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

FRANCES E. KEMNER, et al	)	
	)	
Plaintiff,	)	
	)	
VS.	)	No. 80-L-970
	)	
MONSANTO COMPANY,	)	
	)	
Defendant.	)	

Before the HON. RICHARD P. GOLDENHERSH, Judge

REPORT OF PROCEEDINGS

JURY TRIAL

July 31, 1985

APPEARANCES:

MR. REX CARR
on behalf of the Plaintiffs;

MR. KENNETH R. HEINEMAN, MR. JOSEPH NASSIF
and MR. RICHARD S. CORNFELD
on behalf of the Defendant.

KIMBERLY GANZ, CSR, RPR, CM
Official Court Reporter

BE IT REMEMBERED, that on July 31, 1985 the same being one of the regular judicial days of said court, the above-entitled cause came on regularly for hearing before the HONORABLE RICHARD P. GOLDENHERSH, one of the Judges of said court, at the St. Clair County Building, 10 Public Square, in the City of Belleville, St. Clair County, Illinois. Whereupon the following proceedings were had:

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

GEORGE ROUSH

having resumed the witness stand, being previously sworn, testified further as follows:

RECLARIFICATION EXAMINATION

By

MR. KENNETH R. HEINEMAN

Q. Doctor Roush, let me hand you, sir, what has been marked as Plaintiffs' Exhibit 1494 and would you re-identify that for the jury, please?

A. This is titled a Work Description for Dismantling the Residue Equipment in Building 237. It is prepared by Mr. Linn of the Krummrich Plant and refers to the Monsanto industrial chemicals and it was written on September 30, 1983.

Q. Sir, and Mr. Carr asked you about, did he not, sir,

this portion of that exhibit which he labeled Plaintiffs' Exhibit 1494B, correct?

A. Yes.

Q. Now, sir, with respect to these things that it says chlorinated dioxins are known to cause here, sir, with respect to these, which, if any of them, relate to long term exposure and which relate to acute exposure?

A. When you talk about long and short term, you have to talk about whether something happens with an acute exposure or chronic exposure and whether the effect lasts a long time. The effect of dioxins are known with the kind of exposure that happened in the accidents to cause chloracne, liver damage, nerve changes and possible other injury and they are talking about the lipid effects and other things like that. Now, those will happen with acute accidents. There is no evidence that chronic exposure produces nerve changes. So, now you are talking about acute versus chronic. Once the acute exposure is over --

MR. CARR: Your Honor, I object to this. This is all repetition. I did not go into 1494 on recross examination and this has all been done with the doctor before. He said these same things and I am going to object to the repetition.

MR. HEINEMAN: Your Honor, may I speak to that. He

went into on his recross examination whether or not these particular things were known in 1979 and with respect to what is set forth in 1494B as opposed to what is set forth in Exhibit 920 and that is what I am getting into.

MR. CARR: Your Honor, I withdraw my objection. I do remember going into comparing the two notices so I withdraw my objection.

THE COURT: Fine. It is withdrawn.

Q. Please, continue, sir.

A. When you talk about the effects of acute exposure are those things that are mentioned there. When a man is taken away from that exposure, the episode is over, the liver, nerve changes and other effects have been gone away and the only thing that is left in something less than 50 percent, or more than that, if the exposure is not high, the chloracne will go away or stay depending on how severe the chloracne was in that episode.

Q. All right. Now, so is Exhibit 1494, is that referring to an acute, a possible acute exposure?

A. No, sir.

Q. 1494, sir?

A. No. Yes, it is.

Q. Now 1494, what is that dealing with?

A. This is called a Package that describes the work

necessary to dismantle the residue equipment.

Q. And it is going -- is it going to a contractor, sir?

A. Yes, sir.

Q. The contractor is supposed to dismantle equipment?

A. Yes, sir.

MR. CARR: I object to the leading form of the questions, Your Honor.

THE COURT: Objection sustained.

Q. And included among that equipment, sir, does it include anything with respect to the still pot and the residue tanks?

A. Yes, it does.

Q. All right. Now, how would you characterize an exposure that might result from something like that as being acute or chronic?

A. That will be acute.

Q. That would be an acute exposure?

A. Yes, sir.

Q. All right. Now, let me direct your attention, sir, to Plaintiffs', I am sorry, Defendant's Exhibit 920 and page 2-3, roman numeral 2-3 of Exhibit 920.

MR. HEINEMAN: Your Honor, I believe there was a Plaintiffs' Exhibit of that page, if I am not mistaken.

MR. CARR: You are mistaken.

MR. HEINEMAN: I am mistaken? No, I am not. Plaintiffs' Exhibit 1515.

MR. CARR: You are right. Yes. That is what I get for talking without Jerry being here.

Q. Let me hand you, sir, what has been marked as Plaintiffs' Exhibit 1515 and is in evidence and has been passed to the jury. Now, is this, sir, a portion of Exhibit 920, roman numeral 2-3 of 920?

A. Yes, sir.

Q. All right. And 920 again, would you identify for the jury is what, sir?

A. This is an Industrial Hygene Manual.

MR. CARR: Let me correct, Your Honor. There is no blowup of that page passed to the jury.

MR. HEINEMAN: Right.

THE COURT: Fine. So noted.

A. This Industrial Hygene Manual was written for the chlorophenol Department 237 and was prepared by Paul Easterday and Phil Kirk in December of 1979.

Q. All right. And, sir, with respect to what is shown there on Plaintiffs' 1515, what is it that is being warned about there, sir?

A. Well, these workers are regularly in the plant in

237 where they are making the chlorophenols and there is the possibility that they will be exposed to minute quantities of chlorinated dibenzo-dioxin.

Q. Now, sir, is it anticipated that those exposures to the extent they occur would be acute or chronic?

A. Chronic.

Q. Now, is it anticipated, sir, that those workers would have the acute exposure that would be addressed in Plaintiffs' Exhibit 1494 from cutting open a still pot or a residue tank?

A. The exposure of these people in their routine operation would be very, very small compared to the exposure that was anticipated or concerned with here. They are two different problems.

Q. And is it anticipated, sir, that this would be acute exposure of the magnitude considered here with respect to the workers in Department 237?

A. Not unless they got into the still pot where the dioxins could be concentrated.

Q. All right. And to your knowledge, sir, do the workers at the Krummrich Plant get into the still pot?

A. They periodically go in and clean out the still pot but when they do, they use special equipment, not as a part of this.

Q. What is the special equipment that they use?

A. They use complete protective gear and it is recognized as being a hazardous job so they wear respiratory protection and semi-impermeable clothing, disposable clothing, protective clothes as well as boots.

Q. Do they wear any protection for their faces, sir?

A. Yes, sir. As part of that respiratory protection, you can't have it without.

Q. Now, during the course of the examination by Mr. Carr, you and he discussed the TLV for phenol or chlorophenol. Do you remember that, sir?

A. Yes, sir.

Q. And do you remember discussing the fact that for the chlorinated phenols, you devised your own TLV?

A. Yes, sir.

Q. Why was that done, sir?

MR. CARR: Your Honor, that is repetition. He has explained why it was done already. I object to it. It is repetition.

THE COURT: Objection is sustained. It has been gone into and that exact question and answer.

Q. Now, what is the TLV for the chlorinated phenols?

MR. CARR: Objection, your Honor. That has been asked and answered.

MR. HEINEMAN: Your Honor, this is the very situation that Mr. Carr went into and I want to do some clarification on it.

MR. CARR: Went into it and I went into it because you had gone into it. Now are you going to go into it because I had gone into it again? I object to it. It is repetition.

THE COURT: Objection is sustained.

Q. Is there a difference, sir, between the TLV and the level at which the skin irritation actually occurs?

A. Yes. We do not see any irritation of the skin nor do the men complain of it if the concentration of the chlorophenol in that unit is kept at three milligrams. So, we don't know how much below it they will have irritation but below three milligrams we don't see irritation. Three milligrams. Three milligrams of chlorophenol in one cubic meter of air.

Q. Now, the TLV, is that the threshold limit value?

A. Yes.

Q. That is the value at which someone can work in an environment eight hours a day?

MR. CARR: I object. It is repetition. Counsel has gone into this already. This entire subject has been explored.

THE COURT: Objection sustained. It is repetition.

Q. So, have you monitored, sir, the level of chlorinated phenols in Department 237?

A. Yes, sir.

Q. And how did you go about doing that?

A. There is a sampling pump that draws air through it and the chlorophenols that is in the air is trapped in the collection media and then by knowing the volume of air pulled through it, you can analyze for the chlorophenol. You can tell how much was present in the air and our sampling program has said that the average exposure, average concentration of chlorophenol in the air is at the order of 2/16 of a milligrams per cubic meter of air.

Q. 2/16 of a milligram which would be below the TLV of three milligrams. Now, if you were to assume, sir, that, let's say there were 400 parts per billion of dioxin, tetra chlorinated dioxin in the chlorophenol which you found as an average in the department at 2/10 milligrams per cubic meter.

A. Yes.

Q. If you assume there were 400 parts per billion of tetra chlorinated dioxins in there, how much dioxin would someone be exposed to at that level of chlorophenol found in the department, if you assume further, sir, that the vapor

pressure of chlorophenol and dioxin are the same?

A. .08 nanograms per cubic meter of air would be the concentration of the dioxin.

Q. That would be -- I am sorry. .08 nanograms?

A. Nanograms.

Q. A nanogram is how much of a gram?

A. One billionth of a gram.

Q. Now, so it would be .08 billionth of a gram?

A. Right.

Q. Of dioxin per cubic meter?

A. Yes.

Q. How much air does a man breathe in an eight hour day?

A. It generally is accepted a man who is doing moderate activity will breathe 10 cubic meters in an eight hour work shift.

Q. So what would be the daily intake of that dioxin that a man would take in if you assume that the vapor pressure of dioxin and chlorophenol are the same?

A. 8/10 of a nanogram.

Q. 8/10 of a nanogram per day, is that right?

A. Yes, sir.

Q. Do you remember the Dunagin article we looked at before, sir?

A. Yes.

Q. Doctor Dunagin from the University of Missouri?

A. Yes.

Q. Did he have a figure in there, sir, quoted from the FDA as to what a no effect level would be of dioxin exposure?

A. The FDA had said it was 70 nanograms per day.

Q. 70 nanogram per day was a no effect level?

A. Yes.

Q. And this would be 8/10 of a nanogram per day?

A. Right. That is if the vapor pressure were the same.

Q. Were the same. Now, what if the vapor pressure is not the same, sir?

A. If the vapor pressure is higher for the dioxin, then this would be higher than this value and if the vapor pressure were lower, then for chlorophenol, then it would be below that.

Q. All right. Is there a different vapor pressure between dioxin and chlorophenol?

A. Yes. It is about a tenth of a sixth below.

Q. Which is below which?

A. The dioxin has such a low vapor pressure it is one/millionth of the vapor pressure of the chlorophenols.

Q. And if that be the case, sir, if it were

one/millionth of a vapor pressure, then what dioxin concentration or what would be the dioxin exposure per day for a man working in that department if you assume there is 400 parts per billion of dioxin in the chlorophenol but the vapor pressure is a million times less?

A. It would be 8/10 of a femtogram.

Q. And what is the comparison between a femtogram and a nanogram?

A. It is one/one millionth.

Q. Of a nanogram?

A. Yes.

Q. Now, if you go to the Center for Disease Control article, sir, with respect to one part per billion in the soil, what is the number of picograms that they said a child could consume per day at 10 grams of contaminated soil per day?

A. They are talking about an average exposure of 44 picograms per day.

Q. Now, what does --

A. That is lifetime exposure.

Q. 44 picograms per day for a lifetime?

A. Yes.

Q. And what is the comparison of 44 picograms to 8/10 of a femtogram?

A. I think it is 50,000. It is one/50,000th of the permitted exposure even with a conservative approach of the CDC and their estimation of lifetime exposure.

Q. So that if it is 400 parts per billion of dioxin in the chlorophenol --

A. Yes.

Q. Consumed or breathed eight hours a day by a man working in the department, he would get one/50,000th as much as the CDC said a child could eat in contaminated soil over a lifetime?

A. Yes, sir.

Q. Now, I would like to direct your attention, sir, if I may to Plaintiffs' Exhibit 1518. Let me hand you this, sir. This is a document from the Moses study. Do you remember this?

A. Yes, sir.

Q. I think it was passed to the jury, Plaintiffs' Exhibit 1518. Now, sir, 1518 contains, does it contain a graph at the bottom?

A. Yes, sir.

Q. Do you recall Mr. Carr asking you whether 24 percent of those with heavy exposure to 2,4,5-T never got chloracne. Do you recall that, sir?

A. Yes, sir.

Q. Didn't you answer no to that?

A. That is right.

Q. Despite what that figure shows?

A. Yes.

Q. Why did you answer no to that, sir?

A. Because in their classification of these people into these various categories, it was based on their recall of their job assignments as well as the level of exposure they had if they had those job assignments.

MR. CARR: Your Honor, I object to that because my question asked whether or not this chart showed that 24 percent never had chloracne and the witness said it did not and I object to that.

MR. HEINEMAN: That is right.

MR. CARR: That is not what the witness is now saying.

MR. HEINEMAN: Yes, it is.

THE COURT: Objection is sustained. It is not.

Q. Doctor, would you read what Doctor Moses said in the paragraph on page 171 which is Plaintiffs' Exhibit 1518? That paragraph that talks about figure two at the bottom of the page?

A. The whole paragraph?

Q. Starting with however.

A. However, it can also be seen that 36 percent of those classified as having minimal exposure had a history of chloracne. And 24 percent of those classified as having heavy exposure did not have a history of chloracne. If the latter figure is used to question the sensativity of chloracne as an exposure indicator, the 36 percent prevalence of chloracne among those classified as having minimal exposure underlines the limitation of reliance on recall and assessment of exposure.

Q. What does the next sentence say, sir?

A. It is of interest that no case of current residual chloracne and only one case of questionable chloracne was found among those hired after 1969 when 2,4,5-T production ceased.

Q. And so, sir, what is it that figure two is based on?

A. It is based on only one thing. It is on the man's recall of his job as well as whether he had heavy exposure.

Q. Worker recall?

A. Yes, sir.

Q. And what Doctor Moses had access to or what -- did Doctor Moses have access to anything other than worker recall in making a decision about who had chloracne and who did not?

A. No, sir.

Q. Did she have access to the union?

A. Yes, sir. Yes, she did.

Q. And what records did the union have?

A. The union has their own records of the work that the men have done. What is contained in that, I don't know but they do keep records of what they do.

Q. And she was retained or she and Doctor Selikoff were retained by the union?

A. Yes, sir.

Q. Now, so why is it, sir, based upon what you see there in figure two, that you answered no to Mr. Carr's question?

A. Because we can't be sure based on their recall which one of these actual job assignments, where they should fit into their categorization. Those that have been called heavy might have been moderate or vice versa so their moving up and down this list is dependent only on recall and that is not a good way to do it. They had the recall plus their union records but I am not sure just how those work together and Moses is saying I can't tell about this either. She can't tell what their actual exposure was.

Q. And does she say anything about relying on recall and assessment of exposure?

MR. CARR: Your Honor, this is all repetition. She

clearly did. That is the caption of the chart but yet the witness said the chart didn't say 24 percent never did have chloracne. I object to it. They are not bringing out anything that is new.

THE COURT: Objection is sustained.

Q. Let's read what she says, Doctor.

THE COURT: It has been read. That is part of the objection on the repetition. Objection is sustained.

MR. HEINEMAN: I object to Mr. Carr's characterization of it, Your Honor, because the statement in the paragraph says underlines the limitations of reliance on the recall.

THE COURT: The point that I am ruling on the objection is repetition. It has already been read. It has already been explained by the witness. You are repeating yourself. I am admonishing you not to repeat yourself and to go on with the examination. The objection is sustained.

Q. Doctor, let me hand you what has been marked as Plaintiffs' Exhibit 188. Do you see that, sir? That is an exhibit that has been previously admitted into evidence as the results of Doctor Rappe's analysis of a reserve sample. Do you have that before you there, sir?

A. Yes, sir.

Q. And I believe it has been passed to the jury. Dr.

Roush, do you recall Mr. Carr asking you whether Doctor Rappe found 45 parts per billion in the reserve sample?

A. Yes, sir.

Q. What does that document say with respect to the range of findings that Doctor Rappe made with respect to 2,3,7,8 TCDD in the reserve sample?

A. In sample 302, in 301, was less than 100 picograms of 2,3,7,8 in the whole sample. Then he says in 302 it was 11 parts per billion of 2,3,7,8 TCDD. In the next sample was at .5 ppb and then for the next two at 45 ppb and that says complex mix and I don't know what that means.

Q. Now, sir, let me make sure you understand.

A. Yes.

Q. That some of these figures are not the sample itself.

MR. CARR: I object. Counsel can't tell the witness what the exhibit means and then ask the witness to say what the exhibit means.

THE COURT: Objection is sustained.

MR. CARR: If the witness doesn't know what it means, he can't testify to it.

Q. Let me direct your attention, sir, to the report with respect to samples 1102304 and 1102305.

A. They are listed, both of them are listed at 45 ppb

of 2,3,7,8 tetrachlorodibenzo-dioxin.

Q. Let me direct your attention, sir, to samples listed KL 01-8001 and MB 823. What is listed for those?

A. The 8001 is .7 parts per billion of 2,3,7,8 TCDD and 823 is .6 parts per billion.

Q. Now, do you know, sir, as you sit here, exactly what each one of those numbers, the sample numbers represents?

A. No, sir.

Q. You don't know which is which?

A. No, sir.

Q. If I ask you to assume, sir, that there is evidence in the case from the testimony of Doctor Rappe that the 304 and 305 are from the reserve sample and that KL 01-8001 and MB 823 are from the reserve sample, if I ask you to assume that, sir, what would be the range in findings by Doctor Rappe with respect to the reserve sample?

A. The range of concentrations would then be from .6 parts per billion up to 45 parts per billion of 2,3,7,8 TCDD.

Q. All right. Now, sir, are you the only person who believes that chloracne is the hallmark of dioxin exposure?

A. No, sir.

Q. Are you the only one who believes that except for chloracne, TCDD has not demonstrated comparable levels of

biologic activity in man?

A. No, sir.

Q. Mr. Carr has asked you about that being your belief, Monsanto's believe, has he not?

A. Yes, sir.

Q. But there are others who believe that, aren't there, sir?

MR. CARR: I object to the leading form of the question.

THE COURT: Objection sustained. Please rephrase it.

Q. Let me hand you, sir, what has been marked as Defendant's Exhibit Number 925 and ask you if you would examine that and identify it for me, please?

A. Yes, sir. This is a report from the American Medical Association which is a technical report titled the Health Effects of Agent Orange and Polychlorinated Dioxin Contaminants: An Update, 1984.

Q. The first page of that exhibit, sir, is what?

A. The first page is the cover sheet of the report.

Q. Is it a letter, sir?

A. No, sir. It is --

Q. I am sorry, the first page of the exhibit, sir.

A. I am sorry. The question?

Q. What is the first page of the exhibit?

A. It is a brief letter to me from Robert H. Wheater, Assistant Director of the Environmental and Occupational Health Program of the American Medical Association.

Q. And the date of it, sir?

A. June 20, 1985, and the letter to me just says as you requested earlier, I am sending you the latest CSA report.

Q. Okay. And the organization that generated this report is who again, sir?

A. The Council on Scientific Affairs of the American Medical Association.

Q. Let me direct your attention, if I may, sir, to page 41.

MR. CARR: Your Honor, I object to this unless it is shown that this has been published and it is an authoritative article and subject to peer review and meets the other requirements of the authoritative articles. Otherwise it is hearsay.

THE COURT: Okay. I will reserve ruling on the objection, if you can lay the foundation.

Q. Doctor, the American Medical Association, what is the American Medical Association, sir?

A. It is an organization of practicing physicians and

all physicians who are licensed can become a member of an organization that promotes education, sets standards, takes positions on various issues and tries to maintain the standard of medicine in the United States.

Q. And what is the Council on Scientific Affairs, sir? Is that a portion of the AMA?

A. Yes, sir.

Q. And does Exhibit 925 list members of the Council of Scientific Affairs?

A. Yes, sir.

Q. Would you tell us who they are, sir?

A. A Doctor Beljan is the Chairman, Doctor Irey, Doctor Kilgore, Doctor Kimura, Doctor Suskind, Doctor Vostal, and Mr. Wheater is the Secretary.

Q. And Mr. Wheater is not an MD, correct?

A. That is right.

Q. Does it have his degree listed after his name?

A. Master of Science.

Q. Now, sir, is this a publication which you consider to be authoritative?

A. Well, it is the official publication of the American Medical Association.

Q. Do you consider it to be authoritative?

A. Yes, sir.

Q. Now, Doctor, I would like to direct your attention to page 41.

A. Yes, sir.

THE COURT: Do you have anything further to say?

MR. CARR: I have no objection to it as long as the witness says he considers it authoritative.

THE COURT: Fine. The objection is overruled, then.

Q. Now, sir, I would like to direct your attention to the conclusions portion of this paper as stated on page 41. Do you have it there?

A. Yes, sir.

Q. Would you start with the second paragraph of the conclusion portions there and would you read it aloud to the jury, please?

A. Yes, sir. Workplace exposures on the other hand, have involved components of Agent Orange, especially 2,4,5-T and its contaminant TCDD, and represent a different level of biologic experience. Definable and measurable effects on specific organ systems can be described for acute, subchronic and long term exposures. Chloracne is a marker for biologically effective exposure in humans and it may persist for as long as 30 years.

Q. Would you read the next paragraph to the jury

aloud, please, sir?

A. A wide range of adverse reactions in animals have been observed, which are species dependent. For example, the guinea pig is the most sensitive to TCDD, while the hamster is one of the least sensitive. Adverse reactions in animals include thymic atrophy in all species, induction of hepatic enzymes in the mouse and rat, and teratogenicity and reproductive effects in rodents and non-human primates. Except for chloracne, however, TCDD has not demonstrated comparable levels of biologic activity in man; that is to say, no long term effects on the cardiovascular and central nervous system, the liver, the kidney, the thymus and immunologic defenses, and the reproductive function in male, female or off-spring have been demonstrated.

Q. Thank you, sir. Now, let me hand you, sir, what has been marked for identification purposes as Defendant's Exhibit 926 and ask you to examine that and identify that document for me, please?

A. This is a report from the National Research Council of Canada by the committee, the Associate Committee on Scientific Criteria for Environmental Quality and the title of this report is polychlorinated dibenzo-para-dioxins. Criteria for their effects on man and his environment.

Q. I would like to direct your attention, sir, let me

ask you this. Do you consider this an authoritative publication?

A. Yes.

Q. I would like to direct your attention if I may, please, to page 114.

A. Yes, sir.

Q. Would you read the paragraph aloud beginning on the bottom of that page which goes on for one line at the top of the next page?

A. Human populations exposed to PCDD through industrial accidents have actually been exposed to a mixture of chemicals including PCDD and related compounds, 2,4,5-T, sodium hydroxide and a possible variety of unidentified compounds and the actual quantities involved are unknown. Consequently, interpretation of the effects reported from epidemiologic studies of such exposed populations are tenuous but it would appear that PCDD and related compounds are involved when cases of chloracne are observed. Chloracne, hypercholesterolemia, alopecia and hirsutism and various neurologic and psychological anomalies are common signs and symptoms reported. Data on incidence of neoplastic diseases in human populations exposed to PCDD are equivocal. The possible association between PCDD exposure and porphyria cutanea tarda remains unclear.

Q. What are neoplastic diseases, sir?

A. Neoplastic diseases refers to all new growth including bumps on the skin, polyps, tumors that are benign as well as tumors that are malignant.

Q. Now, sir --

MR. CARR: Your Honor, the copy that counsel has given me of this last exhibit is not complete. It stops in the middle of a paragraph on page 120. I would like to have a complete copy if we are going to use it with this witness. It is Exhibit 926.

MR. HEINEMAN: I think the copy I have stopped here too. We will get the full copy and bring it.

THE COURT: Please do so and substitute the full copy for your exhibit.

MR. HEINEMAN: We will indeed.

Q. Let me hand you, sir, what has been marked as Defendant's Exhibit 914 and I would like to direct your attention -- well first of all. Would you identify for the jury again what that document is?

A. This is the article by Doctor Dunagin titled Cutaneous Signs of Systemic Toxicity Due to Dioxin and Related Chemicals that was published in the Journal of the American Academy of Dermatology.

Q. And first of all --

A. In April of 1984.

Q. All right. First of all, sir, I would like to direct your attention to the abstract which is on page 688, the second page of the exhibit.

A. Yes, sir.

Q. I direct your attention to a sentence, the fourth sentence in that abstract. Would you read that aloud to the jury, please?

A. Chloracne is the most sensitive indicator of significant dioxin exposure.

Q. Thank you, sir. Now, would you read the next sentence aloud, please?

A. Porphyria cutanea tarda and hyperpigmentation are other known effects and malignant fibrous histiocytomas of the skin may possibly be associated, although data are inconclusive at this point.

MR. CARR: On this point.

Q. On this point. May I direct your attention, please, to page 696?

A. Yes, sir.

Q. I would like to have you read the sentence beginning at the bottom of the left-hand column that goes on for a couple lines at the top of the right-hand column?

A. Epidemiologic studies of workers exposed to dioxin

after industrial accidents have shown no increase in the overall incidence of cancer.

Q. All right. Now, is there a citation for that statement?

A. Yes, sir. There are five citations.

Q. Five references?

A. Right.

Q. What is the last reference listed, number 50? What is that?

A. In the bibliography. 50 is Zack, Suskind RR. The mortality experience of workers exposed to tetrachlorodibenzodioxin in a trichlorophenol process accident, published in the Journal of Occupational Medicine, volume 22, pages 11 to 14, 1980.

Q. So the last one is cited is Zack-Suskind?

A. Yes.

Q. There are four others listed, what are they? The first is number 37.

A. Number 37. That is Pazderova, Vejlupkova, Nemcova, Pickova, et al, and the paper was the development and prognosis of chronic intoxication by tetrachlorodibenzo-para-dioxin in man, published in the Archives Environmental Health, volume 35, pages 1 to 11, 1981.

Q. What is number 38, sir?

A. 38 is a report by Huff, Moore and Saracci et al. Long term hazard of polychlorinated dibenzo-dioxins and polychlorinated dibenzo-furans and was published in the Environmental Health Prospectives, volume 36, pages 221 to 240 in 1980.

Q. And we have seen that article before, have we not, sir?

A. Yes, sir.

Q. As far as we know, is that the same article that is an exhibit in this case?

A. I think so.

Q. And there is another one cited, number 44. What is that, sir?

A. That is a report by Thiess, Fentzel-Beyme and Link titled Mortality study of persons exposed to dioxin in a trichlorophenol process accident that occurred in the BASF AG on November 11.

Q. November 17?

A. November 17, 1953. Published in the American Journal of Industrial Medicine, volume 3, 179 to 189 of 1982.

Q. And there is another citation, number 45?

A. Number 45 is a report by May, Chloracne after the accidental production of tetrachloro --

Q. Excuse me. Chloracne?

A. From the accidental production of tetrachlorodibenzodioxin. British Journal of Industrial Medicine. 1973.

Q. All right, sir. Now, Doctor Roush, Mr. Carr questioned you with respect to the creatinine results in the METPATH Laboratory on the Suskind-Krummrich study. Do you remember that, sir?

A. Yes, sir.

Q. And can you say, sir, that the creatinine levels reported there are abnormal?

A. No, sir.

Q. And why not, sir?

A. Because it is reported in milligrams or grams, I am not sure the units, per liter of urine and you can't translate that into per day. The amount of creatinine a man puts out per day is dependent upon our muscle mass and so the range --

MR. CARR: I believe all this has been gone into again by the Doctor and I object to its repetition.

MR. HEINEMAN: Your Honor, Mr. Carr specifically questioned him about creatinines.

MR. CARR: But you have asked him these questions already. Why don't you get on to something that hasn't been asked the witness.

THE COURT: Objection sustained.

Q. Now, Doctor Roush, do you require a 24 hour urine in order to determine an accurate creatinine?

A. Yes.

Q. And these were spot urine samples?

A. Yes.

Q. When you reviewed those METPATH Laboratory results on the various people, in response to our questioning here in the courtroom, did you know what the checkmarks were that Mr. Carr had on Exhibit 1507 for the other abnormals?

A. No, sir.

Q. Those checkmarks were not identified, were they, as to what the abnormals checked were?

A. No, sir.

Q. And so what did you do in making a determination as to whether there were any other abnormal lab results reported?

A. I just went through the report and determined how many there were marked as abnormal.

Q. When you say marked as abnormal, you mean in what, sir?

A. In the final page there is a listing of the results out of the range of normal and so we took from that those that were truly abnormal.

Q. Now, included in that list, sir, are uroporphyrins?

A. Yes.

Q. Coproporphyrins and the creatinines, are they not?

A. Yes.

Q. Now, if they are listed there with abnormal findings, why are they not abnormal also?

A. Because they don't put a range of normals for those determinations because they haven't been prepared. There are no standard normal ranges for the uroporphyrins, coproporphyrins and creatinines on a spot sample basis.

Q. Does measuring the urine do anything for allowing the use of spot sample urine?

A. No.

Q. Now, I would like to direct your attention to Defendant's Exhibit 55. Do you recall Mr. Carr directing your attention to Defendant's Exhibit 55 which is the Missouri Dioxin Health Studies Progress Report?

A. Yes, sir.

Q. And he directed your attention to a table, an Appendix A on page 49. Do you recall that, sir?

A. Yes, sir.

Q. And that table talks about the porphyrin findings, does it not?

A. Yes, sir.

Q. Does it list the actual porphyrin findings of the people that were in the study?

A. No, sir.

Q. What does it address itself to?

A. It is a description of what Strik and Coleman think are the ranges of normal porphyrins as well as porphyrins in chronic hepatic porphyria.

Q. You used the word Strik. We have had a different pronunciation used in this courtroom before of Strik. Would that be -- Do you accept that?

A. Sure.

Q. All right. Now, if I can direct your attention to page 36 of this report, what did they actually find with respect to the porphyrins of the people that were examined there? I hope I have directed you to the right page.

A. They are talking about liver function tests in the top paragraph on page 36 but it is a continuation of the same paragraph on the preceding page in talking about their examination of the liver and then talking about porphyrins. It continues. The exceptions were in elevation of mean urinary heptacarboxylporphyrin for the low risk group and an elevated mean serum bata-glucuronidase level in the high risk group which failed to read statistical significance. Furthermore, no excess prevalence of abnormally elevated or

low, outside of expected age- and sex-specific ranges, serum analyte measurements of liver function were noted for individuals in the high risk group. The two groups showed no difference in characteristic urine porphyrin patterns and no cases of overt porphyria cutanea tarda or any precursor conditions were detected.

Q. Thank you, sir. Now, do you recall Mr. Carr talking to you about the people at Times Beach?

A. Yes, sir.

Q. And he asked you whether or not anybody at Times Beach got chloracne. Do you remember that?

A. Yes, sir.

Q. And what was your response?

A. No, they did not.

Q. No one at Times Beach got chloracne?

A. Right.

Q. Why didn't they get chloracne, sir?

A. Because their exposure was below the level at which would produce chloracne.

Q. According to this report of the Missouri Division of Health, Center for Disease Control, St. Joseph's Hospital of Kirkwood and St. Louis University Hospital, did they find anything else statistically significant to be wrong with these people at Times Beach in comparing the low risk and the

high risk groups?

A. No, sir, nothing.

Q. Sir, do you remember Mr. Carr questioning you about what was told the EPA by Monsanto Company in 1979?

A. Yes, sir.

Q. And did you tell him, sir, about your discussion with Doctor Paget?

A. Yes, sir.

Q. And what it was that Doctor Paget told the EPA?

A. Yes, sir.

Q. Do you remember Mr. Carr asking you this question, sir. "And, Doctor, I think we have established that neither you nor Doctor Paget nor the EPA nor anybody else has any memo to that effect, have we not, sir?" And you answered, "No, sir." Do you remember that, sir?

Do you know, sir, whether or not the EPA has any memo regarding what, whether or not they consider the dioxin at Sturgeon to be 2,3,7,8?

A. Yes, sir.

MR. CARR: Your Honor, that is not what I asked the witness and counsel has said that they told the EPA to assume that it was 2,3,7,8 and that is what that question had been directed to, not what the EPA did in fact assume and it is misleading to ask in that context and I object to it.

THE COURT: Objection is sustained.

Q. Do you know, sir, whether or not the EPA in fact treated the material as if it were the highly toxic 2,3,7,8 TCDD isomer?

A. Yes, sir.

Q. Now, do you have Plaintiffs' Exhibit 1273. Let me hand you, sir, what has been marked as Plaintiffs' Exhibit 1273. Do you see that, sir?

A. Yes, sir.

Q. And what is that document?

A. This is a report titled Dioxins prepared by Esposito, Tiernon and Dryden.

Q. Is there --

A. Of the Industrial Environmental Research Laboratory in Cincinnati, Ohio, in November of 1980.

Q. There is contract numbers that are listed there, are there not, sir?

A. Yes, sir.

Q. And there are, it has got an EPA title on it, does it not?

A. There is a reference number on top, the EPA number. It is EPA 600-280197, November of 1980.

Q. And on the bottom of that page that you are looking at, sir, what reference does it have to the United States

Environmental Protection Agency?

A. This Industrial Environmental Research Laboratory that I mentioned where this came from is a part of the Office of Research and Development of the United States Environmental Protection Agency in Cincinnati, Ohio.

Q. Let me direct your attention to page 79 of this Plaintiffs' Exhibit 1273.

A. Yes, sir.

MR. CARR: What page counsel?

MR. HEINEMAN: 79.

THE COURT: Before we get into this, is this a good point for a short break?

MR. HEINEMAN: Sure, Judge, that would be fine.

THE COURT: Ladies and gentlemen, we will take a short break at this time. I would remind you that this would go for any other breaks that you are not to discuss this matter among yourselves or with anyone outside the jury panel or as of yet form any opinions or conclusions about the matters on trial. Court will be in a short recess.

COURT RECESSED:

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

GEORGE ROUSH

having resumed the witness stand, being previously sworn, testified further as follows:

RECLARIFICATION EXAMINATION

By

MR. KENNETH R. HEINEMAN

THE COURT: Before we go ahead, I want to make an announcement that we are going to break early this afternoon. We are going to end at one o'clock so what we will do is we will go through the lunch hour basically and close to one o'clock and then we will adjourn for the day and start tomorrow morning at the normal time.

MR. HEINEMAN: Your Honor, we had previously marked Defendant's Exhibit 926 which was only part of the book from which it came.

THE COURT: That was the one that ended in the middle of the paragraph.

MR. HEINEMAN: With the Court's permission, I have the entire book here. I would like to have it marked in place of 926.

THE COURT: Any objection to that, Mr. Carr?

MR. CARR: No objection then.

THE COURT: Fine. Why don't we do that.

Q. Now, Doctor Roush, let me hand you what has been

marked as Defendant's Exhibit 926 and would you identify that document for me, please?

A. This is a report by the National Research Council of Canada.

THE COURT: Wasn't it previously identified?

MR. HEINEMAN: Well I just want to demonstrate that this is a part of that and that he considers this authoritative.

THE COURT: Okay.

A. This is a report by the National Research Council of Canada by the Associate Committee of Scientific Criteria for Environmental Quality and the topic is polychlorinated dibenzo-dioxin. Criteria for the Effects of Man on his Environment.

Q. And you are familiar with this full book which is Exhibit 926?

A. Yes, sir.

Q. And do you consider it authoritative?

A. Very much so, yes, sir.

Q. And is our prior Exhibit 926 which we are now withdrawing and replacing with the book you have before you, it runs from pages 111 to 120, correct?

A. Yes, sir.

Q. And are these pages 111 through 120 from the

previous 926 the same pages as are in the new 926?

A. Yes, sir.

Q. All right. Thank you. Now, sir, if I could direct your attention again please to Plaintiffs' Exhibit 1273 which you have before you there and I would like to hand you what has been previously marked as Plaintiffs' Exhibit 1273A. Would you look at page 79, sir, of 1273 and tell me if Exhibit 1273A is a copy of table 111 from pages 79, 80 and 81 of 1273?

A. Yes, sir.

MR. HEINEMAN: Your Honor, has 1273A been passed to the jury? If not I would like it to be.

THE COURT: Has it been?

MR. CARR: I am sure it has been, Your Honor, but I can't be absolutely sure of that. Most of our exhibits have been passed to the jury.

THE COURT: It has been admitted so you may pass it if you wish.

MR. CARR: They have got it already.

MR. HEINEMAN: Yes, they do have 1273A.

Q. Now, sir, what is the title to table 11, sir?

A. Chloro-dioxins reported in chlorophenols.

Q. And you see at the top of the chart table 11 on page 79, a reference to orthochlorophenol?

A. Yes, sir.

Q. Now, first of all, what is the date of publication of 1273?

A. November of '80.

Q. November of 1980. All right. Now, if you look at orthochlorophenol there, sir, there is a column entitled TCDD. Do you see that?

A. Yes, sir.

Q. And right above that column does it list the units in which the numbers are expressed?

A. Yes, sir.

Q. What is that? What are those units?

A. In parts per million.

Q. Parts per million. And if I can direct your attention to where it says orthochlorophenol, do you see the number there that says .037?

A. Yes, sir.

Q. That would be .037 parts per million?

A. Yes, sir.

Q. What would that be in parts per billion?

A. 37 parts per billion.

Q. Does that number sound familiar to you, sir?

A. Yes, sir.

Q. And what do they have in parenthesis next to the 37

parts per billion?

A. 2,3,7,8.

Q. Then they have a footnote, correct?

A. Yes.

Q. Let me direct your attention to the third page of Exhibit 1273A for footnote B.

A. Yes, sir.

Q. What does it say there?

A. Presence of 2,3,7,8 TCDD confirmed but not quantitatively reported.

MR. CARR: Your Honor, all this has been gone into with other witnesses and Mr. Heineman wasn't here at the time but this has been gone into. This is repetition.

THE COURT: I believe it is. Objection is sustained.

MR. HEINEMAN: Well, Your Honor, the issue that Mr. Carr went into with this witness was whether or not the EPA knew that, whether the EPA did not know nor did it assume that the 37 parts per billion reported by Monsanto was 2,3,7,8. That is why I am going into this.

MR. CARR: No. That is not the issue. We have exhibits into evidence which has shown and witnesses have testified that Monsanto told them that they had 37 parts per billion. That only a small fraction of it, if any, could be

2,3,7,8 TCDD. That has been gone into with other witnesses. This exhibit has been explained. All we are doing is covering territory that we have covered months ago.

THE COURT: This has been in already. Objection is sustained on the basis of repetition.

Q. Now, Doctor, let me hand you, sir, what has been marked as Defendant's Exhibit 875 and you will see -- I direct your attention to the last page of that exhibit. Do you have a memorandum there from Doctor Paget?

A. Yes, sir.

Q. Dated February 12, 1979?

A. Yes, sir.

Q. Now, Mr. Carr asked you, sir, whether or not you told Doctor Paget to tell the EPA to assume that the dioxin in the tank car was all 2,3,7,8. Do you recall that, sir?

A. Yes, sir.

Q. And you said you didn't think you told him that. Do you remember that?

A. Yes, sir.

Q. What do you think you did tell him?

A. I told him to consider that the 37 parts per billion should be considered toxicologically as though it could be there without definition whether we knew it or not but for our consideration we were to act as though that 37

parts per billion was 2,3,7,8.

Q. To act as though it were?

A. Yes.

Q. Now, did you tell him anything about what he should tell the EPA with respect to what we consider to be a hazard on the 37 parts per billion?

A. We told him we didn't think that was a hazard.

Q. Now, what did you tell Doctor Paget?

A. That we would consider that even if the 37 parts per billion were all 2,3,7,8 tetrachlorodibenzo-dioxin, that we didn't think there was a hazard to man with that concentration in the orthochlorophenol-crude.

Q. And, would you read aloud the first paragraph of the memo by Doctor Paget dated February 12, 1979?

MR. CARR: Your Honor, that is repetition. We went into that thoroughly with Doctor Paget. He testified at length about his memo.

THE COURT: Objection is sustained. That memo has been read a number of times.

Q. Well, would you assume, sir, that the evidence is that Doctor Paget told the EPA that the 37 parts per billion found -- well, strike that. Would you assume, sir, that Doctor Paget told the EPA that he did not think that the 37 parts per billion found changed our feeling that no hazard

was involved either for the people of Sturgeon or for the WES crew clearing up. Would you assume that?

A. Yes, sir.

Q. Assuming that, sir, would that, had he done that, would that have been in compliance with your instructions?

A. Yes, sir.

Q. Now, would you assume further, sir, that there has been testimony from Doctor Paget, from Doctor Kaley and Doctor Mieure in this case that in February of 1979 Monsanto could not be isomer specific for 2,3,7,8 TCDD. Would you assume that, sir?

A. Yes, sir.

Q. If you assume that to be true, is there any way that Doctor Kaley could have known that estimate 90 percent was the 2,3,7,8 isomer?

MR. CARR: Your Honor, all that has been gone into clearly. It is repetition and I object to it.

THE COURT: Objection is sustained.

Q. Now, Mr. Carr asked you, sir, when he was talking to you about lung cancer and he was talking about the Nitro morbidity study. Do you remember that, sir?

A. Yes, sir.

Q. And, excuse me. He was talking about all the Nitro studies, morbidity and mortality. And he asked you, sir, if

Monsanto knew that lung cancer could occur by chance, why go through having these studies done. Do you remember that, sir?

A. Yes, sir.

Q. Is there any way prior to the time that the studies were completed and the results were made that Monsanto could have any idea what the occurrence of lung cancer was in that population?

A. No, sir. No way they could know what the results are going to be.

Q. So was there any way you would know in advance what the statistics were going to show?

A. No, sir.

Q. What is the, what does the expression occurring by chance refer to in connection with the statistics that are the result of the epidemiological study?

A. In all of epidemiology, we compare what we observed with what some definition of expected is and to do that comparison, you do a statistical manipulation of the data and what you really are looking to see if you did it again, could it happen again just by chance. So, all that really says is there is no statistical difference between those two populations. The observed and the expected could occur by chance without them having had any exposure to anything.

Q. Would that be true, sir, even if you combined the Zack-Suskind and the Zack-Gaffey studies?

A. The likelihood of statistical significance is based on the size of the population being studied. If you take two groups in which there is no statistical valid effect and you put them together, you now have a population that is now the sum total of both of those two studies that you have completed. When you put them together, now that denominator, the sum total of both studies affects the interpretation of the observed over expected. So, you can have two studies that are not statistically significant that can become statistically significant if you have a large group. But if you have two groups that are not statistically significant and put them together, the likelihood of something being statistical is nill.

Q. It is small if you put two together that are not?

A. If they are not statistically significant themselves and you put them together, in all likelihood you found that you do not have a problem but when you are doing what is called a PMR, when you are talking about just percentages, PMR is a study not of what the absolute effect is but rather it is a comparison. When you put them together in a PMR, you will get a different result than if you do an SMR. So we put together an SMR and a PMR and when you do

that, you can't be sure what is going to take place but in all likelihood they will not be different than either one of them.

Q. The SMR is standard mortality ratio?

A. Right.

Q. National?

A. The standard mortality is looking at the experience of each subgroup, those that have cancer by themselves rather than looking at cancer as part of the total. SMR is what we call the life table analysis. PMR is just looking at the causes of death and finding what percent of it is cancer and how much is heart disease or what.

Q. Right within that same group as opposed to like the population in general?

A. Yes, but even when you put them together you can't predict what is going to happen because now the expected changed. When you put down the expected for any group, the expected for any one of these, these analyses are standardized by comparing them to national averages and comparing the national averages you compare them by age specific. So each one of them before you can put them together have to be corrected for age and if you haven't done it, you can't put them together because the expected is different.

Q. All right. Now, when questioning you about these studies, do you recall Mr. Carr asking you about those employees who had worked before 1955 but had been terminated or retired prior to 1955 and whether or not they were included in the studies? Do you remember that?

A. Yes, sir.

Q. And the answer is?

A. No.

Q. They were not?

A. Not unless they were present. Those who were working before 1955. If they were still working, they would be a part of it but those who had separated before 1955, they would not have been.

Q. All right. Now, do you remember Mr. Carr suggesting to you that those pre 1955 employees have the highest exposure and the longest exposure? Do you remember that?

A. Yes, sir.

Q. Now, if the plant started, if plant production started in 1948, would those people before terminating before 1955 have a longer exposure than people who had worked from 1955 for several years thereafter?

A. No, sir.

Q. They would have a seven year maximum, right?

A. Yes, and from '55 to '69 is 14 years.

Q. Now, with respect to the highest levels, do you recall, sir, Mr. Carr talking to you about Plaintiffs' Exhibit 1487, sir?

A. No.

Q. You don't?

A. No.

Q. Well, I can assure you that he did. Well, perhaps if you put it together with 1486.

A. If you put it in context maybe.

Q. Do you recall Mr. Carr talking to you about the levels of dioxins found in Monsanto's products at the Nitro Plant over a period of years?

A. Yes, sir.

Q. All right. Do you remember that, sir?

A. Yes.

Q. And did he have you look at Plaintiffs' Exhibit 1487 at that time?

A. Yes, sir.

Q. Now, what is the highest level reported there, sir?

A. 55.

Q. 55 what?

A. 55 ppm.

Q. Parts per million. And what year did that occur?

A. 1965.

Q. So, would the people who were employed at the Nitro Plant between 1948 and 1955 have the highest level of exposure based upon any information that was presented to you?

A. I don't have before 1955.

MR. CARR: I don't have before 1958, not just '55.

Q. So there isn't anyway you can know based upon any records that were given to you by Mr. Carr what the levels of exposure were in 1955 or before, correct?

A. No, sir. That is correct.

Q. And what you can see from those levels, what were the levels in 1958?

A. 11 ppm.

Q. What were the levels in 1961?

A. 5 ppm.

Q. And the highest levels on that list were 1965?

A. Yes, sir.

Q. We have no information or do you have any information that the people who were not studied because they left the company before 1955 had higher exposure than the people that were studied because they were with the company from '55 to '69?

A. No, sir.

MR. CARR: I object to that, Your Honor. They have got Exhibit 1482 which is a Monsanto document, Marcy Strauss says these were the people that were the highest exposure. It is Monsanto saying it. It is not in accordance with all the evidence that is here.

Q. Doctor --

THE COURT: Wait a second. Do you want to address that objection?

MR. HEINEMAN: Well, Your Honor, the witness has said before what Marcy Strauss was doing in the preparation of that document which was asking rhetorical questions in connection with the Nitro litigation and Mr. Carr keeps accepting these as facts and I would be happy to inquire with respect to this witness if there was any way that Marcy Strauss could possibly know whether or not the levels were higher before 1955.

MR. CARR: If this witness knows and it is Monsanto's dockment. She doesn't ask the questions. She says those are the people with the highest exposure.

THE COURT: Objection is sustained.

Q. Doctor, you have seen Plaintiffs' Exhibit 1482, haven't you?

A. Yes, sir.

Q. You recall Mr. Carr inquiring of you about that

document?

A. Yes, sir.

Q. What was Marcy Strauss doing when she was preparing this document?

A. She was preparing questions that she thought were hard questions for the Nitro Plant to answer in their litigation on the Nitro lawsuit.

Q. Questions that would be asked by whom?

A. By the plaintiffs' attorney.

Q. Did she have any information of which you are aware to establish that the exposure levels prior to 1955 were indeed higher than they were afterwards?

MR. CARR: Objection. Unless counsel first establishes that he knows, that the witness knows what Marcy Strauss had access to and that it included or did not include the products of the Nitro Plant.

THE COURT: Objection is sustained. You are to establish that first before asking that question.

Q. What was Marcy Strauss looking at, sir, when she was preparing these documents?

A. Her epidemiologic data that was available to her on the Nitro Plant.

Q. Is that the same epidemiologic data we have been talking about in this courtroom?

A. Yes, sir.

Q. All right. Is there anything in that epidemiologic data that we have been talking about in this courtroom that establishes that the levels prior to 1955 were higher than they were afterwards?

A. No, sir.

MR. CARR: Your Honor, I object to that unless it is established that we have all the Nitro Plant data in this courtroom that Marcy Strauss had access to and all the personnel she had access to and all the other information that she had.

MR. HEINEMAN: Well, Mr. Carr, you have been saying that all of your questioning on this witness has been based on all of that data.

MR. CARR: It is based upon Monsanto's documents. It says, 1482, that Miss Strauss says that people that were terminated before 1955 are the people with the highest exposures.

MR. HEINEMAN: May I see it?

MR. CARR: Well, you have got 1482.

MR. HEINEMAN: May I just take a look at that please?

MR. CARR: Sure.

THE COURT: Objection is sustained. You will have

to establish that.

MR. HEINEMAN: I am sorry, Your Honor?

THE COURT: I sustained the objection.

Q. Now, Doctor Roush, Mr. Carr was going over with you the Zack-Gaffey study. Before I get to that, Your Honor, the document that Mr. Carr just handed me, 1482, the title of it --

MR. CARR: 1482, is that correct?

MR. HEINEMAN: 1482.

Q. The title was High Priority Questions. Do you remember that, sir?

A. Yes, sir.

Q. Now, in talking with you about the Zack-Gaffey study, Mr. Carr suggested to you, did he not, that the Zack-Gaffey study shows an excess of bladder cancer in those exposed to 2,4,5-T. Do you remember that?

A. Yes, sir.

Q. Let's look at the Zack-Gaffey study. Let me hand you that, sir. It is Plaintiffs' Exhibit 2181, Defendant's Exhibit 65. Do you see that, sir?

A. Yes, sir.

Q. Would you turn to the table, table 9, sir?

A. Yes, sir.

Q. Mr. Carr questioned you about this table in this

connection, did he not, sir?

A. Yes, sir.

Q. What does the table show with respect to 2,4,5-T exposure and the occurrence of bladder cancer?

A. In the exposed, the expected bladder cancer in a population of 58 would be .22 bladder cancers and the observed was 2 and the PMR is mixed up because it is only related to the percent of the total but the PMR is 909 which means it is 800 percent above expected and we are talking about something less than one to two cancers. The expected is something less than one and they found two. In the unexposed, a population that is twice as large, they expected .65, something less than one. And they found seven so they found a striking number, three times as much in a population twice as large. Now, because the population is larger, as I said before, the bigger the population, the more likely you are going to get statistically significant. It was statistically significant in the unexposed but they had more bladder cancers for the same population size in the unexposed than they did in the exposed.

Q. And what was the cause of that, sir?

A. Why did they have bladder cancer?

Q. Yes, sir?

A. Because they were exposed to the

paraphenol-biphenol.

Q. That was a product that had previously been manufactured at Nitro?

A. And the interesting thing is that this study brought it out and showed it despite there only being two and there only being seven.

Q. What do you mean it brought it out?

A. We were able to observe the PAB effect in this study. We were able to find an effect in a population that was different from normal that could only be detected by a study such as this.

Q. And is there any relationship between the PAB and the 2,4,5-T?

A. Not on this study. The opposite is the case.

Q. Now, sir, when Mr. Carr was questioning you about the Times Beach study, he suggested that that was done or he said I suggested it was done, pardon me. He suggested I didn't say that it was done on questionnaires. Do you remember that?

A. Yes, sir.

Q. Now, was the Times Beach study reflected in Defendant's Exhibit 55 which you have before you there done by the Centers for Disease Control and the St. Louis University, was that done solely on questionnaire?

A. No, sir.

Q. As a matter of fact, questionnaires were used, were they not?

A. Yes, sir.

Q. And it was based on questionnaires that they made a determination as to who was in the high and low risk group?

A. Yes, sir.

Q. But with respect to the examinations, the document, does it contain tables reflecting physical data?

A. Yes, sir.

Q. Laboratory results?

A. Yes, sir.

Q. These people were examined by physicians, were they not?

A. Yes, sir.

Q. There was a neurological examination as well?

A. Yes.

Q. Now, Mr. Carr suggested to you, sir, or did he, I am asking you, did he suggest to you that Monsanto has done nothing at Sturgeon since the cleanup occurred to prevent human exposure to TCDD? Do you remember that?

A. Yes, sir.

Q. Has the EPA done anything at Sturgeon since the cleanup to prevent exposure to TCDD?

A. No, sir.

Q. Has the Center for Disease Control done anything at Sturgeon since the cleanup to prevent exposure to TCDD?

A. No, sir.

Q. Has the Missouri Division of Health done anything at Sturgeon since the cleanup to prevent exposure to TCDD?

A. No, sir.

Q. Has a study of the physical effects of a high risk, low risk group like was done at Times Beach by those three organizations, has that been done in Sturgeon?

A. No, sir.

Q. Why hasn't anybody done anything up in Sturgeon?

MR. CARR: I object unless the witness knows, Your Honor.

THE COURT: Objection sustained.

Q. Does the EPA list Sturgeon as a Missouri dioxin site?

MR. CARR: That is repetition, Your Honor. That has been gone into.

THE COURT: Objection sustained. It has.

Q. Now, Mr. Carr suggested to you, sir, when you were discussing the Suskind morbidity study that there were people that had cancer, that had only a possibility of exposure or a minimal or extremely low exposure. Do you remember that?

A. Yes, sir.

Q. And was he questioning you with respect to whether or not those people with minimal or only possible exposure should be included in the study group?

MR. CARR: Your Honor, I object to this. Counsel can ask a question without suggesting what I am asking about. I object to the form of the question. He can direct the witness to a subject and ask the question but I object to this form.

THE COURT: I would like you to rephrase that. I think that objection is well taken.

Q. Let me direct your attention, Doctor, to the questioning that Mr. Carr did to you with respect to including people with cancers in the exposed group in the Suskind morbidity study. Okay?

A. Yes, sir.

Q. Now, if you included the people who had a cancer but who had an exposure that couldn't be measured, was only theoretical, was only possible, is there anybody else that you would have to include in that study?

A. The entire plant.

Q. Well, why? Why would you do that?

A. Because we are trying to do a study of those with exposure and if we include those who have possible exposure

in that group, then you have to include everyone because they haven't been able to separate them by any measurement whether they were in the exposed group or not so the whole plant would have to be a part of it.

Q. Can you just pick out the cancers and say I think I will take these and stick them in there?

A. No, sir.

Q. So, if you are going to include minimally or possibly or theoretically exposed, then you have got to include everybody that is minimally, possibly or theoretically exposed?

A. They go into that denominator. Those with possible effects.

Q. Now, what happens to your ability to find anything in the study if you do that?

A. If you include those who really didn't have any exposure into a population that has significant exposure, if you do that, then all of those who have minimal exposure and are not going to have an effect would dilute out the effect that is observed in the heavy exposure. So, if everytime you increase the denominator without changing the effect that is observed is you'll be deleting what you are going to be obesrving and that is the way you look if you are trying to minimize the effect of a study. If you include all those

with minimal exposure where unlikely there is going to be an effect, then you are decreasing the likelihood of finding an effect that is real.

Q. So if you included all of those people --

MR. CARR: Objection to the leading form of the question.

THE COURT: Objection sustained.

Q. Well, what would be the effect on the findings of the studies, sir, of statistical significance or lack of statistical significance if you put all those people in?

A. If the effect is dose related and the heavy dose is going to be the one we are looking at, you are going to be decreasing the number of abnormalities in a larger population. So, the percentage with effects will go down if there is an effect from exposure at all.

Q. So what does that do to your statistical significance?

A. Well, if you got an effect, then the statistically significant will become non-statistically significant if there is an effect.

Q. So, would it hide the effects that are there?

A. If there is an effect there, it will dilute it so that you wouldn't see it.

Q. Now, what does that have to do with the study the

way it is set up to study those that are heavily exposed?

A. What do you mean the way it is set up?

Q. Well, is there any relationship between what you have just said and the way the study was actually determined?

A. They took -- the way it was determined is they took those that they were confident had heavy exposure. They were so confident in the fact that they had exposure, that all the chloracne occurred in the population that was called exposed. There was no chloracne in the group that was called unexposed and there was a category in between of something in the order of 50 people who were questionably exposed. Questionably exposed as maybe some of them could have belonged in the heavy exposure but they maybe belonged in the no exposure so they left all of those with the questionable exposure out and those that were called no exposure were less than the questionably exposed so they certainly shouldn't have been in. So they left out that questionable because they weren't sure that it wouldn't be diluting and they also didn't want to put it in the non-exposed but they didn't want to find an effect in the non-exposed group if there was none.

MR. HEINEMAN: That is all the questions I have, Your Honor.

THE COURT: Mr. Carr.

RECROSS EXAMINATION

By

MR. REX CARR.

Q. Doctor Roush, do you recall you paid Northwestern a considerable sum of money to devise a protocol in 1984 to conduct a broad and extensive morbidity health study?

A. Yes, sir.

Q. Do you recall one of the sticking points for sometime before Northwestern would agree to go into that was that they required that a true control group be established? That is, a group of people who did not work in a chemical plant and did not have any possibility of exposure to 2,3,7,8 TCDD. Do you recall that?

A. Yes, sir.

Q. That is what Northwestern required and insisted upon. Before you can have a true study, you have got to take people who have not been exposed to the 2,3,7,8 and compare the plant population to those people before you have a true control group, isn't that correct, sir?

A. No, sir.

Q. Isn't that what Northwestern insisted upon so that the study if you ever do it, that it will have validity?

A. No, sir. That was in the first draft.

Q. Did you convince them that they shouldn't have

that?

A. No, sir. The peer group did.

Q. Is there another draft, then, that I haven't seen where they have dropped the control group requirement?

A. I am not sure that the next draft has been written yet.

Q. Doctor, the draft you have got and that we have got and that we have got in evidence and we have got a lot of memos where it went back and forth where they were insisting that you use a true control group, that is of people who were not exposed?

A. Yes, sir.

Q. And they wanted to compare and they believed at that time that only by comparing a group that was not exposed, or didn't have the possibility of exposure to the plant group, that is the only way you could really run a comparison. Isn't that what they said?

A. Yes, sir.

Q. Yes. Now, have you and Northwestern now agreed upon conducting a study where you are going to drop this true control group?

A. It isn't Monsanto's agreement.

Q. Monsanto is the one paying for the study?

A. Yes, sir.

Q. Monsanto is the one that entered into the contract with Northwestern. Monsanto is the one that paid for Exhibit 1267?

A. Yes, sir.

Q. Monsanto is the one to decided whether the study is or is not to be done, isn't that correct, sir?

A. Yes, sir.

Q. If Northwestern makes you or says they will not participate in a study unless you have such and such a control group, then there is no way that you have of making them do that?

A. That is right.

Q. Now, on the other hand, if Monsanto says to Northwestern, well we are not going to pay the number of two and a half million dollars that it is going to cost to run that study --

A. Yes, sir.

Q. If you do have a control group, then Northwestern does decide whether it will accede to or agree to Monsanto's requirement if it wants to get the two million dollars, isn't that correct, sir?

A. If Monsanto so states.

Q. And has Monsanto now stated to Northwestern University that if it wants to get the two million dollars,

it has got to agree to a no true control group?

A. No, sir.

Q. I thought you said they had dropped it, Doctor?

A. Yes, sir.

Q. And did they drop it? Did not Monsanto object to you having a control group?

A. No, sir.

Q. Aren't there memos in which negotiations went on for a period of time over the control group?

A. Yes, sir.

Q. And that Monsanto was the one, it was Northwestern wanting a true control group and Monsanto saying no, isn't that correct?

A. No, sir.

Q. Who was saying no?

A. The peer group.

Q. What peer group?

A. There is a group of eight consultants including NIOSH and representatives from Yale who is a representative of one of the labor unions, a representative from Harvard, Doctor Monson that we have talked about is on the committee. There are about eight different representatives and what they said is they would much prefer to have a graded study of all people in that plant rather than to try and take a group that

would be called high exposure and compare that with the non-exposed group. What they want to do is to study everyone including all people who have retired or terminated or whatever.

Q. Well, Doctor, that doesn't take away from using a control group of truly unexposed people?

A. That was their opinion.

Q. Doctor, are you talking about the committee that is part of making the protocol?

A. The ones who reviewed the protocol as presented and what we have had a copy of.

Q. And have we seen a copy of this?

A. The final one.

Q. This review where you say they want to drop that? You have seen it apparently and I haven't.

A. No, I haven't seen it.

Q. Doctor, what are you giving us? Are you giving us somebody told you something?

A. I was there when they discussed it.

Q. Then you are in fact giving us what somebody told you. A meeting that you participated in. Was there a memo, was there a note taken at that meeting? Did you take notes?

A. No, but there were notes taken.

Q. And you have copies of those notes?

A. No, sir.

Q. By you I mean Monsanto?

A. Northwestern has copies.

Q. And hasn't Northwestern given you copies?

A. No, sir.

Q. Have you requested them?

A. No, sir.

Q. Have you seen any such copies?

A. No.

Q. Doctor, has it be decided, has Northwestern then agreed that they are going to drop the control group?

A. Yes, sir.

Q. Has that been done in writing?

A. No, sir.

Q. It has been done to you by telephone?

A. I don't know.

Q. How has it been done then, Doctor?

A. By my being at that meeting. It was general concensus they would rather go that way than what had been presented by Northwestern.

Q. Doctor, it is Northwestern's decision to make and if what went at that meeting was just peer so-called group that you were a member of --

A. I was an observer.

Q. Did you not participate?

A. Only for information.

Q. Did you not participate?

A. Yes, sir.

Q. And, Doctor, has Northwestern responded in any shape or form outside of that meeting to this suggestion that you drop the control group?

A. We didn't suggest they drop the control group.

Q. To the suggestion that the control group be dropped?

A. There has been nothing written on it that I know of.

Q. And, Doctor, all you are talking about is a meeting that you attended. When did this meeting take place?

A. Maybe six months ago.

Q. The protocol that we have in evidence was the final protocol submitted by Northwestern, was it not?

A. The last one we received.

Q. Yes. That is the only one you received, isn't it, sir, the final one? You haven't received any since then?

A. That is right.

Q. And that protocol requires for the formation of a control group, doesn't it, sir?

A. Yes, sir.

Q. And there isn't anything that you have to the contrary, is there, sir?

A. I don't know.

Q. Other than what you tell us took place at a meeting?

A. I don't know.

Q. Which we have no notes. You have no copies of notes to give us to confirm so that we can show whether or not you are telling us the fact, isn't that right, Doctor Roush?

A. I don't know.

Q. You don't know that that is the fact?

A. The responsibility for keeping that is Doctor Strauls and I haven't kept up with the correspondence or discussion with Northwestern. He makes all the contacts, not me.

Q. Doctor, your company is under order to give us copies of all such documents and may we take it that since we haven't received such a document, that none exist? That is, if you have been complying with the Court's order?

A. Yes, sir.

Q. Yes. Then you have no knowledge of anything other than the protocol that Monsanto prepared and that you paid for, I am sorry, that Northwestern prepared and that Monsanto

paid for and is in evidence in this court, 1467 or 1267, isn't that?

A. The meeting I attended tells me. That is my knowledge.

Q. Doctor, you will forgive me if I do not accept what you said took place at that meeting. You have told us --

MR. HEINEMAN: Objection, Your Honor. What Mr. Carr accepts or doesn't accept is not a proper question. He may argue that to the jury at some point but I object to that as an improper question.

MR. CARR: I will withdraw the question.

THE COURT: It is withdrawn.

Q. Doctor, you understand that you have given us in the past statements of you saying things that have occurred in the past?

A. Yes, sir.

Q. And you have said that the printing, it doesn't say 24 percent never had chloracne, that that table doesn't say that. You understand there is a lot of things that you have said in this courtroom looking at the document right in front of you and you have said that it wasn't there and there had been other occasions where you have said one thing and 10 seconds later you said you didn't say it and the next day you say you didn't say it. You understand those things have

occurred, do you not?

A. No, sir.

Q. You don't understand that?

MR. HEINEMAN: Objection.

THE COURT: Objection is overruled.

Q. Doctor, do you recall the Court requiring you to assume that you said certain things when you said you didn't say them?

A. Yes, sir.

Q. And do you remember the table that counsel just talked to you about where you testified in front of the jury that that table didn't say that 24 percent of those people never had chloracne according to their reports and according to that table? Do you recall saying that?

A. Yes, sir.

Q. And that table does say that, doesn't it, sir?

A. Yes, sir.

Q. Now, today after you have talked with counsel, you agree that the table does say that but I spent 15 minutes or half an hour with you trying to get you to say that that table said 24 percent never had chloracne and you refused to do it and we ended the examination on your refusal to say that that table says exactly what now you say it does say. Now, Doctor, in view of that, you haven't seen, there is not

a single memo that you can give us, not a single piece of writing that you can give us to confirm the statement that you say today that Northwestern has agreed to conduct this study without this true control group, isn't that correct, sir?

A. Yes.

MR. HEINEMAN: Objection. Please, Doctor, let me make my objection. I object to Mr. Carr's speech. It obviously had nothing whatever to do with the question that he told it with and I ask that it be stricken and ask that the jury be instructed to disregard it as improper.

THE COURT: Objection is overruled.

Q. Doctor, do you not agree that if you have a group of people in a plant that work in a plant and that has three sides of it confirmed dioxin content, on three sides of the plant for years and years, been there for 20 or 30 years or close to 40 years, do you not agree that the people in that plant as you have already said have had some exposure to dioxin?

A. Possible exposure, yes, sir.

Q. Well, it is not just possible exposure. I think you have agreed that the people that go by that Main Street there have had exposure, have you not?

A. I don't know. I said that? I don't know.

Q. Well, you did say that.

A. I said it is possible exposure.

Q. Doctor, you say that they in fact -- and you have said it a number of times. You said in fact nobody in this plant can be truly unexposed. They have all had some exposure but you consider it to be in small, not measurable doses. Don't you recall that being your testimony?

A. Yes, sir.

Q. Now, Doctor, they have had some exposure even though you can't measure it, haven't they, sir?

A. I don't know. Possible exposure.

Q. Doctor, you just got through saying that you did agree that they did have exposure even though you can't measure it?

A. If I can't measure it, I don't know.

Q. Doctor, I am not asking you for certain knowledge. You do know that there is dioxin created in '46. You don't know that any of these people had exposure?

A. Yes, I do.

Q. The only ones that you agree have had exposure are the ones that have chloracne?

A. No, sir.

Q. Then you do agree that you can have exposure to dioxin without chloracne?

A. Yes, sir.

Q. And these people that are working in this area, even though they don't have chloracne, they may well have exposure to dioxin?

A. Yes, sir.

Q. The people working that part in this parking lot will have exposure to dioxin, wouldn't they, sir?

A. I don't know.

Q. You don't know that?

A. I don't know that, sir.

Q. Doctor, didn't we just get through the fact that there is dioxin here and here and here and here and here?

A. Yes, sir.

Q. Now, you are telling me when you say you don't know, what you are saying is that you have no absolute first-hand knowledge of that, isn't that what you are saying?

A. No, sir.

Q. What are you saying, Doctor?

A. I am saying the levels would be so low there that I am not sure there is any exposure taking place.

Q. Doctor, if there is one molecule and that person comes into contact with one molecule, as ridiculous as that sounds, he has exposure, hasn't he?

A. If he comes in contact with one molecule then he is

exposed, yes.

Q. Now, these people that travel the main road of this plant, have traveled it since 1946 up to 1985?

A. Yes, sir.

Q. They come into contact with molecules of dioxin, do they not?

A. I don't know.

Q. Do you know that they don't, sir?

A. I know that if any is out there it is going to be broken down as soon as it gets out there in hours.

Q. Doctor, if that is true, then, then why are you covering up all these places? We went through this at some length.

A. Yes, sir. It is contaminated --

Q. You know that can't be true. It is contaminated?

A. Yes, sir.

Q. As soon as it gets out there it is going to be destroyed. Why worry about it getting out there if you say as soon as it gets out it is going to get destroyed?

A. That is what the EPA wants.

Q. Doctor, the EPA didn't order you to do it.

A. I don't know.

Q. You don't know that?

A. No, sir.

Q. Now, Doctor, have you examined your records at all?

A. What records?

Q. The records with regard to why you are covering these areas?

A. All I know is what they said they were going to do. I don't know why they were going to do it. Besides that, it was contaminated.

Q. Well, it was contaminated. We have gone all the way through that, Doctor, and do you agree that there is exposure to people in that plant?

A. There is possible exposure.

Q. Well, Doctor, can you say that they are not exposed?

A. I don't know.

Q. Can you say, can you conduct a study and call the people in that plant unexposed? Say affirmatively that they have not been exposed?

A. No, sir.

Q. No. So, you cannot say in a scientific study that these people have not been exposed, can you, sir, because the possibility is that they have all been exposed?

A. At some level below what I can measure.

Q. Yes. And, therefore, you cannot conduct a study of unexposed people and say these are unexposed people if they

are people that work in that plant, isn't that correct, sir?

A. If we use that definition?

Q. Yes. Isn't that correct, sir?

A. If you use that definition, yes.

Q. And, Doctor, isn't that the reason that Northwestern wanted and required before -- apparently now if what you say is true, you talked them out of it -- that they required that you have a group of people to compare these people with?

MR. HEINEMAN: Objection, Your Honor. He just totally misrepresented the witness's testimony. He just said you talked them out of it and the witness just testified that the peer group talked them out of it.

MR. CARR: Well, somebody. I will accept that change, Your Honor.

Q. That somebody talked them out of it?

A. Yes, sir.

Q. And you were present at the meeting when it took place?

A. Yes, sir.

Q. And, Doctor, isn't that what Northwestern wanted to do is to have a true control group?

A. Yes, sir.

Q. Because then, Doctor, you see all of these tables

that we have got. For instance on the porphyrins and Doctor Suskind's second draft of the morbidity study where he put table 35 in there and he called these porphyrins abnormal. Do you recall that?

A. Yes, sir.

Q. And there were 28 or 29 percent of the so-called unexposed group that had abnormal porphyrins and 35 percent of exposed group that had abnormal porphyrins?

A. I don't remember the numbers.

Q. Well, something like that. Do you remember that?

A. Yes.

Q. And, Doctor, we went through all the business about how many that meant, about 30 percent of the people in that plant or in that study had abnormal porphyrins, if that was correct. Do you recall that, sir?

A. Yes.

Q. Doctor, if you have that many people with abnormal porphyrins, you can't really say whether or not these are not caused by the chemicals unless you are able to compare them. Now, if you compare them with an outside group of people and you find out that this outside group of people have 30 percent abnormal porphyrins, then you can come to a conclusion, there -- that is not necessarily true or correct. You can come to the conclusion that the exposure to

the 2,3,7,8 TCDD in the Nitro Plant did not cause the porphyrin abnormality because the unexposed, the true control group also have the same ratio of abnormalities. You could come to that conclusion then, couldn't you, sir?

A. Repeat the question.

Q. I will restate it so it will be more clear to you. If you have in your group admittedly that they all have some exposure and they come out with a 30 percent abnormal porphyrins --

A. Yes, sir.

Q. Now, you can't tell by that alone whether or not the minimal or small exposure, whether it takes a very little bitty bit of dioxin to cause liver damage or abnormal porphyrins. You can't tell because you have everybody exposed, isn't that correct, assuming?

A. Yes.

Q. But if you found, though, in a group of unexposed controls, people that didn't work in the plant, people some-place where they wouldn't have exposure to 2,3,7,8, now, if you found that that group had 30 percent abnormal porphyrins, then you can come to a conclusion, it may not be necessarily correct, but you can come to a logical conclusion that the working in that plant didn't cause the abnormal porphyrins because the people who didn't work in the plant and didn't

have the exposure had the same rate of abnormalities. You could do that, couldn't you, sir?

A. Yes, sir.

Q. But, if you find the outside group has only five percent abnormalities, that there is a very small segment like is expected in the normal population, have abnormalities, and you have got 30 percent of the people that work in the plant have abnormalities, then you can conclude that it is working in the plant that caused it, can't you, sir?

A. If you have got enough size population in both of them to make that determination.

Q. If you take 400 people in the plant and compare them to 400 people who haven't worked in that plant, then you have a true comparison group, haven't you, sir?

A. If there are no compounding variables taking place.

Q. That is what Northwestern wanted to do, isn't it, sir?

A. Originally, yes.

Q. They wanted to do that not just with the porphyrins but with all the laboratories. They wanted to compare a true unexposed group to these people that either had exposure or may have had some exposure or possibly had some exposure or questionably had some exposure, didn't they, sir, and they

wanted to do it with more than just one plant of Monsanto's, didn't they, sir?

A. Yes, sir.

Q. And I take it from what you say, that study will now never take place, will not have a true unexposed control group, is that correct, sir?

A. I think that that is probably the case. Northwestern probably has negotiated with that peer review since then and I don't know about that.

Q. Well, Doctor, you are not saying then it is final that Northwestern has conceded the point?

A. I don't know whether it has.

Q. Doctor, you told us earlier that they had, that they had agreed to it?

A. I said at that meeting.

Q. Doctor --

MR. HEINEMAN: Objection. May he finish the answer without a display here? May he finish the answer to the question?

Q. Go ahead, Doctor. If I have cut you off, please do?

A. The original protocol was as described with a control outside of the plant to make sure it had a good control. After the peer review meeting when they reviewed

the documents for the first time with their peer review committee, it was decided since they were not going to study that whole population, it would be better and more fruitful and more important than to have an outside control if the entire population were studied with all of the retired, all of the terminated, with the difficulty of getting them all back, is if they could grade them so that they showed a dose response curve with increasing exposure was more important than having one group yes or no. If they could grade it from a little bit to minimal, from no to minimal to moderate to heavy and show there was, if they showed a progression of the effect, if the porphyrins were low in the no exposed within and then in the middle minimal exposure was a little bit higher and if in the moderate there was a higher one and in the heavy exposure was highest, then the effect would be quite clear and all of the statisticians showing a trend is more important than saying yes or no.

Q. Have you finished your answer then, Doctor?

A. Yes, sir.

Q. Has Northwestern finally agreed that they will not use an unexposed control group in this study?

A. I haven't seen a report where they said that is what they are going to do.

Q. Then to your knowledge they have not agreed to do

the study without an unexposed control group, is that correct, sir?

A. Except for the fact that they agreed with what was said at that meeting and didn't have any negative point on it.

Q. Doctor, using an unexposed control group doesn't go against what you have said. You can do what you have said and also have an unexposed control group, can you not, sir?

A. Yes, sir.

Q. They are not inconsistent. An unexposed control group would help, wouldn't it, sir? If you have an unexposed control group with no porphyrin abnormalities and a minimally exposed group with some porphyrin abnormalities and a moderately exposed group with more abnormalities and a heavily exposed group with a lot of abnormalities, then you can come to a very strong conclusive minimum that the TCDD or something at that plant is causing those abnormalities, isn't that correct, sir?

A. Yes, sir.

Q. Now, has Northwestern University agreed to do a study without using the unexposed control group?

A. I don't know.

Q. Now, Doctor, the other studies that were done, the Missouri Health Study, the Times Beach, all of the Monsanto

studies, the mortality studies and the cancer studies, the morbidity study, all of those studies compare exposed to exposed, don't they, sir? None of them have a control group of truly unexposed people, isn't that correct, sir?

A. If we use your definition?

Q. Yes.

A. Yes, sir.

Q. Doctor, the report that Mr. Heineman referred to, the Canadian study, Monsanto Exhibit 926, do you have that there, sir?

A. Wait a minute. Yes, sir.

Q. He alluded to a portion of it. Turn to page 111, please.

A. Yes, sir.

Q. Talking about chronic observations in humans?

A. Yes, sir.

Q. Mr. Heineman mentioned the chloracne but on that same page at the bottom of the page, it says, does it not, the second point made by Oliver is the extremely long persistence of the toxic signs and the long interval between exposure to PCDD and the development of elevated blood cholesterol levels one to two years after exposure. Do you see that, sir?

A. Yes, sir.

Q. That is said in this study as well?

A. Yes, sir.

Q. And on the next page, page 112, they used the Suskind-Monsanto study as authoritative for what does or does not happen and the significance of what does or does not happen in this study, don't they, sir?

A. In what study?

Q. This report. The second paragraph. The Zack-Suskind mortality study?

A. Yes, sir.

Q. And they, of course, are not aware of and they don't know that Doctor Zack that did that creation of that cohort subsequently used a cohort in which she mixed exposed people with an unexposed group. They don't know that, do they, sir?

A. It has no bearing on this report.

Q. Well, Doctor, don't you believe that the integrity of the principal author of a report has a bearing on the significance of that report?

A. Yes, sir.

Q. If a scientist is willing to call somebody exposed to TCDD and treat four people as unexposed to TCDD, doesn't that make that scientist's credentials suspect, the integrity suspect?

A. No, sir.

Q. You don't think that a scientist's integrity should be questioned when you see that a scientist is putting four people who were exposed to TCDD and putting them in a group and treating them as if they were unexposed? You don't think that is somehow a question on that scientist's integrity?

A. No, sir.

Q. Doctor, then, do you believe that scientists should be allowed to ignore facts and state falsehoods or state things that are untrue and that we accept their scientific results? Do you think that is the way science should operate?

A. No, sir.

Q. Of course it isn't. And if you find a scientist who has deliberately misrepresented a fact, doesn't that cause you to suspect or to be suspicious of everything that that scientist does?

A. I don't know what the question is.

Q. Doctor, you don't, you really, you tell me you really don't understand what I am asking you?

A. I am not sure what the question you are asking me.

Q. Doctor, I am telling you, if you read a scientific paper and you thought that scientific paper was based upon solid grounds and truth and fact and no misrepresentations

and you came to a conclusion based upon what your belief is but you later on found that that scientific paper was based upon misrepresentations and falsehoods, that would make you want to throw away the conclusions of that scientific paper, wouldn't it, sir?

A. Yes, sir.

Q. Now, if you saw that that same scientist was involved in other scientific studies, it would make you question the validity of those other scientific studies, wouldn't it, sir?

A. Not necessarily.

Q. It wouldn't, Doctor?

A. No, sir.

Q. Doctor, would you really accept, if you knew that somebody had put out a false scientific paper based upon fraudulent grounds --

A. Deliberately?

Q. Yes, deliberately, would you really accept anything that that scientist said in any other paper?

A. No, sir.

Q. Doctor, the next reference there is to an accident that occurred in Germany and does it not say there that 17 of those workers died, six from malignant neoplasms of which four had gastrointestinal cancer, a number significantly

higher than expected. However, the number of deaths to date are too low to enable conclusions to be developed. Doesn't it say that on this page that Mr. Heineman --

A. What page?

Q. The same page, Doctor. 112.

A. Yes, sir.

Q. And, Doctor, the only other accident --

A. What was the question? I don't know what the question was. I was still trying to find your reference.

Q. All right. Doesn't on this, there are three accidents, industrial accidents referred to on that page?

A. Yes, sir.

Q. One is the Zack-Suskind report?

A. Yes, sir.

Q. The second one is an accident that occurred in Germany in which it is stated to date 17 of these workers have died, six from malignant neoplasms of which four had gastrointestinal cancer, a number significantly higher than expected. However, the number of deaths to date are too low to enable conclusions to be developed. Doesn't it say that, sir?

A. Yes, sir.

Q. And on the third accident referred to there, actually there are two accidents in one paragraph. One is

the Czechoslovakian accident that shows a high incidence of hypertension, hyperlipidemia and an accident in Holland of which the Dutch workers exposed to PCDD have an increased incidence of myocardial infarction. Do you see that, Doctor?

A. Yes, sir.

Q. Now, myocardial infarction is a long-term, chronic effect, isn't it, sir?

A. Yes, sir, possibly.

Q. And, now, Doctor, this study also talks about findings in accidental exposure of the general population, doesn't it, sir?

A. Yes, sir.

Q. And on the -- it starts at the bottom of the page 112 but it goes on over to page 113 and the bottom of that first paragraph discussing carcinoma, liver cancer, the fact that there was a higher increase in a Vietnam population, it looks like it is Hanoi, Vietnam, population but do they not say even in that regard, however in light -- this is the last sentence on that first paragraph. However, in light of the observed relationship between 2,3,7,8 TCDD exposure and hepatic carcinoma in rodents, the observations of Tung and others increased the concern regarding such relationship in humans. Doesn't it say that, sir?

A. Yes, sir.

Q. And then it talks about the Seveso accident and at the top of the next page discussing the Seveso accident, doesn't it say the incidence of neurological damage was also increased in Zone A, 9.8 percent, over that in Zones B and R, 2.4 percent. Doesn't it say that, sir?

A. Yes, sir.

Q. That is nearly, well it is better than three times as much neurological damage in the greater zone than in the lesser zone, isn't it, sir?

A. Yes, sir.

Q. And also says polyneuropathy of the peripheral nervous system was the most common anomaly diagnosed. Re-examination of Zone A individuals in 1978 showed an increased incidence of polyneuropathies. Do you see that, sir?

A. Yes, sir.

Q. Also talks about normal values of SGOT, SGPT and GT in the Zone A population, doesn't it, sir?

A. Yes, sir.

Q. And concludes in that paragraph by saying these data suggests significance changes in liver enzyme activity associated with the 2,3,7,8 TCDD exposure?

A. Yes, sir.

Q. And it finally concludes, the last two sentences in that last paragraph, the data available to date indicate the

significant toxic effects including chloracne, neurological abnormalities and possibly liver damage were produced particularly in the Zone A population. It is not possible, as yet, to evaluate the long-term consequences of the exposure to the populations concerned, particularly in Zone A. Does it not say that, sir?

A. Yes, sir.

Q. And doesn't it also say in their critique, sir, chloracne -- this is the last paragraph on that page. Chloracne, hypercholesterolemia, alopecia and hirsutism and various neurological and psychological anomalies are common signs and symptoms reported?

A. Yes, sir.

Q. Doctor, the exhibit, the AMA exhibit that counsel referred you to, Exhibit 925, this article, first of all, is a review article, isn't it, sir?

A. Yes, sir.

Q. And you find of the seven members on that committee, Doctor Raymond Suskind is one of the members, isn't it, sir?

A. Yes, sir.

Q. And do you know, Doctor, of the other seven on that committee, how many in addition to Doctor Suskind have a connection with the chemical industry?

A. No, sir, I don't.

Q. Doctor, don't you know Doctor Kilgore there?

A. No, sir.

Q. You don't recognize that name?

A. No, sir.

Q. All right. Wasn't there a Doctor Kilgore that worked for Dow Chemical Company?

A. I don't think so.

Q. All right. If there is not, I will withdraw that statement. Doctor, you don't know, then, I take it, how many, if any, of these persons other than Doctor Suskind have a connection with the chemical industry, is that correct, sir?

A. No, sir.

Q. And you, of course, know that Suskind probably of the members on that committee probably has had from your own personal knowledge, probably had the longest connection with the subject of dioxin, isn't that correct, sir?

A. Yes, sir.

Q. Sir?

A. Yes, sir.

Q. And he, of course, has considerable prestige because of that, doesn't he, sir?

A. Yes, sir.

Q. But you also know that he has been paid for many, many years by Monsanto, contracted with a number of studies with Monsanto and you know him personally to be a friend of Monsanto's, don't you, sir?

A. I know he is interested in dioxin.

Q. Well, that isn't what I asked you. You know those other things that I stated in that question, don't you, sir?

A. I have had no contact with him on this subject except related to the studies he has done so it is not on a friendly basis, it is a business relationship.

Q. Doctor, you know -- are you saying that you don't consider him a friend, and I also speak of Monsanto's?

A. No, sir.

Q. You don't?

A. No, sir.

Q. He has been working with you since 1949, hasn't he?

A. He is an expert consultant.

Q. He has been paid considerable amounts of money over that period of time?

A. No, sir.

Q. Other consultants are paid as well but he has a relationship that extends back over nearly 40 years with Monsanto?

A. We have never paid him personally.

Q. I am sorry?

A. We have never paid him personally.

Q. Doctor, let's explore that for a moment. You know that the salaries of professors that work for universities and work for institutions of this sort is directly affected by the amount of money that that institution is able to garner from outside sources. You know that, don't you, sir?

A. No, sir.

Q. Doctor, you don't know that when you get a government grant for a particular department that it carries with it, it puts in there part of the requirement is that it puts in there the salary that they are going to be paid?

A. Yes, sir.

Q. And it puts in there whether or not there is going to be increases in salary, doesn't it, sir?

A. If they are going to increase it, it would probably be in there, yes, sir.

Q. And, Doctor, the amount of money that Kettering can pay Doctor Suskind has a direct relationship to the amount of money or the University of Cincinnati, the amount of money that the University of Cincinnati gets from all of its various sources, isn't that correct, sir?

A. I don't know.

Q. You don't know that, sir?

A. No, sir.

Q. Well, Doctor, you do know that the expenses of Doctor Suskind are paid by Monsanto from this money. You know all of his expense account sheets that he puts in are paid out of this money that Monsanto pays. You know that, don't you, sir?

A. On the studies he has done for us, yes, sir.

Q. And would you not agree that Doctor Suskind does benefit in some financial way from these contracts with Monsanto?

A. No, sir. None.

Q. You don't agree that he benefits in any financial way?

A. No, sir.

Q. All right. Now, Doctor, in this health study, in this AMA report of Monsanto, 925, there is no statement in there about the fact that dioxin has now been found in the fat tissues of the general population at large in the United States?

A. I don't recall.

Q. Well, I have read it hurriedly while we had a recess and I saw no statement to that effect in this document. There is a statement about finding in the Vietnam veterans but there is no statement about it being found in

other people and accepting that as true for the moment, do you know whether or not Monsanto has ever told the members of this committee that its own studies have revealed the fat tissue in these people from St. Louis?

A. It has been presented at meetings.

Q. What meetings has it been presented?

A. There are a number of dioxin meetings that occur and that data has been presented at one of these meetings.

Q. Did you tell Suskind that?

A. I don't know.

Q. Now, Doctor, you will note there is no statement in this report about dioxin being in Lysol. You know that, don't you, sir?

A. Yes, sir.

Q. Or that it is ordinarily found in 2,4-D. You know that too, don't you, sir?

A. TCDD is found there.

Q. Well, there is no statement here that 2,3,7,8 TCDD is ordinarily found in 2,4-D. You recognize that, don't you, sir?

A. Yes, sir.

Q. Now, Doctor, this study does not or this review study of the AMA doesn't take into account the fact that many ailments that we may have can be caused by 2,3,7,8 TCDD that

we are exposed to without knowing it and can be caused because people will react differently to 2,3,7,8 TCDD, isn't that correct, sir?

A. I am not sure what the question is.

Q. Doctor, the question is, is that we know that as a predicate, we know that 2,3,7,8 will affect some people and they will get symptoms and problems and other people won't. We know that, don't we, sir?

A. Depending on the dose.

Q. And depending on the individual genetic variance between person and person?

A. But there is a minute level that you wouldn't see an effect.

Q. Doctor, I am not even talking about that. I am just simply trying to re-establish what we have established a dozen times that different people react in different ways to the same dose. What will make one person sick won't make another person sick?

A. Yes, sir.

Q. And, Doctor, if the 2,3,7,8 TCDD is in all of us now as it appears to be the case, this study in which all, or this review study, all they actually do is to compare in a lot of individual studies whether or not these mean are getting things that others aren't getting?

A. Yes, sir.

Q. And, Doctor, if we are all now being exposed to dioxin, isn't it possible that we are all since late '40s when they started using 2,4,5-T or everywhere up into the '70s, isn't it possible that these adverse health effects that many of us are having now can be associated in some way with dioxin exposure and that the AMA, since it doesn't even mention dioxin being in the fat tissue of all of us, that it has completely ignored or it isn't even aware of that fact?

A. They are -- they do mention it on the Agent Orange biopsy study.

Q. They only mention it on the veterans.

A. Yes, sir.

Q. And they don't mention it that everybody else has been found now not just the veterans. Isn't it possible, sir, that since they don't know what we know in this courtroom now, that they don't know it, that they have ignored the possibility that so much of the ill effects that they have described in study after study after study are in fact not caused by chance as you would suggest but in fact are caused by exposure to 2,3,7,8 TCDD?

A. No, sir.

Q. You don't think that is possible?

A. No, sir.

Q. Doctor, just one example, for instance, and you correct me if an example like this has not been contained in study after study after study, that the AMA reports here on a similar statement, quote -- we are on page 36 if you turn to that exhibit. Are you there?

A. Yes, sir.

Q. The fourth paragraph. Quote, a causal relationship between soft tissue sarcoma and dioxin exposure has not yet be confirmed or excluded, end of quote?

A. Yes, sir.

Q. And, Doctor, statements like that appear in this document not just for soft tissue sarcoma, do they not, sir?

A. Yes, sir.

Q. There is a wide variety of human health problems that based upon the laboratory with animal studies indicate that those, if you can extrapolate from the animal to the human, would indicate that those things can indeed be caused by dioxin but to date as far as humans are concerned, those things that are known to occur in animals to date cannot be either confirmed or excluded, isn't that correct, sir?

A. When they say that, they mean absolutely excluded.

Q. And they mean absolutely confirmed, don't they, sir?

A. No, sir.

Q. Well, Doctor, why would you say that you will put the word absolutely between the word excluded but you wouldn't put the word absolutely between the word confirmed? They are saying has not yet be confirmed or excluded.

A. That is true.

Q. If you are going to use the word absolutely, you have to use it before the word confirmed as well, don't you, sir? Don't you, sir?

A. It depends on the goodness of the data you have got.

Q. Excuse me, Doctor. If somebody is writing this sentence --

MR. HEINEMAN: I object. He interrupted him again.

MR. CARR: He is not responding to my question.

THE COURT: The objection is overruled.

Q. When this sentence says a causal relationship between soft tissue sarcoma and dioxin has not yet be confirmed or excluded, they are treating both in the same way, aren't they, sir? You can't say it is caused by it, you can't say it is not caused by it. Isn't that exactly what they are saying?

A. Yes, sir.

Q. And they have made that same statement with regard to a number of other human ailments, haven't they, sir?

A. Yes, sir.

MR. CARR: That is all the questions I have, Your Honor.

THE COURT: Do you have any further questions?

MR. HEINEMAN: No questions, Judge.

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

(Bench conference had out of the hearing of the jury.)

THE COURT: We have about 20 minutes left. Can you start on him on the next one now?

MR. CARR: Sure. She is waiting.

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

THE COURT: Doctor Roush, you may step down. Thank you.

MR. CARR: At this time, the plaintiff would like to call Miss Diane Nicks

DIANE NICKS

called as a witness, being duly sworn, testified as follows:

DIRECT EXAMINATION

By

MR. REX CARR.

Q. Would you state your name please, ma'am?

A. My name is Diane Nicks.

Q. And Miss Nicks, you are going to have to talk loud enough that this last young lady on the jury here can hear you.

A. All right.

Q. How old a lady are you?

A. 32.

Q. Where do you live?

A. I live at 109 South Gate Drive, Belleville, Illinois.

Q. And by whom are you employed?

A. I am employed by Carr, Korein, Kunin, Schlichter and Brennan.

Q. That is my law firm?

A. Yes, it is.

Q. At our office is in East St. Louis, Illinois, on Missouri Avenue?

A. Yes, it is.

Q. And Miss Nicks, how long have you been employed by my law firm?

A. Since December of last year.

Q. And what is your profession?

A. I am a registered nurse.

Q. And what school did you attend to become qualified

to become a registered nurse?

A. I attended St. Louis Municipal School of Nursing, St. Louis, Missouri.

Q. Graduating when, ma'am?

A. 1978.

Q. And could you give us your work history briefly, if you could, since graduation from nursing school?

A. Okay. Following graduation, I worked for approximately a year in St. Louis. Then I came back to the east side. I worked primarily in Community Hospital in East St. Louis.

Q. Community Hospital?

A. Yes.

Q. What used to be known as Christian Welfare Hospital?

A. That is correct.

Q. And, in the course of your training as a nurse and in the course of your actual work as a nurse, are you called upon to read various medical records and charts?

A. Yes, I am.

Q. And were you given, in fact, courses on reading the medical language and the shorthand and the symbols and things of that sort that is used in medical records?

A. Yes, we were.

Q. And what have you been doing, what has been the nature of the work that you have been doing for my firm since you have been employed by us, not counting this subject that I am going to ask you about here now?

A. Okay. The biggest majority of my job involves reading and interpreting medical records.

Q. And, since working with us, you are not in the care of patient?

A. That is right. That is correct.

Q. You no longer care for patients and you haven't been doing that since you left Community Hospital?

A. That is correct.

Q. All right. Now, Miss Nicks, did I ask you in late May to do a particular job for me?

A. Yes, you did.

Q. And do you have group Exhibit 1504. Now, Miss Nicks, I will show you what has been marked Plaintiffs' group Exhibit 1504 and ask you if I requested you to prepare a chart based upon information in those records?

A. Yes, you did.

Q. And could you get me 1507, please. And Plaintiffs' Exhibit 1507 is a chart entitled Krummrich Plant Health Study?

A. Yes.

Q. And are the checkmarks on that chart based upon the records that you have in front of you, that is group Exhibit 1504?

A. This was made out of these records.

Q. 1507 was made from 1504?

A. Right.

Q. Now, have you since revised Exhibit 1507, that is the chart based upon two or three further re-analyses of these charts?

A. Yes.

Q. And has Mr. Cornfeld taken a deposition of you on July 22 with regard to the chart and your analyses of the these records?

A. Yes, he did.

Q. Now, the chart itself, that is the blank chart before you put any checks on it, who prepared or created this chart itself?

A. It was a joint effort on my part and Mr. Carr's part.

Q. Now, directing your attention to the category of symptoms reported. It is listed there as headaches, sleep difficulty, fatigue, poor appetite, neuro-behavioral problems. What is the source of those symptoms?

A. I am sorry, I don't understand.

Q. Where did the symptoms come from? What is that based upon?

A. Out of these questionnaire forms.

Q. And what page did you refer to?

A. It was on page 11.

Q. And how many questions are asked there with regard to symptoms?

A. Seven questions.

Q. Now, and there are how many symptoms listed at the top of 1507?

A. There is five.

Q. Now, in order to get five symptoms from seven questions, did we unite two sets of questions?

A. Yes, we did. Questions --

Q. How many questions were there dealing with sleep?

A. There were two questions for sleep.

Q. And where there was sleep problems found, how many checks did they get for sleep difficulty?

A. They only got one check.

Q. And how many questions were there dealing with neuro-behavioral problems?

A. There were two questions.

Q. And how many checks would you give on the symptom chart for a neuro-behavioral problem?

A. Just one.

Q. So, if there were one or two checks for sleep difficulty, they would get one check and not two?

A. That is correct.

Q. If there were one or two checks for neural behavioral problems, they would get one check and not two?

A. That is correct.

Q. And there is several boxes for headaches. How many X's, how many checks would they get for report of headaches?

A. Just one.

Q. And the word poor appetite that appears here, is there actually a symptom listed there as poor appetite?

A. No, there is not.

Q. What is the question actually asked in the exhibit?

A. Okay. The question says do you have a good appetite, and that is not a symptom of anything. I thought the question was worded poorly. So, I interpreted it to say poor appetite.

Q. All right. Now, with regard to chloracne, what were your -- strike that. Did you in Exhibit 1507, we might as well make it one exhibit. I hand you now what has been marked Plaintiffs' Exhibit 1507A and ask you if that is your chart based upon revisions, based upon your last examination of the health records, that is 1504?

A. Yes, it is.

Q. And are there some changes or differences between 1507 and 1507A?

A. Yes, there are.

Q. I will get into the specific changes in a moment but how many changes are there in fact? How many persons have a change?

A. There are six people.

Q. All right. Now, referring now to 1507A and the column called chloracne, what did you do with regard to or on what basis was a check put in the column called chloracne?

A. In the questionnaire form under the physical exam, page 15, the diagnosis, if it said chloracne or if it was a current case of chloracne, they got a checkmark.

Q. Did you put a checkmark in here for any past or old cases of chloracne if it wasn't also described as current and presently existing chloracne?

A. No, I did not.

Q. Now, did you make any attempt to differentiate between or determine whether or not something was chloracne if it wasn't called chloracne?

A. No, I did not.

Q. Is the only time you put a checkmark in the chloracne column is when based upon your reading of the

records the doctor said it was chloracne and currently existing?

A. That is correct.

Q. Now, with regard to the abnormal lab reports, there are three categories in that column or in that, under that heading?

A. That is correct.

Q. And that is porphyrin, lipids and others. Now, what porphyrins were included?

A. Uroporphyrin and coproporphyrin.

Q. And what lipids were included?

A. The lipids were the cholesterol, the triglyceride, serum lipids, LDL, VLDL or HDL.

Q. And the others would be everything else that is reported in the lab reports that is attached to each of those person's records?

A. That is correct.

Q. Except one category. What category did you not report on in the other categories?

A. I didn't include the urinalysis.

Q. Now, why did you not include the urinalysis either normal or abnormal?

A. Because there was no reference range.

Q. All right. Now, did I supply you a reference range

for the porphyrins and for creatinine?

A. Yes, you did.

Q. And does Plaintiffs' Exhibit 1509B, is that a merged copy of the reference ranges that you were given for the coproporphyrins, the uroporphyrins and the creatinine?

A. Yes, it is.

Q. And did you use those ranges as I gave to you in determining whether or not a check should be put in for coproporphyrin abnormality, uroporphyrin abnormality or creatinine abnormality?

A. That is correct.

Q. And if the figures on the medical records that you have, if it showed a finding for coproporphyrin that was below the number 30, would you put a checkmark for the coproporphyrin?

A. Yes, I did.

Q. And would the same thing be true if it were above 240?

A. That is correct.

Q. And is that also true then for uroporphyrins below 15 you would give them a check and above 60 they would get a check?

A. That is correct.

Q. And for creatinine if it was below 800 they would

get a check and if it was above 1900 they would get a check?

A. Yes.

Q. Now, did you make any attempt to diagnose any condition -- well, first of all, as a registered nurse, are you competent or qualified to diagnose medical conditions?

A. No, I am not.

Q. And did you make any attempt to diagnose anybody's medical condition?

A. No, I did not.

Q. Is the chart 1507A an accurate summary of the records that are contained in Exhibit 1504 and as to what they reveal with regard to these various categories of symptoms, chloracne, porphyrins, lipids and other abnormal lab reports?

A. Yes, it is.

MR. CARR: Your Honor, I will offer 1507A and ask that it be substituted for 1507 because there are these half a dozen changes.

MR. CORNFELD: Your Honor, I will make the same objection that Mr. Heineman made to 1507. In addition, I would like the opportunity to question Miss Nicks about the exhibit.

THE COURT: I didn't hear the last part.

MR. CORNFELD: I would like the opportunity to

question Miss Nicks about the exhibit before your ruling as to whether it should come into evidence.

MR. CARR: Your Honor, I would like to pass it to the jury as I continue my examination. They have already seen 1507 with the exception of a relatively few changes and I want to point out those changes before I finish with Miss Nicks.

THE COURT: Okay. At this point I will admit it over objection. You may pass it to the jury.

(Plaintiffs' Exhibit 1507A is passed to the jury).

THE COURT: Gentlemen, could I see you at the bench for a minute please.

(Bench conference had out of the hearing of the jury.)

THE COURT: Before you get into any changes, why don't we break now. I don't know if you were informed but one of the jurors had a problem and we are quitting at one and we will start at nine tomorrow.

MR. CORNFELD: I understand that.

THE COURT: There aren't any motions as to this last witness we had, Doctor Roush?

MR. CORNFELD: I can't answer that. I don't know. Mr. Heineman is sitting back in the courtroom.

THE COURT: Why don't you ask him. We will break

at this point in time.

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

THE COURT: Ladies and gentlemen, we are going to recess for the day at this point in time. As I told you earlier, we would go until one and then break. I would remind you besides the regular admonishments, as I do for any overnight break that you are not to read, listen to or watch anything about this case in particular or subject matter in general in any of the media. Tomorrow morning we will start again at nine o'clock. Court is adjourned. Have a good afternoon.

(Bench conference had out of the hearing of the jury.)

THE COURT: I forgot TO ask you while Roush is still here. Do you have anything related to him? I have made that practice of asking any offers of proof or anything else that haven't been offered.

MR. HEINEMAN: Not other than the ones we have already covered.

THE COURT: Fine.

COURT ADJOURNED FOR THE DAY:

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

I, Kimberly Ganz, one of the Official Court Reporters, do hereby certify that the foregoing transcript is a true and correct transcript of the proceedings had in the above-entitled cause.

Dated this 2nd day of August, 1985.

Kimberly Ganz

KIMBERLY GANZ

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

I, Richard P. Goldenhersh, one of the Judges in and for the Twentieth Judicial Circuit, do hereby certify that the foregoing transcript is a true and correct transcript of the proceedings had in the above-entitled cause.

Dated this 2nd day of August, 1985.

HON. RICHARD P. GOLDENHERSH

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