent his disclosure of this data to anybody, whether it be the Plaintiffs or the Defendant or anybody else. And I think that became clear from what Mr. Carr read from it and, therefore, I object to that question as being misleading.

MR. CARR: The purpose of the question, the examination, is to attack the statement that this was not used to prevent publication of the data. He said that it was only to show his CV, to show his credentials. The purpose of all of those questions that I just asked is for the purpose of showing that again is not telling the truth.

MR. HEINEMAN: Well, then there should be certainly no reason why you shouldn't preface it by saying --

THE COURT: Let me look at the affidavit, I haven't seen it.

MR. HEINEMAN: Either to the -- for the purpose of doing it either to the Plaintiff or to the Defendant.

THE COURT: I think that was read.

MR. CARR: Indeed, I read it.

THE COURT: That paragraph was read, that was one of the things read before.

THE COURT: I think whether it's prepared by the University of Cincinnati attorneys or whether it's prepared by Monsanto attorneys, the point is the use of it. I think who actually prepares it is irrelevant.

MR. CARR: Monsanto and the witness has agreed that it was used by Monsanto.

MR. HEINEMAN: I think the fact of the matter is, Your Honor, that it was -- and I can't answer for what happened at Nitro. All I can say is that to my recollection a similar affidavit, similar position was taken by the University of Cincinnati on behalf of Dr. Suskind in the Madison County cases where Mr. Pratt was seeking to obtain data prior to the publication of the morbidity study.

THE COURT: Right, and I got copies of that, too, and I -- when I got involved in the discovery questions that were submitted similar to that, but the point is whether it was done by the University attorneys with Monsanto or whether Monsanto utilized their position is really not -- it's a tangent to the way that Mr. Carr's been asking the questions. I don't think it's misleading, and your objection is overruled.

(The following proceedings were had in open court.)

Q. (by Mr. Carr) Doctor, this affidavit was not used to illustrate your credentials, it was used in order to

prevent the release of the data of your morbidity study, was it not, sir?

A. It was one of the things that it did, sir.

Q. Isn't that the purpose of the affidavit, sir, to prevent the release of your morbidity study?

A. That was one of them, sir, yes.

Q. What other purpose was there as shown by this affidavit, sir?

A. Well, to identify my expertise and the fact that I had done a morbidity study, sir, and the importance of that morbidity study.

Q. Doctor, was there any -- have you finished?

A. Yes.

Q. Was there any question but what -- that you testified in that case in the Nitro case at the request of Monsanto and relating to that morbidity study when they put on their defense, under the terms of the contract that you had with them, sir?

A. Yes.

Q. Yes?

A. I testified after the publication of that paper, sir.

Q. Indeed you did, Doctor.

A. Indeed I did.

Q. In behalf of the defendant, did you not, sir?

A. And I testified as an expert witness.

Q. Excuse me. In behalf of the defendant, did you not, sir?

A. Yes, sir, as an expert witness.

Q. And under the terms of that 1979 contract that we have previously referred to, isn't that correct also?

A. At my discretion, sir.

Q. Excuse me, dir, isn't it also correct that you testified under the terms of that 1979 contract?

A. Yes, sir.

Q. Yes.

A. At my discretion.

MR. CARR: Your Honor, could the jury be instructed to disregard the continued volunteered statement of Dr. Suskind?

MR. HEINEMAN: May I object to that on the basis that the contract says it's at his discretion.

MR. CARR: Then that includes under the question that I asked, doesn't it, sir?

THE COURT: Objection is overruled. That was a volunteered statement. It was not responsive to the question. The jury is ordered to disregard it. Doctor, please confine your answers in the future to the question

that's asked.

A. Yes, sir.

Q. (by Mr. Carr) Doctor, for whatever purposes this affidavit was utilized, you swore at that time that you had followed these workers, did you not, sir?

A. He indicated that we had, yes.

Q. Now, Doctor, did you indicate that you had, or did you say under oath I along with my colleagues followed these workers?

A. Yes.

Q. Yes what, sir?

A. That's what the affidavit says.

Q. My question gave you an alternative. Which alternative, sir, did you just indicate it or did you in fact say I told these health effects of these workers?

A. It's stated as I followed, I and my colleagues followed.

Q. And that's what you indeed said, I followed, didn't you, sir?

A. Yes, it did does.

Q. And you wanted the Court to believe that at that time, did you not, sir?

A. That is a description of what I believed should be known, sir.

Q. Dr. Suskind, that isn't what I asked you. I asked you whether or not you wanted the Court to believe what you said at that time?

A. Yes.

Q. You expected the Court to rely upon the absolute truthfulness of what you said at that time, is that not correct?

A. That was the truth.

Q. Sir?

A. That was the truth, sir.

Q. My question is you expected the Court and wanted the Court to rely upon the absolute truthfulness of what you said in that affidavit, isn't that correct, sir?

A. That's true, right.

Q. Just as when you said here today and day before yesterday that I did not follow these workers, you want this Court, you wanted this Court to believe and rely upon the absolute truthfulness of that statement?

A. That's true, sir.

Q. And whatever the particular climate that appears, you say what you want a particular Court at a particular point in time, what you want that Court to believe, is that what you --

A. Absolutely not, sir.

Q. Isn't that what you've done, sir?

A. No, sir.

Q. And you said in the Nitro case, I followed the workers because you wanted the Court to believe that, you said in this case that you did not follow the workers because you wanted this Court to believe that statement, isn't that what you have said here, sir?

A. No, sir.

Q. Did you want the Nitro Court to believe what you said there, sir?

A. Yes, sir.

Q. And did you say something different there than what you said here, sir?

A. No, sir.

Q. Doctor, are you saying that you told the Court in Nitro that you did not follow the workers or did you tell the Court in Nitro that you did follow the workers?

A. We said that we did.

Q. And you told the Court here that you did not follow the workers, didn't you, sir?

A. Yes, we did.

Q. All right. Now, Doctor, you wanted us to believe that you did not follow the workers, correct, sir?

A. No.

Q. Then why did you say it if you didn't want us to believe it?

A. Because it needs an explanation, sir.

Q. Didn't you just --

A. Let me finish.

Q. Doctor, let me finish my question, sir. Didn't you just --

A. You are asking two questions.

MR. CARR: Your Honor, would you ask the witness to refrain from answering until I finish my question?

THE COURT: Doctor, the only way you can respond to the question is as I asked you previously is if you hear the whole question. Please wait until it's finished.

A. Yes, sir.

Q. (by Mr. Carr) Doctor, did you just not tell us a moment ago that you wanted us to believe that you did not follow these workers?

A. Yes, I did.

Q. And you wanted the Nitro Court to believe -- the Federal Court to believe that you did follow the workers, isn't that correct, sir?

A. No, sir.

Q. Didn't you just tell us a moment ago that you wanted the Nitro Court to believe that you did follow the

and the non-exposed? By no stretch of the imagination.

(Defendant Monsanto's Exhibit 1709 was marked for identification by the court reporter.)

Q (By Mr. Heineman) Next, Doctor, I have Defendant's Exhibit 1709, which is a copy of Plaintiff's Exhibit 1474, which is in evidence. I'd like to ask you do you agree with the information contained in this exhibit?

A Well, the same problem of title can be applied to this exhibit, and that is that it really misrepresents the numbers of cancers from any cite because of the way the computer print-out was programmed and the lumping of the tumors and cancers together, and the putting the unexposed people with cancer which was reported by us into the exposed group with cancer. So that this omitted number is very inaccurate.

MR. CARR: I'm sorry, Dr. Suskind, but I can't hear you, or I don't know what you're doing.

THE WITNESS: I'm sorry. What I'm saying is that --

MR. CARR: I just wanted to see what you put the mark on.

THE WITNESS: 13 was the number of cancers

omitted.

MR. CARR: Thank you. Thank you.

THE WITNESS: I'm writing that because I think that's an eroneous conclusion and is very misleading.

Q (By Mr. Heineman) Now --

A Now, as I indicated to you, there were two cancers, skin cancers that the physician didn't pick up on history, and if you add to that, if you add to that, the basal cell epithelioma, which we did pick up, and our biostatustician put them in another category, if you add them to that, what you have is an additional four more skin cancers. That's all. Four more skin cancers.

We ask, well, is that significant when it comes to the relationship association between exposure and skin cancer. The answer is no, it's not significant. When you add four more to that, you get 18 instead of 13. That's still not significant.

What is most important is that we don't have in this table here, the table with the eroneous title, we don't have in here any mention of age.

One of the things that we did refer to earlier in our testimony, Mr. Heineman asked me about a paper which I wrote about pre-malignant and malignant lesions of the skin, which was given at a meeting of the Association for the

Advancement of Science, and published in a book. But in that, the first part of it is about the affect of sunlight on skin and the affect of aging on skin with respect to skin cancer.

Statistics are some of the most -- some of the best that we have about non melanoma in relation to latitude, in relation to insolation, i-n-s-o-l-a-t-i-o-n, which means the degree of exposure or the severity of the exposure to actinic radiation or sunlight. There's a direct relationship between the amount of exposure to sunlight, the age of the individual and the coloration of the skin. Coloration of the skin.

In our report because -- we separated the non Caucasians and we didn't analyze that data because we would have had to analyze them separately, and there were too few of them. So we are talking about Caucasian males here, essentially. In Caucasian males it's very well known about the relationship of actinic radiation and age to the frequency of skin cancer. TCDD is not one of those substances that neither initiates or promotes skin cancer.

Q Dr. Suskind, what about -- there is a, first item there talks about bladder cancers. Do you see that, sir?

A Yes.

Q Okay. Are there three omitted bladder cancers in

your analysis?

A Well, two of them, Mr. Volz, Mr. Hill, had bladder tumors, proven bladder tumors. Mr. Reynolds had a bladder cancer, but he was unexposed. So that this three additional bladder cancers is erroneous among the exposed.

Q How many bladder cancers were omitted?

A There were none omitted to my knowledge. We included bladder tumors, which is what any person knowing anything about bladder reactions to chemical agents knows that there are and it could be irritation. Only a few people got bladder cancer. Some of them developed tumors like Mr. Volz, but they never became cancerous.

Q All right, sir. What about the colon cancer category?

A Well, here I think, as I indicated earlier, the colon cancer was the one that I think they referred to, that is refer to in this as Mr. Scarberry. Mr. Scarberry had a colon tumor.

There are adenomas, there are cysts, there are any number of pathological states which are called tumors, which are not cancers of the colon.

Q And --

A So this, I think, comes out, and I think we've been through the skin cancers, the prostate cancer and the

leukemia is one individual. The lung cancer omitted is the same as the colon cancer. It was a tumor. And one develops cysts in the lungs, one develops adenomas, one develops a variety of lesions in the lungs which are not cancerous.

Q In your opinion regarding Mr. Scarberry's colon and lung cancer derived from the medical record form -- not the medical record --

A The physician's history.

Q The physician's history in 1704.

A Whatever the exhibit number is. Yes, from 1704, on page 21, 22, and 23.

Q And what is there about that physician's history that leads you to that conclusion about Mr. Scarberry?

A Well, according to Mr. Scarberry's record the physician indicated that when he took a history Mr. Scarberry was asked have you ever had cancer. He said, "No, I haven't." He said, "I had a tumor removed from my lung, and I had a tumor removd from my colon, but it wasn't cancer. The doctor told me so." That's in Mr. Scarberry's record.

Q All right, sir. Thank you, Dr. Suskind. I'd like to ask you next, if I may, with respect to the Krumrich Plant. Are you all right? Okay.

MR. HEINEMAN: Your Honor, at this time we would offer Defendant's Exhibits 1708 and 1709 into evidence.

THE COURT: Okay. Any objections?

MR. CARR: None, your Honor.

THE COURT: They're both admitted without objection. While she's looking for that, gentlemen, could you approach the bench for a minute please.

(The following proceedings were had at the bench out of the hearing and presence of the jury:)

THE COURT: At the end today I'm going to announce these days off and I'm not going to announce the 5th yet because there's a possibility that we may get him finished before that. If so, we could use that day with another witness on the stand.

Also in March there are two court holidays, the 18th, which is the primary election day, and the 28th, which is Good Friday. So the 18th and the 28th are court holidays. The courthouse will be closed on both of those days. That's in addition to the ones that we had talked about in chambers.

MR. HEINEMAN: Okay.

THE COURT: I haven't forgotten about the 5th, but

I'm not going to announce it yet.

(The following proceedings were had in the presence and hearing of the jury:)

Q (By Mr. Heineman) Dr. Suskind, in connection with the Krumrich Plant, are you familiar with the William G. Krumrich Plant in Souget, Illinois?

A Yes, I am.

Q Did you have occasion to perform any work with respect to that plant, sir?

A Yes, I did.

Q I wonder if you'd tell us what it was that you did.

A Sometime in the summer or early fall of 1979 Dr. George Roush, who is the medical director of Monsanto, called me on the phone and indicated that he would like to have a health status examination of workers who were exposed to pentachlorophenol at Souget, and those who were exposed to orthochlorophenol and parachlorophenol synthesis, as well as those who were exposed to both. They had records of chloracne among the workers in pentachlorophenol, and they wanted some assessment from somebody who knew a little bit about chloracne, and the relationship to exposure to examine

these individuals.

So in October of 1979 we put a small team together and we examined 106 workers in that plant. We actually interviewed 115, but 106 completed their physical examination and their laboratory studies.

Q Dr. Suskind, was that an epidemeological study?

A No, it was not, sir. We did not have a control group. What we were simply doing is to determine what the current health status was of these individuals at the time, with particular attention to their skin problems.

We thought it would be a good idea since we were there that we could also do some laboratory studies as well. So we got blood and urine for examination, and we did that.

Q Was there any information available, sir, at that time with respect to the toxicity of pentachlorophenol, orthochlorophenol and parachlorophenol themselves?

A There was some. By 1979 it was known that pentachlorophenol would cause chloracne. That was known. Exposure to it in a variety of ways. That very high doses, high exposure would actually lead to severe problems, central nervous system problems, respiratory difficulties, sweating, and including coma from the central nervous system effects, and even death as a result of heavy exposure to pentachlorophenol.

But in most instances the people who had some contact with 10 percent solutions of pentachlorophenol, for example, would develop skin irritation or respiratory irritation. Below 11 percent there was usually none. There were even occasional reports of so called allergic synthetization pentachlorophenol.

With respect to ortho and parachlorophenol, at the time there was very little known about it, except that it was relatively innocuous. These were relatively innocuous materials, and that they might with sufficient exposure cause irritaion and even there were reports of allergic reactions to them.

The pentachlorophenol at that time, I believe, it was known that the contaminants, the hepta, penta, and octa -- I mean penta -- sorry -- hexa, hepta, the 6th, 7th, and octachlorinated dioxins.

Q All right. Did you have any information at that time as to whether or not there were any tetra dioxins found in pentachlorophenol?

A Yes. Those people who were doing the analyses did not find any tetrachlorinated dioxins in pentachlorophenol. They found the hexa and the hepta, and the octachlorinated phenols.

Q Now, can you tell us in general terms, sir, how

you went about conducting this clinical survey?

A Well, there were 115 persons who volunteered, and as the medical department, which was a very efficient one, I believe, set up a schedule for us to do examinations. We did a clinical examination and then drew blood and got urine for laboratory studies.

Q Did you administer a questionnaire?

A We had an interview form very much like that which we used in Nitro, which provided us with the demographic information, that is their sex, and age, and ethnic origin and marital status, and so on, as well as their occupational histories and hygenic histories, and family histories of illness, and their personal history of illness and then a section on the medical examination itself.

(Defendant Monsanto's Exhibit 1710 was marked for identification by the court reporte.)

Q (By Mr. Heineman) Let me hand you, sir, what's been marked as Defendant's Exhibit 1710 and ask you to examine that and identify it for us, please.

A 1710 is a replica of the examination form, including the informed consent, which we used in the examination of workers at the Krumrich Plant.

Q Now, who was it that went down and did this examination?

A Well, we had two nurses who did the interviewing, and we had two dermatologists besides myself who helped out in the physical examinations.

Q What about the laboratory work that was done?

A The laboratory -- the gathering of the samples for the lab work were done by a representative of Medpath who came specifically to do that. So that he essentially collected the -- collected the urine in the blood and packaged them for shipment to the laboratory, to the Medpath laboratory.

Q Were any records available to you when you conducted this?

A Yes, there were. As a matter of fact they were very useful. The medical department's clinical records were available. The workers were available. The safety records were available.

Q Now can you tell us something about the population that you studied on that occasion, sir?

A Yes. As I say, there were 106 persons who completed the examination, six of those actually were exposed to the ortho and para process alone, and there were a hundred others who were exposed to the pentachlorophenol

and/or both the penta and the ortho and parachlorophenol.

Q All right. Now what department was penta in and what department was ortho in?

A They were numbered and the departments in which penta had been made, as a matter of fact the penta process had ceased production about a year before we got there, but the ortho and para process was still being used, or still going on. The penta process had been in Building 26. The ortho and para process in 237. And actually the 106 there were 44 workers in pentachlor -- who were in pentachlorophenol alone, and there were 56 in the combined penta -- they worked sometimes in penta and sometimes in ortho and parachlorophenol. 56 of those. And six in the ortho and parachlorophenol alone.

Q And did you find an incidence of chloracne in the group?

A Yes, we did. During our examination we found that 65 percent of the group had a history of chloracne, and that 42 percent still had some chloracne, but when we got there we found that of that 42 percent, if you split them up into severity categoris, 29 percent of the 42 percent was mild and 13 percent of the 42 percent was moderate.

THE COURT: I'm sorry, I didn't get the last part.

THE WITNESS: Sorry?

THE COURT: The last figure you had.

THE WITNESS: Okay. 29 percent of that 42 percent that had chloracne was mild.

THE COURT: Right.

THE WITNESS: And 13 percent was moderate.

THE COURT: Thank you.

Q (By Mr. Heineman) Was there any chloracne, sir, in the people who worked in Department 237 alone?

A We didn't find any chloracne among the six that we had to examine. There was one individual who had acne vulgaris, obviously who claimed that the ortho and para process might have aggravated it. But he didn't have chloracne.

Q Now with the chloracne that you observed at Krumrich, how would you compare that, if you would please do so, to the chloracne that you found at Nitro?

A Well, I think as one can by reading the paper in the AMA recognize that over -- even over the long term those who were exposed to TCDD had much more severe acne. Their level of severity was much greater than we saw. If one has the kind of chloracne that we saw in 1949, and even '50, a year after the accident, to persons exposed to pentachlorophenol as recent as a year before, there was no comparison in its severity.

The chloracne in the Souget Plant was largely of a mild kind and there were a few who had moderate. But nothing like that which we saw in the early days of the Nitro Plant.

Q Were there any systemic manifestations reported to you or observed by you at the Krumrich Plant?

A No, there were none.

Q How would you characterize the health of the people whom you examined?

A I would characterize them as a rather healthy group, some of whom had chloracne, and some of them in the past for their chloracne left or were reassigned to another job in order to avoid any exposure to pentachlorophenol. But as I indicated, the severity was of a much lower order. The complaints that they had were really only relating to their skin.

Now we asked them about, as you'll see in the outline, we asked them about other symptoms, and when we did that, what we were asing was have you ever been bothered with any of the following conditions. That didn't mean recently, it meant have you ever been bothered with things like headaches and high blood pressure, and bronchitis, and so on.

We asked about those. There were a few who said

yes, they had bronchitis, or occasionally had bronchitis, or occasionally had a headache, and recognized that they were like other people, like you and myself who occasionally have headaches.

Q Did you prepare any kind of a report in connection with this survey?

A We did prepare a draft report in 1980. This was kind of a summary of what we got out of the computer in the beginning. We felt that it was useful for Dr. Roush to know what we found. However, it was only a draft report.

Q Let me hand you what's been marked as Plaintiff's Exhibit 1500, which is in evidence, sir, and ask you to identify that for the jury, please.

A This is the report that I've been referring to, the one we sent to Dr. Roush, which is a draft report on the Krumrich worker examination.

Q Have you done any analysis with respect to the findings from that survey since that report was written, sir?

A Yes, we have.

Q And have you provided a summary of that analysis?

A I provided a summary of that analysis, yes.

(Defendant Monsanto's Exhibit 1711 was marked for identification by the court reporter.)

Q (By Mr. Heineman) Let me hand you, sir, what's been marked as Defendant's Exhibit 1711 and ask you to examine that and just identify it for me initially, sir.

A Yes. This is a summary which we prepared after we had re-examined the data --

MR. CARR: May I see it, Counsel, before you make reference to it?

MR. HEINEMAN: Oh, sure. I thought you had it.

MR. CARR: Well, I may have, but I can't see through the paper. This is what you gave us yesterday?

MR. HEINEMAN: Yes, sir.

THE WITNESS: Wha it does is simply describe -- if I may go on.

Q (By Mr. Heineman) Well, first of all --

A Yes, this is a replica of that summary.

Q All right.

MR. HEINEMAN: Your Honor, at this time we'd move admission of Defendant's Exhibit 1711.

THE COURT: Any objections?

MR. CARR: Your Honor, until such time as we examine it, I'd like to withhold objection on it.

THE COURT: I'll reserve ruling.

MR. HEINEMAN: Your Honor, what I'd like to do is pass it to the jury.

MR. CARR: Well, establish when it was made then, Counsel.

MR. HEINEMAN: All right.

Q (By Mr. Heineman) When was it created?

A Well, this was -- the analysis has been going on off and on, off and on for about the last year or more. The reason for that is that we've been busy with many other things, and the Krumrich information was to us not a -- one of the high priority things that they were working with.

Q All right. When was this document itself prepared?

A Well, this summary was prepared in the last month or so. This summary.

MR. CARR: Counsel --

MR. HEINEMAN: I beg your pardon?

MR. CARR: Could you get a little better date than the last month or so, the last 30 days, or last two weeks, or last week. I'd like to have a better date.

Q (By Mr. Heineman) Do you have a more firm date, Doctor?

A I can't really give you an exact date, but I think

that an approximation would be about one month ago. It could have been before. It was actually prepared by our biostatustician.

Q Now --

MR. HEINEMAN: Your Honor, at this time we would move its admission.

THE COURT: Okay. Gentlemen, could you approach the bench for a minute, please.

(The following proceedings were had at the bench out of the hearing of the jury:)

THE COURT: Do you have any objection now?

MR. CARR: Yes, your Honor, this is a document that clearly should have been given us sometime.

THE COURT: Let me read it before we argue.

MR. CARR: No, I'll withdraw objection, your Honor.

THE COURT: Okay.

MR. CARR: I'll just cross examine on it after it comes in.

THE COURT: So you're not objecting?

MR. CARR: That's correct.

THE COURT: Okay. It's admitted without

objection.

(The following proceedings were had in the presence and hearing of the jury:)

Q (By Mr. Heineman) All right. Dr. Suskind, I wonder if you would please review this summary with us, which is Defendant's Exhibit 1711.

A Would you like me to read from it and explain it?

Q I'd just like you, based on this summary, would you tell us what you found as a result of this clinical survey at Sougat?

A Well, as I indicated earlier we found that of the workers that we examined 65 percent had a history of chloracne and 42 percent had acne at the time of the examination, and of that 42 percent, 29 percent was of the 42 was mild and 13 was of moderate level.

We did find that 12 percent of the group had actinic elastosis, that is elastic tissue changes in the skin, but it was not apparently related as we felt it was in the Nitro group to the chloracne. It's just four percent of those who had chloracne had actinic elastosis.

We only had one person with a cancer of the skin

by history, and none of the people we examined had any evidence of cancer of the skin.

We had -- there was a history of acne vulgaris or juvenile acne in 42 percent of that group. The question that was asked was have you ever had juvenile acne and 42 percent said yes, which is really not a high percentage. However, there were 20 percent of that group still had some acne vulgaris.

We found similarly in the Nitro group that there was still some evidence of acne vulgaris in the population, more in the control group in Nitro than in the exposed group. This was in the group we examined. They were largely among the younger people in the group.

Then we did what we did in other chloracne populations. We looked at chloracne as a variable. In the same way that we analyzed the Nitro population we classified the population into a group that had a history only of chloracne, but didn't have it at the examination, a group that had it on examination or residual, and the group that never had chloracne.

These were the positive findings or the positive relationships with chloracne. That the high density lipoprotein, the mean of the high density lipoprotein, when you compared residual chloracne with those that never had

chloracne was statistically significant. That is, there was an increase in abnormal high density lipoproteins among those who still had chloacne when you compared them to those who never had chloracne. There was an increase in the frequency of out of reference range, very low density lipoprotein, which largely consists of triglyceride among those with residual chloracne as compared with those who never had chloracne or had a history of chloracne. That was statistically significant.

When we adjusted both of these figures for smoking it was still statistically significant. So that smoking was not a factor there.

We did find an interesting finding that those who still had chloracne had more -- they were -- let me put it this way, that if you looked at the pack years smoked as an indication of smoking history that there was a significantly larger pack year smoked among the residual chloracne than those who had a history only or never, especially the residual as compared with those that just had a history, so that it was apparently -- there was some association between the number of pack years smoked and the residual chloracne, the current chloracne.

Q Doctor, let me, if I may, ask you about item number 1 again on page 2, on the mean high density

lipoprotein. The last line "when age and smoking adjusted," who does that mean? What's the significance of that?

A Well, what it does actually is to decrease the significance. Let me just repeat then. The mean of the high density lipoprotein was larger, significantly larger in the residual chloracne when compared to those who never had chloracne. When it was age adjusted it was still significant, but when you adjusted it for both smoking and age, it was on really the borderline of significance. Even out of the range of significance. It was zero -- the p value was 0.059, 0549, which is borderline. We like to think of the p value being significant if it's less than 0.05, and this is 0.049. So that if you adjust that mean value, if you adjust it for age and smoking, you get a p value which is just out of range of significant.

Q Okay. All right. I'm sorry for interrupting you there. Go ahead, if you would, please.

A We then looked at all of the parameters of the examination to see whether or not working in two other buildings might have influenced the outcome, and those buidings were 268 where they made the esters of 2,4,5-T, and 262 where they prepared 2,4-D.

We found that if we compared the clinical outcomes, as well as the laboratory outcomes of the people

who were exposed both to pentachlorophenol, as well as either Buildings 262 or 268, that there was no difference in the outcome. So that exposure to both pentachlorophenol or pentachlorophenol and orthochlorophenol and parachlorophenol, and 262 or 268 didn't increase the frequency of chloracne, didn't change the lipid values, didn't change anything. There was no difference.

Now there was a difference, there was -- what the significance is, the blood chloride levels of those who worked in 262, 268, there was a slight increase. There was an increase in the eosinophils count of those who worked in 262 and 268. I can't say that that's significant. I don't know what it means. I really don't. That's why I'm saying that there was really no difference in the clinical outcomes or laboratory outcomes, except for these two items.

We did find, however, a personal habit level that those who worked in 262 and 268, not personal habit, but on an age level, those who worked in 262 and 268 were a little older than those who worked in pentachlorophenol or penta and ortho alone.

Q Now with respect to -- did you cover number 7 there, sir?

A Well, again, I think it's obvious there that there were no differences in the clinical or laboratory parameters

when the mild chloracne was compared to the moderate chloracne.

THE COURT: Okay. Is this a good point to break?

MR. HEINEMAN: Sure, Judge.

THE COURT: Okay. All right. Ladies and gentlemen, we will recess for the day at this time. I've told you earlier that Monday is a court holiday, so we won't be meeting on Monday. We'll resume again Tuesday morning at 9:30. I would remind you as I do for any overnight break, you're not to read, listen to or watch anything about this case in particular or subject matter in general in any of the media.

While I'm at it, I want to give you some dates through March when we won't be having court either for court holidays or other reasons. Monday obviously I told you about before. February 20th and 21th and 24th we will not beholding court. March 13, 14, 18 and 28.

Okay. Thank you for your attention and cooperation. Take it easy in the snow. We'll see you Tuesday morning. Have a good weekend.

(The following proceedings were had in chambers out of the hearing and presence of the jury:)

THE COURT: While we were on the subject of telling him about some do's and don't's, I think as a matter of fairness that I ought to point out, you haven't objected to it, and you've got the right to, so obviously you haven't been upset by it, but he has a habit of wandering way passed the scope of your questions. He adds and volunteers a lot.

I noticed within the last half hour or so he added and volunteered his opinion, unasked by any question that you had, that TCDD did not initiate or promote skin cancers, and just before that he volunteered his opinion as far as the reference in his paper to skin cancer as being correlated with age.

You've got the right not to object to any of this if it's passed the scope of the question yourself. I'm not saying that you should or shouldn't. That's your professional judgment.

But I think in fairness to this witness, I think you ought to explain to him about answers being within the scope of questions and not let him get into the habit of doing this, because -- now, I don't know if he will either, but if Mr. Carr's objections hold true to form in the future he may object, and, of course, he has the right to object if matters are not responsive to his questions.

In fairness to this witness, so he's not taken by

surprise, and lulled into a habit, I think he should be informed of this and given an opportunity to -- he should be informed of this and given an opportunity to regulate his own conduct. So, you know, if you don't want to object to it, that's fine. But I think it's something that in all fairness he should be informed of also. While you were telling him about these other matters, I thought you might tell him about that also.

MR. HEINEMAN: All right.

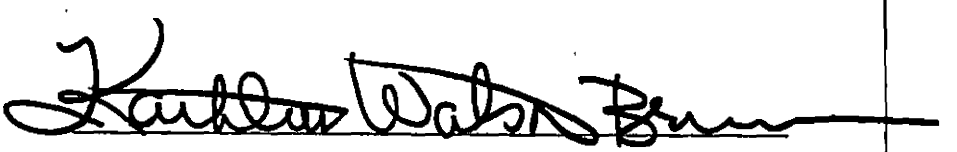
THE COURT: Okay.

(Court adjourned.)

STATE OF ILLINOIS)
TWENTIETH JUDICIAL CIRCUIT)
COUNTY OF ST. CLAIR)

I, KATHLEEN WATSON BRUNSMANN, one of the Official Court Reporters, do hereby certify that the foregoing transcript is a true and correct copy of said transcript.

DATED: February 24, 1986.



KATHLEEN WATSON BRUNSMANN, RPR, CSR
Official Court Reporter

found no serious long term effects.

Q All right. With respect to the findings that you told the jury about, that you made in the examination in 1949, '50 and '53, what did you find with respect to those same parameters in the Suskind/Hertzberg Morbidity Study?

A Well, as you all will recall in 1949, 1950 we found people with severe chloracne and liver dysfunction and peripheral neuritis, and some evidence of central nervous system disturbances, if you judge by the irritability, the insomnia, and so on, and also the findings of lipid metabolism disturbances like the high total lipids that we found. If you look at what we found then as compared to what we found in 1979, really the only persistent finding was in th skin. Chloracne. That was the only persistent finding. All of the other abnormalities were no longer present. When you compared that group, the exposed group to the not exposed group. There's no difference in the frequency.

Q What, if anything, does your morbidity study tell you with respect to the findings in man versus animals with respect to TCDD intoxication?

A Well, in writing the protocol we wanted to look at all of the organ systems where there was any information, whether it was animal or human information, that was

information that was known to be affected by TCDD, and although you can produce birth defects in rodents with TCDD, and you can produce liver cancer and other kinds of cancer in rodents with TCDD, and you can induce immuno deficiencies -- thymus is a gland in the body that provides the cells that allows us to defend ourselves against infection -- you can find such immuno deficiencies in animals, in rats, but you don't find them in humans with long term -- when you look at the long term effects.

So that the -- one is not surprised, because there's a wide range of responses of species of animals, species of mammals to toxic agents, and the fact that you find such changes that can be induced in rats or mice or guinea pigs, and you don't find them in man shouldn't be a surprise because the effects in animals are not directly translateable to man. But in our study we didn't find these effects that are seen in animals.

Q Doctor, does your study, the Suskind/Hertzberg Morbidity Study, give any information with respect to the dose response relationship?

A Well, not really, because we did not have available any concentrations of TCDD in the materials that these people were being exposed to, or had been exposed to. So that the only -- the only dose relationship we could look

at, perhaps, was the length of time people were exposed, and to see whether or not their problems, like acne, appeared to be related to the length of time that individuals were exposed to the making of either trichlorophenol or 2,4,5-T.

When we did that, we didn't find any relationship at all between the severity of their acne and whether they did or did not develop acne and the length of time they were exposed. I think the reason for that is depending upon when they were exposed. In 1949 it was apparent that there was heavy exposure. In 1965 there was probably very much less exposure to TCDD. Even though people may have been exposed to as long a period as they were in 1949, the total amount of exposure was not equivalent. But there was no way that we could relate dose, because we didn't have that information on the outcome.

Q Now, Dr. Suskind, you told us about having computerized the data that resulted from this study, and did there come a time, sir, when the computer data which you compiled was turned over to the Carnow, Conibear and Associates organization?

A We didn't turn it over. There was a litigation in Charleston, West Virginia, and it was a federal court, and federal court ordered Monsanto to turn over the raw data and the tapes that we developed from the raw data to the

plaintiffs, and the plaintiffs' attorney. We then, because of the Court order, we provided Monsanto with that and then it was turned over, I believe, to the Carnow, Conibear Association.

Q Now, let me hand you, if I may, sir, what's been marked as Defendant's Exhibit 921 and Plaintiff's Exhibit 1472, and ask you, sir, if you've ever seen those documents before.

A Yes, I have seen them. I have seen them after they were used in this courtroom. This is some kind of a print-out, and I gather that that is 921 is the print-out, and that's Defendant's Exhibit 921, and Plaintiff's Exhibit 1472, I believe, constitutes two of the pages of this print-out.

Q Dr. Suskind, have you seen the data print-outs which are the result of the data generated by your study, those data print-outs that you and Dr. Hertzberg generated?

A I have, yes.

Q Are what you have in your hand data print-outs generated by you or Dr. Hertzberg?

A Absolutely not.

Q Now, if Dr. George Roush, sir, testified in this case that those exhibits were not your print-out, would that be accurate?

A Oh, I think that would be very accurate.

Q All right. And if it had been represented here that the data contained in those -- those two exhibits were from Suskind's computer print-out, from computer tapes created by Dr. Suskind, or that those were a Dr. Suskind document, would that be accurate?

MR. CARR: Your Honor, may we approach the bench, your Honor, because the testimony was from computer tapes.

THE COURT: Can you approach the bench, please.

(The following proceedings were had at the bench out of the hearing of the jury:)

THE COURT: What was your objection?

MR. CARR: My objection is that type of question is misleading because it has been our representation, and has been from the beginning, that these documents were produced from computer tapes from Dr. Suskind, and that's all that's been represented.

MR. HEINEMAN: The representation, your Honor, initially that these were Dr. Suskind's documents. That's the first thing Mr. Carr told Dr. Roush, that these were Dr. Suskind's documents. The second thing was that all they did was tape Dr. Suskind's computer tape and print it out, and

that was the result of that.

MR. CARR: When that came in, to clarify, the ultimate statement was that these were produced from computer tapes furnished by Dr. Suskind. He didn't give print-outs to Carnow, Conibear, he gave computer tapes, and it was in evidence a couple of times that these documents were, and you've taken the deposition of Mr. Ferguson and Dr. Conibear, which has confirmed that these were print-outs taken from computer tapes supplied by Dr. Suskind.

MR. HEINEMAN: Now, the problem, your Honor, is the fact of the matter is that Ferguson reprogrammed that information. He had put in new variables, and he changed the way that information would appear in a print-out, and that's why those documents are not what came out of Dr. Suskind's office.

MR. CARR: We agree. Those documents did not -- we consistently agree they did not come from Dr. Carnow's office. This is a computer print-out from tapes generated from Dr. Carnow -- Dr. Suskind's office.

MR. HEINEMAN: Your Honor, the clear implication intended to be left with the jury at that time, based upon the transcript, was that all they did was take Dr. Suskind's data and print it out, and that's simply not accurate.

MR. CARR: The witness is listening to us and he's

signalling to the jury his disagreement with what I'm saying, clearly improper, and Mr. Seigfreid pointed that out to me.

THE COURT: I'm really getting tired of this witness playing games. First of all we'll take a short break and we'll do this in chambers. If he does it one more time I'm going to tell him he's in contempt.

MR. HEINEMAN: Does what one more time?

THE COURT: Anything like that, the statements, what I've been told he's doing now. We'll take a short recess now.

(The following proceedings were had in the presence and hearing of the jury:)

THE COURT: Ladies and gentlemen, we're going to take a short recess at this time. The admonishments that I normally give you will apply during this break also.

Gentlemen, could I see you in chambers, please?

(Short recess.)

(The following proceedings were had in chambers out of the presence and hearing of the jury:)

THE COURT: I think we were in the middle of your objection.

MR. CARR: Your Honor, yes, I want to make sure because I don't know whether Kathy got it all.

THE COURT: Okay.

MR. CARR: But while we were at the bench, argument on point to the court, out of the hearing of the jury, but within the hearing of the witness, since the witness box is right next to the bench, the witness, when I was saying that this material was -- these exhibits were generated from Suskind's computer tape, the witness shook his head no, and then turned to the jury and repeated -- I can't say that he repeated it. He shook his head no and turned and looked to the jury at that point, clearly signalling to the jury that he disagrees with what I am saying at the bench because obviously while the jury could not hear me, it certainly could -- I hope they couldn't hear me. I can't guarantee that. They certainly could see that I was talking and he was expressing disagreement with what I was saying. I think it's improper.

Mr. Seigfreid came up to the bench to point it out to me that he had also seen it -- that he had seen it. He probably didn't know that I had seen it. But I had seen it. I'm so reporting. I think the witness should be admonished

by Counsel, if not by the Court.

MR. HEINEMMAN: Well, your Honor, obviously I wasn't -- I wasn't facing the witness.

THE COURT: No, you had your back to the witness.

MR. HEINEMAN: -- so I didn't see what he was doing.

THE COURT: Right. I was -- well, I was looking at you. I didn't see what he was doing either.

MR. HEINEMAN: All right. I don't know if anybody else observed any head shaking on his part.

MS. RUDOLPH: I didn't notice anything.

MR. NASSIF: I didn't see anything.

MR. HEINEMAN: I know that the witness knows that he should not listen in on those conversations and react to them. I know he knows that.

THE COURT: So why did he do it?

MR. HEINEMAN: Well, if he did it, if it was a reaction to what was being said, I'm sure it wasn't a calculated one. I'm sure that it was a purely -- I don't know quite what word to use -- reflex type reaction to what had happened.

THE COURT: I tell you the problem with that is this is the third time I've heard it in three days of testimoy from this witness. He made an improper volunteered

remark near the end of his first day of testimony. He made another such remark yesterday, and you assured me at that time in just about the same language that he had been admonished that he was not do to this type of thing, and that you thought sort of in the heat of exchange or whatever that he shouldn't, you know, that he momentarily forgot, or whatever, and now you're in just about the same language telling me now what you told me yesterday.

This man is too experienced, too worldliwise, too long around in the affairs of life generally and the affairs of science in his position, and gives no evidence of slipping in any way, to be doing this everyday at particular times just because he happens to forget. I'm -- I am ordering you to admonish him if anything else happens I'm going to tell him that he is about to be held in contempt, and I will deal with him accordingly if he decides to step over the line after that admonishment.

This is not -- you know, we are not talking with an inexperienced individual. We are not talking with someone who does not have the capacity to understand the consequences of his actions, or the context of which those actions are being done. This is a bright and worldliwise individual. I'm not going to tolerate it.

MR. HEINEMAN: Your Honor, obviously this man is

not experienced in testifying. He has testified at length in the Nitro case, which to my understanding, other than perhaps a deposition by Pratt, or was there another deposition, I don't know of another occasion when he's testified in court.

MR. CARR: He's testified in Workman's Compensation hearings for Monsanto in the past.

MR. HEINEMAN: Not for Monsanto.

MR. SEIGFREID: Oh, yes.

MR. CARR: Yes, for Monsanto.

MR. HEINEMAN: No, it wasn't for Monsanto.

MR. CARR: It was in Nitro, West Virginia when these workers were trying to get Workman's Compensation.

MR. SEIGFREID: He said it was for Monsanto in other testimony.

MR. HEINEMAN: He testified to my understanding at the request of the board.

MR. SEIGFREID: No.

THE COURT: He has testified in Comp hearings as well as the Federal District Court. No one disputes that.

MR. HEINEMAN: In the Comp hearings -- well, I may be wrong about this, but in the Comp hearings my recollection was that it was -- it was -- I don't think it was an adversary type situation. I think he was questioned

by the board.

MR. CARR: Judge, it wouldn't make any difference. The man is experienced. He knows what he's doing is improper. He's been instructed by counsel, at least counsel has represented to us that he has instructed him. He's not a dumbbell. I think it's silly for us to be debating whether or not he's capable of following the Court's instructions.

THE COURT: Yes. You know, what I said, if he does it one more time we're going to start down the road of contempt. You can tell him that.

MR. HEINEMAN: Your Honor, I will --

THE COURT: I would suspect that you should explain to him completely the rules that I told you before, plus these specific instances we talked about. I'll give him the benefit of being advised by experienced counsel one more time. Now, let's go back to the subject of -- I'm not sure where you were on the objection.

MR. HEINEMAN: Your Honor, may I make one more point on that? Obviously, for the record, I'd like to say that -- I will obviously obey the Court's instructions --

THE COURT: Good.

MR. HEINEMAN: -- I would also say that I don't think anything he has done in this courtroom has been

there, although according to some people in this case it's defined trace as being up to 10 parts per million.

A No.

Q Others in this case have identified as trace down to 45 parts per billion. We have a wide range of testimony as to what is meant by trace in this context. So, you'll forgive me if I won't accept your use of the word trace without knowing what you mean by it; what you mean by the word trace.

A Something that's below 100 parts per trillion.

Q Something that's below 100 parts per trillion is trace to you?

A Yes.

Q All right.

A I'm not talking about our own analysis; I'm only talking about the soil analysis that the EPA did.

Q I understand that. Down to 100 pats per trillion in the EPA analysis is trace. From what to what? One part per billion down to 100 parts per trillion?

A That again varies with the different laboratories. Some laboratories still reported positive findings in parts per trillion at lower levels, and some laboratories didn't. And sometimes they would report it, and sometimes they wouldn't. The lower you go down with soil analysis, the

more difficult the quantitation becomes.

Q I understand that, Doctor, but I'm simply trying to--

A So, I really am not competent to answer those analytical questions.

Q Well, I know, and I'm not asking you, ma'am. I'm asking you how you use the word trace? What values were included when you said these people lived in areas that had trace amounts of dioxin in the soil?

A I cannot answer this question without consulting the EPA and finding out what different laboratories did where.

Q Well, up to what level--where would it get not to be trace? At what level?

A As we were told, all laboratories had a--at least limit of detection of 100 parts per trillion. Now, some had a lower limit of detection, but since we weren't concerned very much about that anyway, we didn't--

Q Dr. Kimbrough, I understand that. But, I'm trying to pin something down here. In general, was trace used to describe contamination that would be below the limits of detection for any laboratory involved?

A I'm not clear.

Q Well, that's the reason I'm trying to find out

what you are talking about. When the word trace is used by you as you've adopted it from the laboratories, do you mean to say that trace is that quantity which we cannot accurately identify quantitatively or qualitatively?

A Yes. And also we are not absolutely sure that that's really the 2,3,7,8-tetrachlorodibenzo-para-dioxin.

Q So, any time you can't be sure of what it is, then you--or the amount that it is, it's then--and by "you" I mean the laboratory, the chemists involved, the analytical chemists involved--it is then that the word trace is used. Is that correct?

A By some laboratories, yes. I don't know what all laboratories do.

Q But you used the word trace, ma'am. And how were you using it?

A I was using it in that context, yes.

Q All right. If it can't be accurately quantitated or identified as to the isomer, then it's considered trace?

A That's what the chemists have explained to me.

Q All right. But, above that--and that's the way you used the word; correct?

A Yes.

Q But, above that it is not trace?

A Yes.

Q Now, the participants in the low risk group, what was the--strike that. How much of Times Beach--or how many streets were there in Times Beach, Dr. Kimbrough?

A I don't know.

Q How many streets--were all the streets sprayed by Bliss? Did all the streets receive the contaminated oil?

A Not as far as I know.

Q Well, what part didn't?

A I sort of, if I remember correctly, it's sort of a third maybe maybe. But, I would have to go back to the maps.

Q All right. What you are doing now is trying to resurrect you memory, and again you're--

A But, I just can't relate to that.

Q And you don't really know; is that right?

A Right.

Q Well, to get it down to what you do know is that the high risk group had to live and have intimate contact in soil of 20 parts per billion and above, and your low risk group was taken from people who lived in areas at least less than that. Is that right?

A Less than 1 part per billion.

Q All right. Now--and were people--there were more than one site involved in this study--what was it; Minker

Stout, Quail Run--there were a whole number of places that were included in your contaminated sites. From what areas--we've already identified the Times Beach area. Did you select volunteer participants from the Quail Run area?

A That's a different study that's still in progress.

Q Now, I'm talking about the Missouri study, the one that we are talking about now. Did you take anybody from that area?

A No.

Q Were the--

A Not as far as I know.

Q Were the people that you took just from the Times Beach area?

A As far as I know it was a Times Beach area study.

Q All right. And none of these other--not Minker Site or Minker Stout; is that right?

A Yes.

Q All right. And all of these--did all of these participants in this study actually live in Times Beach then?

A I'm not absolutely certain. There may have been some controls who were slightly outside or who had moved away. I mean, nobody really lived at Times Beach at the time.

Q At the time of the study?

A Yes.

Q Well, that was inaccurately put. The participants in the study were drawn all from people that had lived in Times Beach--that had lived in Times Beach or near Times Beach; is that correct, ma'am?

A Yes.

Q All right. And that's 100 percent of both groups either lived in Times Beach or near Times Beach; is that correct, ma'am, to the best of your knowledge?

A To the best of my knowledge, yes.

Q All right. And how often the people that actually went on the contaminated streets is unknown to you?

A Yes.

Q All right. What you did do was try to select out these people, put the--divide them in two groups, the people that had the less known or less obvious or less often or less intense contact with the contaminated--actual contamination in one group and those with the known, more intense, more active, more frequent participation in these contaminated--actual known contaminated areas in the other group; is that right, ma'am?

A Yes.

Q All right. Now, in the--in order to speed this up

a little bit, if I were to ask you the questions about how many people would be expected to have persistent feelings of pins and needles, and cramps, and loss of power, and burning in body, and tingling in fingers and toes, would it be your answer that you have no judgment that would be of any significance in this case?

A You mean all of these things together or just--

Q Or independently?

A --or independently?

Q Yes.

A Independently I would say that 25 percent of the people of the total general population might report something like that, but they wouldn't have all of these things.

Q At the same--all right. What you are saying is 25 percent of the population would have persistent feelings of pins and needles in the body, within the meaning of the question and the way it was asked in the Times Beach pilot study?

A No. Maybe 5 or 10 percent would say that, and some others would say they had heart burns and--

Q All right. But, anyway, what I'm asking you is a specific question. You say 5 to 10 percent of the people would respond yes they have persistent feelings of pins and

needles in the body; is that what you are saying?

A In their hands or in their feet.

Q All right. And what about cramps? What percentage of people would respond that they have muscle cramps?

A Judging from the experience yesterday, I would say--strike that. At some time everybody has muscle cramps.

Q Yes, Doctor, we've established that already. I'm asking you again, in the way the question was asked by the people that did the asking, and they had follow-up questions to pinpoint the problem as you've suggested this morning. In the context of this health study, this review that went on, the inteviews that went on, in the context of that question posed in that way--and so I need not say it again--will you assume that all of these things that I'm asking you is put in that context about these symptoms and findings and problems--will you do that ma'am?

A All right.

Q What percentage of people would have cramps?

A Persistent cramps?

Q I'm sorry?

A You mean persistent cramps?

Q The word cramps was used. I don't know what the

question--I don't have the advantage, the same advantage that you have. You read the questions; I did not. All I have are the results, see. So, you have an advantage over me. In the way the question was asked, as I've already told you, ma'am, what percentage of people would report that they had cramps in the general population?

A Persistent cramps could be reported in 10 to 15 percent of the population.

Q And loss of power? What percentage would report loss of power?

A That would be lower; somewhere between 1 and 5 percent.

Q And burning in body?

A I can't answer that; I don't know what burning in body--that's one of those catch all questions where we want to know--

Q It's one of the questions you threw in to test-- I'm not going to say honesty, because they were all honest presumably--but to test the subjective view of their health; is that right?

A Partly, and also to try and evaluate their understanding of the question.

Q All right. So, that's a question that would have no--that wasn't designed to bring out a health effect; if I

understand what you said before?

A Well, that's not quite right. If they may answer that, we may then go back and see what else they are, and see how that all fits together. And we may want to go back and examine them more if we think they haven't properly answered the questionnaire.

Q All right. Moreso than the other questions, it can't stand by itself; it's a more unique question than the others, and you would definitely have to do other things in order to give the answer to that question meaning; is that right?

A Yes.

Q All right. What percentage of the people would you expect to respond that they had tingling in fingers and toes?

A I've already answered that earlier.

Q No, I'm sorry, but the question that was asked before was persistent feelings of pins and needles in body. This is a different question.

A Okay. That's again, the tingling and pins and needles--

Q I didn't make the questions; don't look at me. I didn't design the study. Tingling in fingers and toes. What percentage of the general population would respond

that they had tingling in fingers and toes in your estimation?

A It's the same thing as pins and needles; it's the same question asked in a different way.

Q All right. What percentage then?

A And I said, it was somewhere between 10 and 15 percent.

Q All right. Now, on--in the general population, what percentage of people would you expect to respond that they had prolonged infections?

A Could be up to 25 percent.

Q And as far as findings are concerned in the immune, how many--in the general population, what would you expect to find to have marked depression in lymphocyte proliferation?

A That's not very well known; and I can't answer that question.

Q You have no judgment at all?

A No.

Q Could be anywhere from 5 percent to 100 percent?

A I don't know.

Q You have no judgment at all?

A No.

Q Would you expect 100 percent to have it?

A I don't know.

Q You've done no work in this area at all?

A I have read the literature, and I've reviewed it. I had first got involved with that when I was dealing with Love Canal, and there just isn't enough information at the moment.

Q What you are saying then is that any figure would be meaningful; but, on the other hand, any figure would not necessarily have any meaning?

A Right, until we get more information. That's an area of research that we don't have good information in yet.

Q And so, it could be that if as much as 10 percent of the population had a marked depression in their lymphocyte proliferation that that could have real significance; couldn't it?

A I just cannot answer those questions at the moment; I just don't know enough about it.

Q Doctor, I submit that if you don't have any scientific basis to dispute it, then what I say to you, anything I say to you you will have to accept as true unless you do have some scientific basis to dispute it. And that's the reason--I'm asking this question to test whether or not you in fact have any scientific basis as you say you do not

have. Could be, could it not, ma'am, that if 10 percent of the exposed population have a marked depression in lymphocyte proliferation, that could be significant; couldn't it, ma'am?

A Lymphocyte proliferation is effected by so many things that--significant for what? I mean, I don't understand.

Q In determining whether or not one has had an adverse health effect from exposure to a chemical involved?

A No.

Q Pardon?

A No.

Q It could not be then? It could have no significance? You are saying that--

A You cannot answer that question in a vacuum like this.

Q Doctor, if I ask you and you have no knowledge, if I ask you it could be that there are a million planets in this universe that have human beings, or humanoids, or creatures like humans, you could not dispute that; could you, ma'am?

A I sure could.

Q How so?

A I can also say that I believe that's not true.

Q No; but I'm not asking your belief. I'm asking you is it possible, ma'am, that there are a million planets in this universe that have humans on it? Is that possible?

A I'm saying no.

Q And why are you saying no?

A Because I don't think it's possible.

Q Why do you think it's not possible?

A Because of my experience that I've had and the general knowledge that I have acquired.

Q All right. What is that experience and general knowledge that tells you that there cannot possibly be a million or a hundred or a hundred million other planets in this universe that have humans on them? What is your background? Is it religious, or is it scientific that tells you that that's no so?

A Both.

Q From a religious viewpoint you believe that then there couldn't be anybody--any place except earth that's got humans on it?

A I didn't say that.

Q All right. Do you believe that there could be another planet in the universe that has humans on it?

A I don't know.

Q I'm not asking you of your knowledge; again, I'm

testing the way you are using the words that you are using, Dr. Kimbrough. Is it possible, Dr. Kimbrough, that in the billions and trillions and billions of other solar systems that exist in this universe, is it possible that there is one single other planet out there that have human like beings on them--on it?

A There may be another planet that may have some life on it, but I don't think there would be humans.

Q Or human like?

A Human like creatures.

Q And now, are you giving that answer from a scientific viewpoint or from a religious viewpoint?

A That's from a scientific viewpoint.

Q All right. Now, what in science tells you that in all these countless--and they are countless--unimaginable number of solar systems out there--haven't yet reached the end of the--we don't know yet the end of the universe--we don't even know, there might be more than one universe out there. What in your scientific knowledge tells you that it isn't possible that there could be another planet out there with human like beings on it?

A You changed it slightly; you said human like.

Q No, I said that before, ma'am.

A Oh, I'm sorry; I didn't hear that. I wouldn't

think that the evolution in any one planet would be just exactly the same--

Q And I carefully did not say--

A Okay; I didn't catch that.

Q Initially I did say humans, and you were correct in humans. But, then I said--my next question said human like.

A Oh, I'm sorry; I didn't hear the "like".

Q So--by your hesitation here and by your inquiry here, are you saying that you believe it is possible that there could be another planet out there that has human like beings on it?

A That could be possible.

Q Is it possible there could be a hundred planets out there that could have human like beings on it?

A I don't know.

Q I'm sorry?

A I do not know.

Q No, I didn't ask you whether--

A I mean, I can't even guess.

Q Dr. Kimbrough, I suggest to you that if there could be one out there, as you've agreed that there could be, then there could be two; couldn't there, ma'am?

A The earth could be flat.

Q Well, but we know the earth isn't flat; we don't know what's out in the universe as far as life is concerned; do we, ma'am?

A Not--we know a little bit, but we don't know a lot.

Q We don't know enough to say that there couldn't be human like creatures out there; do we, ma'am?

A No.

Q We don't know enough to say that there could not be a hundred planets out there with human like creatures; do we, ma'am?

A Since this is totally out of my area, I'm not really qualified to discuss that; but, I think a hundred would be an exaggeration.

Q Why, ma'am? How many millions of planets--or how many millions of solar systems would you have to have to produce one with atmosphere and conditions like we have on the earth?

A I don't know.

Q You haven't the vaguest idea, and nobody else has, ma'am. Nobody knows. There could be, it's possible that there could be billions of solar systems out there that have a planet that goes around that sun the same way this earth goes; isn't that possible, ma'am? Could be billions

of such out there?

A If you--

Q On the other hand, there could be none; isn't that right, ma'am?

A There could not be any other solar systems.

Q No solar systems with planets that have the same conditions that cause human life to evolve on this planet?

A Yes.

Q There could be billions of such planets; couldn't there, ma'am?

A Billions?

Q Billions of such planets out in the countless universe?

A That's--I don't think so.

Q Why not, ma'am?

A Some of those creatures might have made contact with us by now.

Q You are saying might have. Again, they might not have as well; is that right, ma'am?

A I would think they would have.

Q Doctor, what makes you think that they would have evolved any more rapidly than we?

A Because I'm an optimist.

Q Doctor, I'm not talking about your optimism; I'm

asking strictly--and I know this gets to be ludicrous--strictly in possibilities, ma'am. What it boils down to, what I'm saying is, it is possible, even though you might say that it's not likely, it is possible that there are hundreds of planets out there, billions of planets out there with human like creatures on them; isn't that right, ma'am?

A I have problems making these sweeping statements, because they don't mean anything.

Q Well, I know they don't mean anything, but that's the reason I'm asking the question, ma'am, to establish that what you've said about your marked depression in lymphocyte proliferation. If you have no knowledge as to the significance of it, then you can't say that it does not have significance, if you have no knowledge one way or the other? That's the whole point of this exercise, Dr. Kimbrough.

A I didn't say it had no significance; I said that there were many things--I was trying to say that there are many things that effect the immune system, that at the moment we have not sorted that out and we need to do more work in science--

Q And that's the reason I asked you, ma'am: it is possible, is it not--and I used the word "possible" ma'am--

it is possible that a 10 percent depression in lymphocyte proliferation may be? And I used two words--it's possible, might be; and I said it may have significance in showing dioxin exposure. Now, isn't that possible, ma'am?

A It's also possible that something entirely different could--

Q I agree. I agree, and have no dispute on that point. One is possible; the other is possible; isn't it, ma'am?

A Well, if one is possible, then the other may not be possible.

Q No, both could be possible. There could be a thousand possible solutions to the problem. When in fact there's only one real solution, there are a thousand--until we identify it, there are a thousand possible solutions. In this particular case, ma'am, do you not agree that if one is possible, the other might also be possible? Perhaps not as likely, but possible?

A That's putting it a little too loose. I think by carefully reviewing these people's records and the findings, doing some follow-up, and doing some other things, we could limit down the possibilities.

Q Yes; but that hasn't been done, and I'm using--has it, ma'am?

A No.

Q I'm obligated here to prove this case with what we've got; not what we might have someday; but what we have at this time. Could be absolutely wrong; could be a thousand percent wrong. But, I'm using the tools that we have. And I'm suggesting to you that a marked depression in lymphocyte proliferation might have significance in this case; might it not, ma'am?

A It might.

Q Yes. All right. Now, Doctor, how about the T4:T8 ratio being less than one. What percent of the population would have that ratio of less than one of the general population?

A We're just going to go through the same thing. It all goes together. I don't know.

Q Would your answer be then that you don't really know the significance of that related to this case, but it might possibly have significance? Is that the answer to the question?

A Yes.

Q All right. What about porphyrins, ma'am? I know that you've worked with porphyrins. What percent of the population would you expect to have chronic hepatic porphyria as defined and used in the Missouri Health Study?

A Now, there is a human disease called porphyria cutanea tarda--

Q Now, Doctor, I asked the question specifically, chronic hepatic porphyria as used in the Missouri Health Study that you helped design? I don't want to get into all kinds of porphyria that there might be; I'm asking you a specific question on the study you designed. What percent of the general population would you expect to have chronic hepatic porphyria?

A The disease, which is porphyria cutanea tarda--

Q Doctor--Doctor, did you understand my question? I'm talking about the chronic hepatic porphyria defined, discussed, identified, used in the Missouri Health Study which you helped design. What percent of the general population would you expect to have chronic hepatic porphyria?

A Since we seen to have difficulties with sematics, I'm trying to explain what I mean by my percentages.

Q Doctor, I don't want an explanation; all I want for you to tell me is in this study that you designed--that you helped design--and I know you had a great deal of input on the porphyria section; did you not, ma'am?

A Yes.

Q In that study, ma'am, in the way you used the term

chronic hepatic porphyria, they way you defined it then, the way you took it then, the tables you used and everything you did in that study, what percent of people did you expect to find had chronic hepatic porphyria in the general population?

A What I mean by chronic hepatic--

MR. CARR: Your Honor, would you direct the witness to answer the question as I've posed it.

THE COURT: Doctor, you have to answer the question, Doctor; it was directly posed; it did not call for an explanation of the term.

A The percentage would be very low; it would be one in a thousand or less.

Q Doctor, how much time did you all spend at least that you are aware of in discussing what kind of parameters to put up in your tests dealing with chronic hepatic porphyria?

A I don't understand the question.

Q How much--what I mean is how much time did you devote to that--to setting up or designing that as part of your study?

A We started several years ago to set up a method, and we've done a lot of work in that area with other populations, and so it is something that we now routinely do.

Q All right. And as far as the Missouri Health Study is concerned, then, you had a great deal of background when you designed and suggested and had made the porphyria protocol part of that study; is that correct?

A Yes.

Q It wasn't done as an off-the-shelf kind of thing; it was done after careful and deliberate thought?

A Yes, and also because we put time into developing the hot pressure liquid chromatology method.

Q All right. And as a pathologist, you were well versed in the various kinds of porphyria?

A Yes, to some extent.

Q Yes. And you knew all about Doss and Strik and their work; did you not, ma'am?

A Yes.

Q Doctor, what percent of the general population would you expect to come up with the results that would not be typeable in your porphyria exam as far as the type of porphyria they may have?

A There are--all the porphyrias that would not fit into this classification; is that--

Q No.

A I don't understand the question.

Q No. All right. In your Missouri Health Study,

you put down the number of people that had various kinds of lab results and you determined whether or not that was or was not an indication of hepatic porphyria--or chronic hepatic porphyria. All right?

A Yes.

Q There was a category that you put, not in the normal--you had two sections, you had the normal and you had the chronic hepatic porphyria section. And then you had an untypeable section. Do you follow me? You had normal, you had chronic hepatic porphyria, and then you had untypeable.

A Yes.

Q What percent of people do you expect to be--to fall into that untypeable classification?

A There are--there's probably about a third of the population that has some variance from the rest of the population. We feel that it's a variance in the general population which has nothing to do with disease.

Q That isn't what I asked.

A Is that--

Q Probably not, but I think it would be so long to get an appropriate explanation to you so that I could get an answer that would fit my needs; I think it would probably be best if I use this time for something els. And do

let me pass on to something else, Doctor. You have testified here yesterday as to the means and methods by which you could be used to testify in other cases. And you mentioned that you were in one case in Missouri, did you not, by way of deposition? To refresh your memory, you gave a deposition, did you not, in the case of Patricia Drinkard, Paul Drinkard, Lori Platt, and Andrea Platt versus Independent Petrochemical Corporation, which was on file in the Circuit Court in the City of St. Louis, State of Missouri, case number 782-559. You gave such a deposition; did you not, ma'am?

A Yes, I guess so.

Q You didn't mention it, but--

A I'm sorry, but--

Q That's all right. You see, this is your deposition, deposition of Renate Kimbrough.

A Yes.

Q And it took place on the 18th day of February 1983, as a matter of fact, just 12 days after this case started. No--did we start in '83 or '84?

THE COURT: We started February of '84.

Q All right. Your deposition was given a year, then, before this case started.

A Okay.

Q All right. Do you remember that now?

A Yes. There were a number of things we went round and round about it, but I'm not really quite sure--

Q No, all I want to establish is that you gave an evidence deposition in that case.

A Yes; okay.

Q Did you not, ma'am?

A Yes.

Q And you gave an evidence deposition in the case filed in the Circuit Court of Pike County, Missouri. You gave it a long time ago. That was the 28th of February 1975. Did you not, ma'am? And I could forgive you for forgetting that one.

A Yes.

Q That was the case of Frank J. Hampel and Judy Platt versus Russell Bliss and a whole bunch of others, and some chemical companies. Do you recall that?

A Yes. Now I remember the lawyer's name again, too.

Q That's all right. And that was also an evidence deposition that you gave; was it not?

A Yes.

Q You also gave an evidence deposition in the case of--

A Evidence deposition means what?

Q Will be read in the proceeding that follows without your coming in person like you have here, for instance?

A Okay.

Q In other words, you give your testimony in Atlanta, Georgia, as you did in the two cases I've just talked to you about--

A Yes.

Q And it's subsequently read at the trial.

A I don't know that; you see, that would be something you would have to talk to--

Q Okay; I'll just eliminate the word "evidence" for now. And you did--well, I'll have to say evidence deposition, because that's what it was--you gave an evidence deposition in the case of Jerry Russell Bliss versus Fred Lafser, State of Missouri, Number HW 81-1A, did you not, ma'am, on December 8, 1982?

A Yes.

Q Is that correct, ma'am?

A Yes.

Q All right. Now, in that--in the situation of the Missouri Health Study, there is such a thing as a--strike that. What health effects do you expect to come from long time and or low dose exposure to TCDD, if any?

A There may not be any; that's--

Q Well, there may be some?

A --that's what we hope.

Q Well, what are the signs that may be present, or is it simply you do not know what it may be?

A We don't know.

Q And the reason you don't know, ma'am, is why? Why don't you know what the effects of long term low dose exposure to dioxin may be in human beings?

A Two reasons. One is that different animal species respond quite differently; we don't know where humans are. And then, the only experience that we've had has been in workers that have been exposed to very high doses and often over short periods of time. And even there, any chronic health effects that have been reported, if you really examined all of that information, it isn't very clear, and some of it may actually be chronic disease that you get with aging. And so, it's--that's also because of that. And it's very difficult to design epidemiology studies, and you have to sort of throw out a big net and then try and see whether there are any differences between that and a comparison group. The things that we have concentrated on, partly because of the animal data, has been the sensory nervous system, the immune response, and the porphyria cutanea tarda. And there are things in the workers with

acute exposure that have had some general malaise, and so we have included all of those things, too.

Q Well, to get it back to what I thought I was asking, is that you have not reached--and by you I mean the scientific and medical world in general--you have not reached yet a state where you can be absolutely sure as to what the chronic health effects in humans will be because of, one, the human life span is so much longer than tha-- most of the animals that you tested and studied, and there there isn't yet a sufficient history length of time to come to any results positive--or absolutely sure results in the case of long time low dose exposure in the case of human beings?

A Yes. The only thing is chloracne.

Q And chloracne may be present in some instances, and it may not be present in others; isn't that correct?

A That's a very complicated question. Most people that have had--most workers that have had exposure to high concentrations have developed chloracne.

Q Yes. But you are talking about a high concentration; aren't you? My question is aimed at chronic long term low dose exposure to dioxin. Ma'am?

A Could I get the question again?

Q Well, you said chloracne.

A Yes.

Q And when I asked you what were the findings from long term low dose exposure, in that general area, you said chloracne was one of the things. But, in point of fact, the chloracne that you are familiar with had been acute high dose exposure to dioxin; isn't that correct, ma'am?

A Yes.

Q Yes. And whether--and chloracne is not--let me ask it another way as well. Even in those instances, chloracne is not a constant finding; is it, ma'am?

A In most people it is; not in everybody, but in most people.

Q My question is: you know a number of cases where they didn't have chloracne, for instance; don't you, ma'am?

A They are rare.

Q Pardon?

A They are rare in those situations.

Q But, my question is: you know of cases in Europe--you know of cases in this country where people working side by side in the same plant, the one guy gets chloracne and his fellow right next to him doesn't get chloracne. You know that; don't you, ma'am?

A As far as the 2,3,7,8-tetrachlorodibenzo-para-dioxin is concerned, there were a few workers, maybe two or

three, in the Spulana factory that Dr. Jirasek reported that didn't have any chloracne.

Q Yes, but as a matter of fact, what happened there, as you pointed out in one of your statements or papers, something that I read, they just really studied the people that had chloracne. Those were the ones that they thought were exposed, and those were the ones they went after; isn't that right?

A That's true.

Q So, actually what that study was and what so many of these studies were, including the Suskind 49 studies, these are studies of people that have chloracne; isn't that correct?

A Yes.

Q And they are not studies of people who had exposure to 2,3,7,8-tetrachlorodibenzo-para-dioxin per say; are they, ma'am?

A They also had exposure to TCDD.

Q Who?

A The people with chloracne had exposure to TCDD.

Q Right. I didn't mean to say they did not.

A Yes.

Q What it was a study of--what most of these studies if not all of the studies was were studies of people who

were exposed to 2,3,7,8 TCCD and got chloracne; isn't that correct, ma'am?

A Yes.

Q They were not studies of people who were exposed to 2,3,7,8 TCCD period; were they, ma'am?

A No.

Q No.

THE COURT: Is this a point for a short break?

MR. CARR: Sure, your Honor.

THE COURT: Okay. We'll take a short break at this time and resume testimony.

(At this time a short break was taken.)

(The following proceedings were had out of the hearing and presence of the jury.)

THE COURT: Mr. Carr?

Q Doctor, on the point that we were discussing on the effect of long term low dose exposure, there's been a population that has been considered to fall into that category, but in fact that have not, and that's the Seveso group of people; isn't that correct, ma'am?

A They have not had long term exposure?

Q Right. They've had low dose exposure, but not long term?

A They had initially a relatively high exposure, and

then they really haven't had long term exposure.

Q Well, what was the extent of the exposure that you would call high initially?

A The exposure to the cloud and the vegetation during the first two weeks after the accident.

Q I understand that. But, I want to know the level.

A I'm sorry.

Q The level of contamination?

A I don't know what the contamination in the cloud was; on the vegetation there are some measurements of 15 parts per million.

Q And there were--are you familiar with the studies that--the tests that were performed later on showing--I think there's exhibits in this case which if I had time I could pull it out and show you--but are you familiar with the studies that showed that the contamination in general was much less than that, down into the low parts per billion or even down in the parts per trillion?

A In the soil measurements--or there are three zones; and except for Zone A, all of the soil measurements in Zone B and Zone C were in parts per trillion.

Q Yes. And the people living in those areas, including some of them in Zone A--Zone A, if I remember the map, was that small area that was in the direct path of

this cloud, and I've seen the drawings that I have, like a large long teardrop of water. That would be the Zone A that you are speaking about?

A It was adjacent to the plant.

Q Yes.

A Now, recently they have redefined the zones, but I'm talking about the original zones.

Q Actually, as far as those people are concerned then, they did not actually have long term exposure; did they, ma'am?

A The people that lived in B and C, no.

Q Well, in A, B, and C. None of the people in Seveso had what's considered long term exposure; did they, sir--ma'am?

A No.

Q Is your answer to my question yes, that's correct, they did not have long term exposure?

A Yes, to--

Q I'm sorry?

A To levels that would be important.

Q By your definition of importance?

A Yes.

Q Well, none of those people would have those levels. What do you consider important; what levels?

A There is some--there is some contamination in the part per trillion range.

Q Well, but you don't consider that important; do you?

A No.

Q Well, I want to know what you do consider important. In what range?

A We have developed this paper that gives you all of the rational on soil levels.

Q I understand the rational; but, I'd like to know what level of contamination is it that you consider important?

A We said that anything below 1 part per billion.

Q I know what you said, ma'am, but my question is what do you consider important level of contamination?

A Below 1 part per billion is negligible.

Q And do you mean, then, that exposure to--or strike that--contamination above 1 part per billion is important, and contamination levels below 1 part per billion are not important?

A Levels below 1 part per billion are negligible. They are not important in residential areas.

Q Okay. Then, the answer to the question is they are not important if they are below 1 part per billion?

A In residential areas.

Q Well, in any other area are they important?

A If you had pastures where cattle was grazing, you might have to go down to lower levels. It depends on the circumstances.

Q What about lakes or ponds where fish are located, where you have drain off into those ponds--run off?

A That is not really my area. This is the responsibility of the Environmental Protection Agency, and I have not evaluated that.

Q Doctor, you have evaluated and you do know, however, that if one eats fish contaminated, that his levels of dioxin--that one can accumulate in one's body levels of dioxin from eating just that contaminated fish. You know that; don't you, ma'am?

A Yes.

Q And you can get that significantly high concentrations simply because of eating the contaminated fish and absorbing the dioxin from that fish; correct, ma'am?

A It depends on the level of contamination.

Q Dioxin accumulates in the body; doesn't it, ma'am?

A Yes.

Q And any time you are exposed to dioxin, you--and you ingest it, absorb it--you are accummulating some of

that dioxin; aren't you, ma'am?

A Yes.

Q Because of it's half-life?

A Yes.

Q And every day if you are exposed in a fashion that you will be ingesting or taking into your body portions of dioxin, you are accumulating some part of that which you are ingesting or taking in daily; isn't that correct, ma'am?

A Yes.

Q And, depending upon it's half-life, you would continue to accumulate until such time as you reach a point or the amount that you are excreting or disposing of on a daily basis becomes equal to the amount that you are taking in--equal to or greater than the amount that you are taking in on a daily basis; isn't that correct, ma'am?

A Yes.

Q And that to a great extent depends upon the half-life of the dioxin?

A Yes.

Q In human tissue; isn't that right?

A Yes.

Q And all during that period of time, whether you are exposed to it in the air, in the soil, in the dirt, in

liquid, in fish, in beef, in chickens, and however you might be getting it into your body, you are accumulating dioxin; aren't you, ma'am?

A Yes.

Q And you'll accumulate it until you reach a point where your excretion becomes greater than your intake; isn't that correct, ma'am?

A Or equal to.

Q Or equal to.

A Greater or equal to.

Q Equal to or greater than. All right, ma'am. That's one reason that the F.D.A. or whoever made the rules on eating fish said there's a certain level of fish that you should not eat; correct, ma'am?

A Yes.

Q Because of the bio-accumulation effect?

A Yes.

Q All right. And of course, that's a reason that you at CDC set the level in soil, again, because of the bio-accumulation factor?

A Yes.

Q Now, a lot of this depends upon half-life in humans then. What is the half-life of humans that you believe to be the appropriate half-life in fat tissue in

humans?

A There is really not enough information. There's one scientist who took some TCDD--

Q Dr. Froyer. We know that.

A Right; I heard that story, too. And that's all I know.

Q Well, you know that the volunteer wasn't described as a scientist, but in the abstract that came out, it was a volunteer took some radiomarked TCDD and measured the half life of that TCDD in his tissue; correct, ma'am?

A Yes.

Q And that it was concluded by Poiger and Schlatter at that time that half-life was right at four and a half years, five years--what is it; I forget now?

A Something like that.

Q Yes. And do you have any reason to doubt the validity of their experiment and the result?

A No, except that it was a single dose and just one person.

Q That I understand. But, my question is: do you have any reason to doubt that validity of that single experiment with that single person?

A No.

Q And you used and relied upon works and experiments

of Poiger and Schlatter in other instances; have you not, ma'am?

A Yes.

Q For instance, in your book--in your health assessment document, I noted that you relied upon a number of Poiger and Schlatter results; did you not, ma'am?

A Yes.

Q Now, dioxin is by consensus, and by yourself as well I'm sure, the most potent or one of the very most toxic--I shouldn't say potent--toxic chemicals made by man; isn't that correct?

A Yes.

Q And, however, it is not the most toxic substance or material known; is it?

A No.

Q The botulina toxin is more potent than dioxin; is it not, ma'am?

A Yes. And there are some chemical war gasses.

Q Chemical war gasses that I guess the rest of us, we don't know about yet; correct?

A Yes.

Q All right. But, the difference between the botulina toxin and dioxin is that the botulina toxin will not bio-accummulate; will it, ma'am?

A Yes.

Q Is that correct, ma'am?

A Yes.

Q So, the toxicity of dioxin can be greatly expanded and magnified over and above the botulina toxin toxicity because of the difference? That is, one accumulates in the body and the other--that is, the botulina toxin--does not accumulate in the body; isn't that correct, ma'am?

A That doesn't necessarily follow. It's just a difference. One causes chronic toxicity, might cause chronic toxicity, where the other might not. There is also, in humans at least, a protective mechanism in that they--the human--while he has a lot of trouble excreting it, stores it away in fatty tissue where it is not as effective on the cells.

Q But, that's--most of that is speculative; isn't it, ma'am?

A Yes and no. Monkeys, for instance, and also guinea pigs have very little fatty tissue, and they are extremely sensitive to these types of compounds. And that may be one reason why they are.

Q All right. That's not an important point that I really want to pursue. You made a mention about dioxin in the half-life in soil. It is a fact, isn't it, ma'am, that

as far as when we're talking about half-lives, that in the soil dioxin doesn't readily decay in the environment and it's extremely persistent in soil?

A It's extremely persistent wherever it does not come in contact with UV light.

Q Well now, Doctor, that's not exactly correct. It's got to be in contact with UV light and it has to be associated with some kind of solvent as well; does it not, ma'am?

A It has to have a hydrogen donor.

Q Yes.

A But, they are also in the environment.

Q Doctor, didn't Crosby point out that there has to be this solvent as well?

A No. I mean, I don't know what Crosby pointed out, but you need to have a hydrogen donor; any hydrogen donor will do.

Q Didn't he study half life in soil, and haven't you agreed that half life in soil is anywhere from what--one year to ten years?

A Crosby published a paper where he, I think, measured the degredation on vegitation which was exposed. And we may be talking about different papers.

Q May well. But, I want to talk about the soil and

not the vegitation anyway.

A I don't know about Crosby's work in soil.

Q All right. And, Doctor, you have stated in the past, have you not, that the half-life in soil is what? Ten years?

A I've estimated that; nobody really knows.

Q Yes. And is that still your best judgment that the half-life in soil, or you best estimate I should say, is ten years?

A Yes, in soil that is not exposed to UV light.

Q Well, an exposure to UV light takes precious little shading or a very thin layer of soil to prevent that sunlight from reaching it; doesn't it, ma'am?

A Yes.

Q And nobody knows yet what happens to the dioxin vapor in the air--you don't agree that it turns into vapor--but if it does turn into vapor in the air, nobody knows what happens to it in the sunlight in that form; do they, ma'am?

A I don't know.

Q And others have testified in this case on that point. You have nothing to add, I take it, to what they've said on the point; isn't that correct?

A Well, I don't know what they've said.

Q Well--

A But, I don't know anything about it.

Q You don't know anything about the subject?

A Yes.

Q Is that correct, ma'am?

A I'm sorry; is what correct?

Q That you don't know enough about the subject of the resistence or life of dioxin in the soil or in the air to make--to give us an expert opinion on the view on the issue?

A That's correct.

Q All right. Now, Doctor, to sum up your knowledge as to the long term low dose exposure to dioxin--well, first of all, you consider low dose to be in the lower parts per billion, do you not, ma'am, and below? Or is it fair to say that you consider anything above one billion a high dose exposure--one part per billion?

A This is in soil, or where people ingest it, or--I mean, what--

Q Well, whatever? Well, in soil, for instance? Anything above 1 part per billion in soil, do you consider that to be high exposure?

A No.

Q All right. What is the level of contamination in

the soil that you would consider to be high exposure?

A That would depend on the circumstances.

Q In a residential area where people will be exposed to it?

A I would call anything--anything below 1 part per billion I would not be concerned about at all. That's one category. The next category of low exposure--and you were asking me about low exposure or high exposure?

Q High exposure.

A High exposure. Then, anything above 100 parts per billion I would consider high exposure.

Q In the soil? If the soil is contaminated with that?

A Yes. And that would be of great concern. Anything above 20 would be in sort of an intermediate range, between 20 and 100, as far as I'm concerned.

Q All right.

A Now, there are other variables. In Missouri, and that's why we were always--we always said that whatever we evaluated was for Missouri. In addition to the 2,3,7,8-tetrachlorodibenzo-para-dioxin, this material was also mixed in oil. And it's possible that that would increase it's biodegradability versus other areas where you would not have this addition of the oil.

Q All right. You mentioned from 20 to 100 is an intermediate zone. And from 20 parts per billion and below, down to 1 part per billion, what do you consider that zone?

A In a residential area with small children, I would also be concerned. In an industrial site, depending on the situation, and depending on the type of exposure--and of course, all of this is explained in our paper--

Q I know.

A I would not--you might not have a lot of concern, and your actions might be different.

Q I'm talking about residential zones right now. And from 1 part per billion and below is what you consider low dose or--I'm sorry, not low dose, but exposure--well, yes, I do mean low dose exposure. Correct; ma'am?

A I consider that as of no concern.

Q And you consider--well, all right. You consider it of no concern. But, you have no knowledge as to what the long term health effects will be from exposure to levels of 1 part per billion and below; isn't that correct, ma'am?

A Based on the knowledge that I have, and based on animal experiments, and my own experience in the area of toxicology, I don't think there will be any health effects,

or I don't think there are any health effects.

Q That isn't really what I asked you. You don't know the health effects from that kind of exposure; isn't that correct, ma'am?

A Yes, I do; they are none.

Q I'm sorry?

A I do. There are none.

Q There are none?

A Yes.

Q Where have you had human long term exposure to low doses to allow you to come to that conclusion, ma'am?

A The general population has been exposed to low doses.

Q And how do you know that the general population hasn't been effected by it?

A The health of the general population--the health of the general population seems to be improving. We live longer now and our life expectancy is increasing.

Q Doctor, that doesn't mean that our health is improving. You can have--you can live 80 years with pains in the back; you can live 80 years with joint pains; you can live 80 years with having colds; you can live 80 years having headaches; you can have all kinds of health effects and have long life; can you not?

MR. HEINEMAN: Object to the question as argumentative, your Honor.

THE COURT: Overruled. It's proper cross.

A These sorts of health effects have always been there. They've been there before.

Q There's no doubt about that, ma'am. But, if they are increased or exacerbated by exposure to dioxin, that still is a health effect caused by dioxin; is it not?

A They are not increased or exacerbated.

Q How do you know that?

A If you compare what data we have from years in the past, and I've sometimes tried to do that, to what we know now, there either is no difference, or there is something like the increase in cancer of the lung because of smoking, or there are declines in health effects.

Q Well now, Doctor, you are talking about significant health effects when you talk about lung cancer. I'm talking about just general health. Let me put it a different way. Isn't it a fact that whether or not there will be chronic health effects is not known yet, because it takes a long time for such a health effects to show up, and because of the life span in humans is very long?

A If you are talking about the low level background contamination in our environment, we have now had that, as

far as commercial products are concerned, for--

Q Pardon?

A As far as commercial products are concerned, for at least since right after the Second World War. And as far as the fire and combustion and incinerators are concerned, we've had that longer than that.

Q Doctor, would you answer my question?

A There has been enough long term exposure that, this low level long term exposure, that you could make some judgment.

Q And when did you make that judgment, ma'am? How long have you had that opinion?

A I've had that opinion for several years and for some--for quite a number of years.

Q How many would that be?

A Five or six, maybe. I don't remember. There's a paper that shows the contamination with TCDD in different areas of sediment, I think in Lake Michigan, which give us also some information about some of this background contamination.

Q No; but, you've had this opinion as to the long term health effects--chronic health effects--for at least five years or seven?

A I have started looking at that in connection

with--in the publications--

Q Can you answer--

A I don't quite know the year, you see. When the papers came out about the incineration, and also this paper about the various levels of TCDD that were found in the sediment in Lake Michigan where they found an appreciable increase over a period of time and then tried to relate that to the period when the sediments were put down.

Q Did you have that opinion at least by the time you wrote your article "Health Complications of 2,3,7,8-tetra-chlorodibenzo-para-dioxin Contamination in Residential Soil"; you and Falk and Stehr wrote?

A Yes.

Q You had that opinion at that time?

A After--

Q Could you answer that question?

A Yes.

Q And that--published that in '84. Did you have that opinion in--are you talking--when you talk about your sediment in Lake Michigan, you are talking about the Kingston Ottawa Study?

A I think that's the study; I'm not--

Q With the fish?

A I--

Q Now, Doctor, in your deposition that you gave in 1982, did you have that opinion then?

A I probably did; I don't remember whether it came up.

Q Well, let me read you what you answered at that time. And this is--I'm giving it to you as part of your answer--

MR. HEINEMAN: May I see it, please?

MR. CARR: In a moment.

Q "Whether there will be chronic health effects is very--not known yet, because it takes a long time since the life span in humans is very long." Did you make such a statement? You recall that; don't you, ma'am?

A But, that's in connection with high level exposure, and you are asking me about background exposure.

Q No, I'm asking about low level exposure.

A You were talking about 1--below 1 part per billion.

Q I was talking about low level exposure--chronic long term low level exposure.

A To me that goes into the background exposure that the general population is getting, and that I don't--has no effect on the general well-being of the population.

Q Well, what about exposure like at Seveso?

A The long term exposure is generally in that--first of all, that population hasn't had any long term exposure; it only had short term acute exposure. They were then removed, the place was cleaned up, they were moved back in.

Q Doctor, the question was asked you relating to Seveso, on page 57, "Were there any reported--anything reported in connection"--and this is at the deposition in December 1982 where Bliss is suing Lafser--the question asked you, "Were there reported--anything else reported in connection with the Seveso, Italy incident with which you agree?" You answer was, "There were some abnormal liver function tests, and thre were some abnormal nerve conduction tests. I've not actually reviewed that in detail. Whether there will be chronic health effects is very--not known yet, because it takes a long time since the life span in humans is very long." Do you recall that answer at that time?

A That population had--

Q My question is: do you recall that being your answer?

A I don't recall that answer, but--

Q That would have been the truth at that time?

A Yes, that's what I said; but that was talking about the population in Seveso, which was a population that

had high level short term exposure. So, it's--

Q Some of them had high level short term exposure; some of them had low level exposure?

A Some of those tests that they are talking about there were in people that actually had chloracne.

Q Yes; but, that test isn't what I'm directing your attention to. I'm directing your attention to the fact that you said there as far as chronic health effects, it is not known yet, because it takes a long time since the life span in humans is very long.

A Yes. That's for high level exposure.

MR. HEINEMAN: Excuse me, Doctor. Objection, your Honor, the question is taken out of context.

MR. CARR: I've read the entire question and her answer, your Honor.

THE COURT: Do you have anything else to say on the objection?

MR. HEINEMAN: Yes. The first part of it, he read--he read a much longer part where he's talking about certain results--

THE COURT: Let me see the question.

MR. CARR: Sure.

(At this time the deposition was taken to the bench and reviewed by the Court.)

THE COURT: Your objection is overruled. I don't think it's out of context.

Q Now, Doctor, your answer there regarding the Seveso people were based upon people who had a short term exposure, and you responded that whether or not there are going to be chronic health effects from the exposure the people of Seveso had is not known yet, because it takes a long time since the life span in humans is very long. Isn't that what you said, ma'am?

A Yes.

Q And you were referring to the fact that these people in Seveso had this exposure at that point in time and that because human life is so long, it had not yet had time for long term health effects to show up. Isn't that correct, ma'am?

A For that population.

Q Yes; right. Now, ma'am, on the high dose or high level exposure, what are the health effects that you expect to be--show or develop from this high level exposure, and exposure to higher levels or concentrations of dioxin?

A The thing that hasn't been worked out properly is--the one question is cancer.

Q All right. That hasn't been worked out yet. So, there's a question--you certainly would worry about cancer;

would you not, ma'am?

A That would be a chronic health effect that you would--

Q I'm sorry?

A Yes.

Q And, what other health effects are there from high levels of exposure to dioxin?

A There are no health effects that we know of. The things we would worry about would be things like cancer.

Q Are you saying that there are no risks involved with exposure to high levels of dioxin other than the risk of cancer?

A There have not been any demonstrated health effects other than chloracne.

Q My question is that sofar as you, Dr. Kimbrough, is concerned, there are no health effects connected with high dose exposure other than chloracne and the possible worry about cancer?

A We're not talking about chronic health effects--

Q Yes, we're talking about any kind of health effects, Doctor, from exposure to high levels of dioxin.

A Any kind of health effect is different from chronic health effect to me.

Q Well, then, let me include it to any kind of

health effect. What are the health effects that are consequences of exposure to high levels of dioxin?

A There have been in workers acute health effects which have been described.

Q And those are what?

A And some of--there's the chloracne; there can be hyperpigmentation; there have been things like general malaise; and there have been some abnormal liver function tests. There have been some complaints in the GI system; and there have been problems with sensory neuropothy. Those acute effects have usually resolved themselves over the years.

Q Usually, but not always?

A Except for the chloracne, which seems to be extremely persistent.

Q Now, the others, you say usually they resolve themselves. But not always?

A Not always.

Q Doctor, in addition to those that you mentioned, there are other organs that are affected, which are the liver, the thymus, the kidney--

A I mentioned the liver.

Q Oh, you did?

A Yes.

Q Well, what about the thymus and the kidneys--the thymus and the kidneys? Aren't they also effected?

A We don't know about the thymus; and as far as the kidney is concerned, the only acute effect that we saw was in that one girl in Missouri that had the hemorrhagic cystitis. But, that has not been reported in any other people--in workers.

Q Doctor, didn't you testify in this Lafser case when they asked you, "What are the symptoms that you as a toxicologist would look for or expect to see when an animal or human, etc., was exposed to dioxin. Aside from hyper-caratosis and the chloracne, are there other symptoms?" And you said, "The symptoms and signs in different species vary. The organs that might be effected are the liver, the thymus, the kidneys. In addition, there seems to be a general effect which produces severe weight loss; and often loss of adipose tissue, fatty tissue. If the exposure occurs to high degrees or high concentrations of dioxin, there may be an effect on reproduction. From long term exposure, you worry about cancer." Wasn't that your answer to that question at that time?

MR. HEINEMAN: Excuse me, your Honor. Excuse me, Doctor. May Counsel approach the bench, your Honor?

THE COURT: Sure.

Q So, actually when you set a level of 1 part per billion as being below that--or above that of concern, you're actually talking about of concern for risk of cancer; aren't you, ma'am?

A Yes.

Q And you are not talking about any other single health effect; are you, ma'am?

A All other single health effects you could probably have--for other single health effects, you could have higher doses and you would not have a problem.

Q That isn't what I've asked you, ma'am. This study, this publication that you had, purports to and deals only with the single ailment, that is, cancer, and related only to the risk of getting cancer from exposure to these levels of dioxin; isn't that correct, ma'am?

A Yes.

Q And there are a world of other health problems--heart attacks, brain disease, paralysis, porphyria--there's any number of other health problems besides cancer; isn't that correct, ma'am?

A Yes.

Q And this paper of yours did not address the health complications of any of those other problems; did it, ma'am?

(The following proceedings were had at the bench.)

MR. HEINEMAN: Your Honor, I object to that questioning as not being impeaching and an improper use of a prior deposition, because it clearly states that she was asked at that time about both animals and humans, and on this ocassion she was asked about humans. And therefore, that's not impeaching. And I object to it as an improper use of the prior deposition.

MR. CARR: Her answer, she did not limit it to animals; her answer was a response to a question that said animals and--or was it or--an animal or a human. It doesn't say just animals; is says animals or humans.

THE COURT: She had the opportunity to limit it if she wanted to limit it during the answer. Apparently she didn't. I don't think that the fact that it was asked of either or takes away from it's value as impeachment given the answer that was made. Overruled.

(The following proceedings were had out of the hearing and presence of the jury.)

Q And Doctor, when you said "and for long term exposure you worry about cancer" your answer there certainly was directed to a human being--worry about human beings; wasn't it?

A It was directed to the animals and human beings. And we have found cancer in animals.

Q Well, my question is that your answer related to animals and human beings; did it not, ma'am?

A My answer related to animals and human beings, yes.

Q All right. And you said for long term exposure you worry about cancer; didn't you say that, ma'am?

A Yes.

Q That was the truth at that time; wasn't it, ma'am?

A Yes.

Q Related to human beings; wasn't it, ma'am?

A Also, yes.

Q Now, Doctor, in point of fact, you haven't really done any study or any work to see what some of the lesser type ailments might be that result from dioxin exposure such as headaches, and peripheral neuropathies, weakness, and the joint aches, and general malaise? You really haven't done any studies or work connected with dioxin and those being the symptoms you are looking for; have you, ma'am? Other than the Missouri Study?

A When you say "you" do you mean all of CDC or do you mean me?

Q I mean CDC.

A We have--NIOSH is part of CDC.

Q Well, NIOSH just works on cancer.

A No, they also do cross sectional studies.

Q Did they do some studies on dioxin exposure and these other types of problems?

A There hasn't been anything published.

Q There's nothing that we can see or read or that's available to us?

A No.

Q Actually the only study that we've got in which they went out and asked questions and tried to expose these general kind of problems that I've discussed to you are non specific or less specific kind of problems that I've discussed with yo. The only thing we've got is this Missouri Health Study; is that correct, ma'am?

A That's the only thing that has been published.

Q Yes. And insofar as your--the study that you published in 1984, that is, "The Health Complications of 2,3,7,8 TCDD Contamination in Residential Soil", the only really thing that you used in estimating your risks and arriving at your levels was the risk of cancer; and then you used just the risk of cancer in animals as a criteria; isn't that right, ma'am?

A Yes.

A There was no reason to do that.

MR. CARR: Your Honor, would you tell the witness to answer that question.

THE COURT: I don't think that was responsive. You have to answer the question, please.

THE WITNESS: Could I have the question again, please?

(The previous question was read back by the court reporter.)

A Yes, it did.

Q And what other problems did it address in addition to cancer?

A It addressed reproduction, and it also discussed the human health effects.

Q What level did--where did you--well, you discussed those things, but--maybe my question was imprecise. The risk assessment that you undertook for just related to cancer; did it not, sir--ma'am?

A No. We also looked at the effects on reproduction in monkeys.

Q All right. You are correct. You said, "The exposure assessment used was for estimating risks being for carcinogenicity and reproductive health effects." Correct, ma'am?

A Because those seemed to be the most sensitive.

Q Excuse me, could you answer my question? Just those two things that you used in your exposure assessments?

A No.

Q Isn't that what you said? Didn't you use and didn't you say on page 80, ma'am, "For these reasons this study was not used for risk assessment calculations, but only the chronic toxicity studies which demonstrated a carcinogenic response in rodents were used." Didn't you say that, ma'am?

A But, I have reasons for that.

Q Excuse me; my question is: didn't you say that, ma'am?

A I said, "For these reasons", yes.

Q And on the next page, didn't you also say, "It must be stressed that the exposure assessments used in estimating risks for carcinogenicity and reproductive health effects contain critical assumptions that are not likely to be actually encountered." Isn't that correct, ma'am?

A Yes.

Q And did you also discuss about these are calculations for--that you made for long term risk as far

as cancer is concerned?

A Yes.

THE COURT: Is this a good point to break?

MR. CARR: Yes, your Honor.

THE COURT: Okay. We'll start Monday morning at 9:30. Thank you, Doctor.

(At this time Court adjourned for the day.)

STATE OF ILLINOIS } SS.
COUNTY OF ST. CLAIR)

I, TRACY LYBARGER, C.S.R., Official Court Reporter in and for the Twentieth Judicial Circuit, and the Official Court Reporter who transcribed the above-styled cause had on January 10, 1986, do hereby certify that the foregoing transcript of proceedings is a true, correct and complete transcript of the proceedings had on said date.

DATED this 16th day of January, 1986.

Tracy Lybarger

TRACY LYBARGER, C.S.R.
Official Court Reporter

STATE OF ILLINOIS)
) SS.
COUNTY OF ST. CLAIR)

I, RICHARD P. GOLDENHERSH, Circuit Judge in and for the Twentieth Judicial Circuit, hereby certify that the above is a true and correct transcript of the proceedings had in the case captioned: FRANCES E. KEMNER, ET AL v. MONSANTO COMPANY, Cause No. 80-L-970, heard on January 10, 1986.

DATED this____ day of January, 1986.

RICHARD P. GOLDENHERSH, Circuit Judge