

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

4 FRANCES E. KEMNER, et al,)

5 Plaintiffs,)

6 v.)

CAUSE NO. 80-L-970

7 MONSANTO COMPANY,)

8 Defendant.)

9 REPORT OF PROCEEDINGS

10 Before the HONORABLE RICHARD P. GOLDENHERSH

11 April 9, 1985

12 APPEARANCES:

13 MR. REX CARR, Attorney at Law, and
14 MR. JEROME SEIGFREID, Attorney at Law,
15 On Behalf of the Plaintiffs;

16 MR. KENNETH HEINEMAN, Attorney at Law,
17 MR. JOHN MUSGRAVE, Attorney at Law, and
18 MR. JOSEPH NASSIF, Attorney at Law,
19 On Behalf of the Defendant.

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21
22
23 PATRICIA A. GANDY, C.S.R.

24 Official Court Reporter

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1 BE IT REMEMBERED AND CERTIFIED, that heretofore, on
2 to-wit: April 9, 1985, the matter as hereinbefore set forth
3 came on for hearing before the Honorable Richard P. Goldenhersh,
4 Circuit Judge in and for the Twentieth Judicial Circuit, State
5 of Illinois, and the following was had of record, to-wit:

6 THE COURT: Good morning. Mr. Heineman?

7 FURTHER CLARIFICATION EXAMINATION

8 BY MR. HEINEMAN

9 Q Dr. Paget, yesterday we were talking about the fact
10 that in Department 236 at the Krummrich Plant in which the
11 pentachlorophenol was manufactured that there were some people
12 that contracted chloracne and there were some that did not;
13 do you recall that, sir?

14 A Yes, sir, I do.

15 Q Now, to what do you attribute that phenomenon?

16 A Well, there are several---two major possible
17 explanations. One, that the exposure of the various people
18 differed, and even though although they were working in the
19 same plant, they may quite reasonably have been exposed to
20 different levels of a chloracnogen by being a little further
21 away from somewhere where it was coming from or being a little
22 more scrupulous about the use of protective equipment or
23 washing or things like that. And the other possibility, of
24 course, is that they may have varied in their sensitivity.

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1 All animals, including human beings, vary in their sensitivity
2 to toxins or to---indeed to therapeutic drugs---and so they may
3 have varied in their sensitivity, they might have been less
4 sensitive if they didn't get chloracne.

5 Q So that what may have been a toxic dose for one
6 person or several may not have been a toxic dose for some of
7 the others, assuming that they were exposed in the same way?

8 A That's a possibility, yes, certainly, sir.

9 Q Now, if I asked you to assume, sir, that a Monsanto
10 employee named Joseph Starczyk worked in Department 236 had
11 severe chloracne, moved to Department 237 where the ortho-
12 chlorophenol, the dichlorophenol, and the parachlorophenol
13 were manufactured, and his chloracne went away, what could you
14 conclude from that fact?

15 A Well, you would have to conclude that he was then
16 exposed to a level of a chloracnogen that was below his---the
17 level which was toxic for him, yes.

18 Q Is it possible that there would not have been an
19 exposure to a chloracnogen?

20 A That's entirely possible.

21 Q In that Department 237?

22 A Entirely possible, yes.

23 Q With respect to the other symptoms which Dr. Neal
24 spoke to you about, would you expect any other symptoms, if

1 any there be, to appear absent the presence of chloracne?

2 A No, sir. The situation was clearly that if there
3 were no chloracne, no other symptoms were to be expected.

4 Q Now, with respect to conversations with Dr. Neal, do
5 you recall having conversations with Dr. Neal at any time in
6 the Spring of 1979 concerning the Wright State---the claimed
7 Wright State results?

8 A Yes, sir, I spoke with Dr. Neal on several occasions
9 as I think I've already said about this problem. And this was
10 the first person I consulted about the Wright State results.

11 Q And as I understand it, you don't recall discussing
12 the subject at the April 27th Biohazards Committee meeting?

13 A Not specifically, no, sir.

14 Q Do you recall at some point discussing the subject
15 with Dr. Neal?

16 A Yes, sir.

17 Q And what was Dr. Neal's impression, if he had one,
18 relating to the Wright State results?

19 A Well, of course, this was an area in which he was
20 keenly interested as a biochemist studying dioxins, and he
21 didn't believe that these results could be valid, because he
22 didn't think that the technology permitted the identification
23 of TCDD, let alone 2,3,7,8 TCDD at that level in blood
24 samples.

1 Q All right, sir. Now, I would like to ask you to look
2 at Exhibit, Plaintiffs' Exhibit 1262, which I think may still
3 be here. Here we go. Plaintiffs' Exhibit 1262, sir, and I
4 would direct your attention to a paragraph at the bottom of the
5 first page of that Exhibit which Mr. Carr asked you about
6 yesterday. And that paragraph states as follows, does it not,
7 sir, "In the absence of precise knowledge of human susceptibility,
8 and in view of the extreme sensitivity of some species, it is
9 obvious that very small amounts of TCDD in the human environ-
10 ment in certain circumstances of intimate exposure or of abuse
11 or misuse or casual worker procedures may," the word may is
12 underlined, is it not, sir?

13 A Yes, sir.

14 Q And in parenthesis it says, "we repeat may," and it
15 is underlined again?

16 A Yes, sir.

17 Q "have significance," is that right? Now, when you
18 are talking about small amounts of TCDD in the human environ-
19 ment, which may have significance, what kind of concentration
20 are you talking about there?

21 A Well, it wholly depends, sir, on the circumstances in
22 which they are present. And indeed, the concentration of the
23 material to which human beings are exposed and from which one
24 must assume the absorption of a dose, so really it can range

1 from parts per billion maybe if it were something which they
2 were consuming on a regular basis, so you are getting doses of
3 the order of micrograms per kilogram over a period, or it may
4 be very much larger doses if it was something which human beings
5 were not directly exposed or by derivative or composition of.

6 Q Now, is this essentially what is expressed in this
7 paragraph? Is this the worst case analysis that you are talk-
8 ing about?

9 A Yes, sir, really it's what it is saying that when we
10 don't know precisely how human beings may react to TCDD or
11 indeed to any other toxin, the only prudent assumption is that
12 they react as the most sensitive species. Saying, really, when
13 one has no precise knowledge of human beings' exposure, sorry,
14 of human susceptibility, when you come to evaluate possible
15 exposures, you have to evaluate them on the basis of the most
16 sensitive species. And, well, some species are very sensitive.
17 That involves making some assumption about very low levels of
18 material to which very sensitive species may be exposed.

19 Q Now, is that what you were talking about, sir, when
20 you were discussing with Mr. Carr the subject of the difference
21 between a clear, demonstrated hallmark such as chloracne, and
22 other effects which might, one, none, all of the other effects,
23 which might possibly be present because they had been reported
24 at one time or another but not clearly demonstrated?

1 A That's exactly the distinction I was making, sir,
2 yes.

3 Q Now, tell me how that factor would affect the
4 judgment that you would be making, let's say in terms of
5 talking to Harry Gilmer of the EPA?

6 A Well, sir, it means two things, really. In the worst
7 case analysis, one should assume that the material which is
8 present, the worst thing that it might be. Even though one is
9 not sure that all the TCDD's that were reported were 2,3,7,8,
10 and indeed it seemed unlikely that they were all that, but
11 nevertheless one should assume that they were all 2,3,7,8
12 because that was the worst thing it could be. And secondly,
13 when you made the evaluation of the hazard presented by some
14 level of TCDD, one should not only be guided by the things
15 that have been reported by various people reporting on TCDD
16 exposure, which may or may not be accurate, in many cases
17 probably not accurate, one should assume that human beings are
18 not only susceptible as those reports, but even more you
19 should assume that they are susceptible as the most susceptible
20 animal species, in that case, the guinea pig. In that case,
21 not is it safe in terms of those miscellaneous reports, but
22 would it be safe for guinea pigs?

23 Q Now, on the occasions when you have had to make a
24 determination of that kind, when you have been making a

1 judgment about a possible human hazard, have you applied this
2 philosophy?

3 A Yes, sir, indeed.

4 Q And in doing so, have you made calculations, kinds of
5 calculations that you have testified about here over the last
6 several days?

7 A Yes, sir.

8 Q And when you make those calculations, what have you
9 found in making up your mind as to whether or not there would
10 be a possible human hazard?

11 A Well, if you make those assumptions, it depends on
12 the precise calculation what the safety factor is, but we
13 found that in any of the calculations we made, the human
14 hazard, even if human beings were as sensitive as guinea pigs,
15 had a safety factor of hundreds, thousands, hundred thousands,
16 and sometimes millions between the dose which you could assume
17 that a human being might get and the worst circumstances and
18 what might cause hazard to human beings if they were as
19 sensitive as guinea pigs.

20 Q And is it those calculations and those judgments that
21 you make that give rise to decisions as to whether or not
22 certain warning should be given or whether or not certain
23 information should be made available?

24 A Absolutely, sir, yes.

1 MR. HEINEMAN: That's all the questions I have, Judge.

2 THE COURT: Okay. Mr. Carr, do you have any further
3 questions?

4 MR. CARR: Yes, your Honor.

5 FURTHER CROSS EXAMINATION

6 BY MR. CARR

7 Q With regard to Dr. Taylor, if I understood you
8 yesterday, you suggested that Drs. Taylor and Tiernan had no
9 articles published and referred to in this document 1273?

10 A No, I don't think I said that. I think I said that
11 the reference that is given at the point where the blood level
12 of TCDD is referred to is the reference to the letter to the
13 American Public Health Association.

14 Q And do you recall Mr. Heineman took you to an
15 appendix and asked you whether or not any articles appeared in
16 that appendix authored by Taylor or Tiernan, do you recall that,
17 sir?

18 A No, sir, I don't recall that precisely.

19 Q You don't recall going to the appendix, what is it,
20 Jerry, B? Appendix B, yes. The literature reviewed and asked
21 about whether or not Taylor and Tiernan had any citations in
22 that, any references, do you recall that, sir?

23 A Yes, sir.

24 Q Now, point of fact, you do know, or I assume you

1 know, that Taylor has probably, oh, ten or eleven articles in
2 here, and Tiernan has nine or ten, you know that, don't you?

3 A Yes.

4 Q And you didn't mention that yesterday, did you, sir?

5 MR. HEINEMAN: We were talking about blood.

6 A We were talking about blood.

7 Q And were we not also talking about levels of tetra-
8 chlorodibenzo-p-dioxin in environmental and biological samples?

9 A No, sir.

10 Q We weren't? And that's not what Dr. Taylor has
11 written on---as a matter of fact, if you look at Page 297, you
12 see that Dr. Taylor wrote ten articles referred to on that
13 page, referring to methods of detecting dioxin in various
14 substances including Agent Orange and environmental and
15 biological samples---

16 MR. HEINEMAN: You are referring to another section.

17 MR. CARR: Yes, a section you didn't refer to.

18 MR. HEINEMAN: Oh, of course I did.

19 BY MR. CARR:

20 Q Will you look and see if there are not ten articles
21 by Dr. Taylor dealing with detecting various substances in the
22 environment?

23 A Yes, sir.

24 Q TCDD in the environment?

1 A I haven't read through them all, but yes, sir, I can
2 see one or two which refer to the detection of dioxins. I don't
3 know---well, there is one here, the detection of tetrachloro-
4 dibenzo-para-dioxin in herbicides, I don't see one referring to
5 the detection of tetrachlorodibenzo-dioxin in blood, sir.

6 Q Well, Doctor, you know it is not captioned as such,
7 but would you not read and see if he is not having articles
8 that he's written on environmental samples and tissues? Go on
9 down the list and refresh your recollection on that point.

10 A Well, sir, I don't see one which refers to the
11 detection of tetrachlorodibenzo-dioxin in tissues either.

12 Q Well, sir, do you see where it talks about detection
13 in environmental and biological samples, do you see that as far
14 back as 1976?

15 A Yes, sir.

16 Q And are biological samples, does that include
17 tissues?

18 A It includes a wide variety of things.

19 Q My question is does it include tissues?

20 MR. HEINEMAN: Objection. How can he conclude that
21 without seeing the article? How does he know what the guy's
22 writing about?

23 THE COURT: Overruled.

24 Q Does the word biological samples include tissues and

1 blood?

2 A It might, but does not necessarily.

3 Q I didn't say it necessarily did, does biological
4 samples include tissues and blood?

5 A Oh, of course it could.

6 Q Now, you didn't mean to suggest, you and Mr. Reineman
7 didn't mean to suggest to this jury that Dr. Taylor was some-
8 how or another out of his field when he wrote the letter refer-
9 ring to detection of the TCDD in a particular biological sample,
10 that is, blood, you didn't mean to suggest that, did you, sir?

11 A Sir, he said that the technologies didn't exist.

12 Q My question was, did you mean to imply that, or
13 infer that to the jury that Dr. Taylor didn't know what he was
14 talking about?

15 A No, sir.

16 Q As a matter of fact, you know, if you turn to the
17 next page, you will see a number of articles written by Dr.
18 Tiernan cited in the EPA Handbook, will you not, sir?

19 A Yes, sir, I don't see any that refer to the detec-
20 tion in blood.

21 Q Doctor, could you just please answer my question?
22 There are a number of articles on the next page referring to
23 the detection of various TCDD's in various substances, are
24 there not, sir?

1 A Yes, sir.

2 Q As a matter of fact, there is one where he talks
3 about detecting it in beef samples?

4 A Yes, sir, I saw that.

5 Q And beef sample is a living tissue, isn't it, sir?

6 A Not usually, no. Well, it has been alive, but it is
7 not usually at the time you do it. Well, there is a difference,
8 sir, because you can take a kilogram of beef, you can't very
9 well take a kilogram of blood.

10 Q Doctor, the beef sample is a living, biological
11 sample?

12 A It is a biological sample, yes, sir.

13 Q And, Doctor, he has given seminars, he's given
14 lectures at various seminars as well, has he not?

15 A Yes, sir.

16 Q Now, Dr. Paget, is there any question in your mind
17 but what Drs. Taylor and Tiernan are the preeminent specialists
18 in detecting TCDD in biological samples?

19 A They are among them, yes, sir.

20 Q My question was not that. Is your answer yes, they
21 are the preeminent authorities, specialists in the field?

22 A I don't think they are the preeminent ones, no, sir.

23 Q Do you know any above them, sir?

24 A No, sir.

1 Q Thank you.

2 (Plaintiffs' Exhibits 1157A, B and C were
3 marked for identification.)

4 MR. HEINEMAN: Your Honor, my recollection is the
5 jury has copies of that, is that correct?

6 MR. CARR: That is correct.

7 THE COURT: Which number?

8 MR. HEINEMAN: 1157.

9 THE COURT: Okay. I think that's right.

10 MR. CARR: That is correct, it has been admitted into
11 evidence, your Honor.

12 BY MR. CARR:

13 Q Doctor, I'll ask you to glance at these Exhibits,
14 1157A, B and C. Do you recognize those as the three pages that
15 make up 1157, do you not, sir?

16 A Yes, sir.

17 MR. CARR: I offer these Exhibits, 1157A, B and C,
18 your Honor.

19 (Plaintiffs' Exhibits 1157A, B and C were
20 offered into evidence.)

21 THE COURT: I will incorporate the same arguments
22 and objections.

23 MR. HEINEMAN: Fine, Judge.

24 THE COURT: They are admitted.

1 (Plaintiffs' Exhibits 1157A, B and C were
2 admitted into evidence.)

3 BY MR. CARR:

4 Q Doctor, when you had the discussion with Dr. Neal,
5 do you recall, was that before or after, do you have a
6 recollection of whether that was before or after the 19---
7 April 27, 1981 meeting of the Biohazards Committee?

8 MR. HEINEMAN: '79.

9 A That would be before, yes, sir.

10 Q And he told you, if I have written correctly, that
11 he did not believe that they had the ability to find out if
12 there was TCDD in the blood, he said he didn't believe the
13 technology existed for detecting TCDD in blood, is that correct,
14 sir?

15 A Yes, sir.

16 Q Sir?

17 A That's what I said, yes, sir.

18 Q Of course, do you know whether or not he knew about
19 the Hummel article of 1977?

20 A I don't know, sir. He was an expert, and I presume
21 he would know the literature.

22 Q He mentioned that it didn't exist. Well, you know
23 that the Hummel article of Dow Chemical Company said that it
24 did exist?

1 A I don't believe that's what that article says, sir.

2 Q Doctor, didn't we go through that once?

3 A Yes, sir. And that's the conclusion we came to.

4 Q We came to the conclusion that it was an article that
5 spelled out how you go about detecting for the presence of
6 TCDD in blood?

7 A It spelled out how to do it, it didn't do it, sir.

8 Q Excuse me, Dr. Paget, did the author of the article
9 describe that, didn't we go through it, that he was describing
10 how you can detect TCDD in blood?

11 A Dr. Taylor says that it does, too.

12 MR. CARR: Would you direct the witness to answer my
13 question?

14 THE COURT: Doctor, you have to answer the question
15 directly.

16 A Could you repeat it, sir?

17 (The previous question was read by the
18 Court Reporter.)

19 A That's what the article purported to do, yes, sir.

20 Q And that was published in 1977, was it not?

21 A Yes, sir.

22 Q And Dr. Taylor in 1979 described how he did it with
23 the blood from Walter Kidwell, didn't he, sir?

24 A Yes, sir.

1 Q Do you know whether or not Dr. Neal was aware of this
2 report from the American Public Health Association and from
3 Wright State University at the time he made the comment to you?

4 MR. HEINEMAN: Excuse me, your Honor. Did you say
5 from the American Public Health Association?

6 MR. CARR: Yes.

7 MR. HEINEMAN: What report from the American Public
8 Health Association?

9 MR. CARR: 1156, counsel. Plaintiffs' Exhibit 1156.

10 MR. HEINEMAN: Oh, I see. Okay.

11 BY MR. CARR:

12 Q Now, my question is, was he aware of the report from
13 the American Public Health Association and from Wright State
14 University to the effect that TCDD was detected in the blood
15 of Walter Kidwell or the workers at the Sturgeon spill site?

16 A He would have been aware that it had been reported,
17 because I would have told him. But I don't know at what stage
18 he became aware of the precise report from either Wright State
19 or from the American Public Health Association.

20 Q So when he made the comment to you, you don't know
21 whether or not he knew that it was Wright State University that
22 did it, and that the American Public Health Association had
23 published, that is pronounced publicly, the results of the
24 findings of Wright State University, is that correct?

1 A He would have known the first, but not necessarily
2 the second.

3 Q He would've known that it was a public announcement
4 by the American Public Health Association?

5 A No, he would've known that Wright State claimed to do
6 the analyses, I don't know that he would've known that the
7 American Public Health Association had pronounced on it, if
8 they did.

9 Q Doctor, the initial publication came from the
10 American Public Health Association, not from Wright State
11 University.

12 A Yes, sir, but we all knew that Wright State had been
13 claiming to do the analyses.

14 Q And you knew that when you reported to the
15 Biohazards Committee that it was Wright State University?

16 A I believe so, yes, sir.

17 Q Yes. And did you at that time do an investigation
18 to determine the expertise of the standing of Wright State
19 University in this field?

20 A Wright State were known to be---

21 Q Excuse me. Did you do any investigation to determine
22 the standing of Wright State University in this field?

23 A Not personally, no, sir.

24 Q All right. Now, Dr. Paget, you also said that---

1 strike that. I won't get to that yet. You were discussing
2 yesterday with Mr. Heineman the fact that you have to have---
3 ingest, I take it---a hundred micrograms per kilogram of body
4 weight before you can---that's the threshold level I think you
5 said----of dioxin for chloracne?

6 A That was my recollection, yes, sir.

7 Q The exact testimony that you gave was that the dose
8 of which chloracne is known to occur or the threshold is one
9 hundred micrograms per kilogram is your exact testimony?

10 A That was my recollection, yes, sir.

11 Q That's what you testified to?

12 A Yes.

13 Q Yes. Now, by that, you meant to convey to the jury
14 that a dose of less than one hundred micrograms per kilogram
15 would not cause chloracne, did you not, sir?

16 A Yes.

17 Q And a 50-pound child weighs approximately what, 25
18 kilograms, a little less?

19 A A little less than that.

20 Q Twenty-five kilograms, is that correct, sir?

21 A Yes, sir.

22 Q And a 50-pound child then would have to ingest 2500
23 micrograms of 2,3,7,8 TCDD before he would get chloracne, in
24 round figures?

1 A Yes.

2 Q Is that correct, sir?

3 A Yes, sir.

4 Q And so that if he ate---2500 micrograms is 2500 parts
5 per million, isn't it, sir?

6 A Yes, sir. Well, no, sir, I'm sorry. I am not sure.

7 Q If you contaminated something with 2500 parts per
8 million, it would have in it---

9 A No, 25 micrograms is an amount, and parts per million
10 is a concentration.

11 Q Okay, but you testified, if my notes are correct,
12 that you would take in, ingesting of five grams of soil at
13 4.5 parts per billion, you would need 500,000 times that in
14 order to get chloracne?

15 A That was, yes.

16 Q And you related it to the 4.5 parts per billion in
17 five grams of soil, did you not, sir?

18 A That's---you have to convert it to an amount, sir.

19 Q And you did convert it to that amount?

20 A That's what I did, yes, sir.

21 Q And that would be 22 nanograms is what you testified
22 to yesterday?

23 A That's my recollection, yes.

24 Q Well, now, actually that's considerably less than the

1 same calculation of a hundred micrograms per kilogram, is it
2 not, sir?

3 A Yes, sir.

4 Q How much less is that?

5 A Well, a nanogram is a thousandth part of a microgram.

6 Q Well, do the same calculation for us using a
7 hundred micrograms per kilogram level that you testified to
8 initially, sir.

9 A Can I borrow a piece of paper? What would you like
10 me to calculate, sir?

11 Q Well, calculate if you will how many---you hypothe-
12 sized yesterday at 4.5 parts per billion in five grams of soil.

13 A Okay, sir.

14 Q Now, use instead of the value that you ended up with
15 yesterday, use the initial value, the hundred micrograms per
16 kilogram.

17 A Back to what the concentration in soil would have
18 to be?

19 Q Yes.

20 A To a hundred micrograms per kilogram to a 50-kilo-
21 to a 25-kilo child.

22 Q No, I want you to do the same calculation that you
23 did yesterday with Mr. Heineman using instead of the factor
24 that you used with him, because I think you cut it down by

1 half, use the factor that you testified to originally, that is
2 the hundred micrograms per kilogram.

3 A I'm sorry, I really don't understand the calculation
4 you wish me to do.

5 Q Yesterday you stated for the jury that if one ate
6 five grams of soil---

7 A Yes, sir.

8 Q You didn't specify the weight of that person.

9 A We were assuming an adult, a 70-kilo adult.

10 Q Is that what you were assuming?

11 A That's what I was assuming.

12 Q A 70-kilo adult would be 150 pounds, more or less?

13 A Yes, that's the standard.

14 Q So let's use that. Use the 100 micrograms per
15 kilogram then and calculate for me how much there would be in
16 this five grams of soil.

17 A Sir, a hundred micrograms per kilogram to a 70-kilo
18 man is a hundred micrograms times 70 is the total amount,
19 that's 7,000 micrograms, 7,000 micrograms, that's the total
20 amount. And five grams of soil, that's five grams of soil is
21 5,000 milligrams, or 5,000,000 micrograms, that's 7,000 parts
22 in 5,000,000 or approximately one part in 400, something like
23 that.

24 Q Now, Doctor, convert it to---

1 A That's point one-fourth percent.

2 Q Convert it to the nanograms like you did for Mr.
3 Heineman.

4 A I'm sorry. I don't think you are asking me to do a
5 feasible calculation.

6 Q Well, you testified yesterday that it would have to
7 be 22 nanograms in five grams of soil.

8 A Yes, sir. And you asked me if one took a hundred
9 micrograms per kilo.

10 Q What factor did you use yesterday? Did you use the
11 factor of 100 micrograms?

12 A No, sir. I calculated how much somebody might ingest
13 if they swallowed five grams of soil containing an amount of
14 TCDD or an amount of OCP.

15 Q And did you use the threshold level of 100 micrograms
16 per kilogram to be causing chloracne?

17 A I didn't use the threshold level at all, sir.

18 Q Did you not testify that 22 nanograms in five grams
19 of soil is 500,000 times less than what would be required for
20 the threshold chloracne? Didn't you testify to that?

21 A Well, 22 nanograms, I understand what you are saying,
22 you are querying the factor of 500,000, is that what you are
23 querying?

24 Q I'm querying, Doctor, did you use the hundred

1 micrograms per kilogram factor in making that calculation?

2 A No, sir, not at all.

3 Q What did you use?

4 A I didn't use any factor. I said that the does would
5 be 22 nanograms, which is 300 picograms per kilogram.

6 Q And you said that was 500,000 times less than
7 required for the threshold chloracne?

8 A I compared that with the safety factor. I think it
9 was of one-tenth of a microgram per kilogram. If you compared
10 it to a hundred micrograms, it would, of course, be a hundred
11 times larger.

12 Q It would be how much?

13 A It would be a factor of 5,000,000 times less.

14 Q So in order for the person to get chloracne, there
15 would have to be 5,000,000 times the TCDD concentration than
16 was apparent at the ten percent contamination?

17 A Yes.

18 Q And if there is 4.5 parts per billion in that soil,
19 you would have to multiply that by 5,000,000 in order to get
20 chloracne?

21 A Yes.

22 Q And that would be approximately 220,000,000 parts
23 per billion?

24 A Well, that's 220---

1 Q 220,000,000 parts per billion?

2 A Yes, sir, without--

3 Q Now, in order for somebody that's going to consume
4 five grams of soil, and that five grams of soil is one-sixth of
5 an ounce, according to you he would have to--that soil would
6 have to be contaminated with 220,000,000 parts per billion of
7 2,3,7,8 TCDD?

8 A Yes.

9 Q To reach the threshold level of chloracne?

10 A Yes, sir.

11 Q 220,000,000 parts per billion, and that would boil
12 down to, if scratched out, that would be 220 parts per thousand,
13 wouldn't it, sir?

14 A Yes.

15 Q That would mean that soil would have to be 22 percent
16 2,3,7,8 TCDD?

17 A Yes, sir.

18 Q So before somebody can get chloracne, they would have
19 to eat 22 percent of five pounds, that's roughly five grams,
20 they would have to eat one gram of pure 2,3,7,8 TCDD in order
21 to get chloracne?

22 A Somewhere we have lost some factors of ten, I fear,
23 sir, in those calculations.

24 Q No, Dr. Paget, these are the calculations that you

1 gave to the jury yesterday, and these are the calculations that
2 you are giving to the jury today. You would have to eat soil
3 that is 22 percent 2,3,7,8 TCDD in order to get chloracne, and
4 chloracne is the only bad thing that happens from exposure to
5 2,3,7,8 TCDD, is that correct?

6 A No, I didn't say that, sir. That's the only clearly
7 demonstrated thing that happens.

8 Q Well, we went through the long session the other day
9 that it is the only thing that you know, the only thing that
10 you believe, you said under oath that's the only thing that you
11 believe is going to result to somebody being exposed to 2,3,7,8
12 TCDD?

13 A Yes, sir.

14 Q And a gram is, let's see, what is it, how many grains
15 in an aspirin? Roughly five grains to an aspirin, isn't there,
16 sir?

17 A Well, an aspirin tablet is about 300,000,000 grams,
18 so that's one, well, there are one-fifteenths of five grams.

19 Q There are 65 grains in a gram, well---

20 A I'm not sure. I've forgotten grains so long ago,
21 I'm not sure, but it's 325 milligrams.

22 Q There are 65 grains in a gram, I'm sorry, there are
23 15 grains in a gram, so if an aspirin is five grains, that
24 means you would have to eat a third, you would have to eat one

1 gram, you would have to eat three aspirins, three pills the
2 size of an aspirin of pure 2,3,7,8 TCDD before you would get
3 chloracne, that's what your calculations add up to, Dr. Paget?

4 A I'm sorry, sir, I don't trust this calculation done
5 under these circumstances.

6 Q Well, calculate it again, Dr. Paget.

7 A May I take my time?

8 Q Please do.

9 A The assumptions you wish me to make?

10 Q The assumptions that you made with Mr. Heineman
11 yesterday. One hundred micrograms per kilogram of body weight
12 is the threshold level of chloracne.

13 A Seven thousand micrograms is the dose, 7,000 micro-
14 grams---well, sir, if you assume that a 70-kilo man is going
15 to ingest 100 micrograms per kilogram, which is the dose we
16 were talking about, and that must mean that there is a 70
17 times 100 or 7,000 micrograms in what is ingested. Seven
18 thousand micrograms in five grams of soil is 7,000 parts, and
19 5,000,000 parts or seven parts in 5,000, which reduces to just
20 a little over .1 percent, .14 percent.

21 Q Which is how many parts per billion in that soil?

22 A Well, .14 percent is 140 parts per thousand, or
23 140,000 parts per million.

24 Q 140,000 parts per million?

1 A 140,000 parts per million.

2 Q Per million?

3 A Yes.

4 Q So you are talking about 140 parts per billion then
5 ---I'm sorry, 140,000,000 parts per billion?

6 A Yes, that must be true.

7 MR. HEINEMAN: Wait a minute, I'm lost here.

8 BY MR. CARR:

9 Q 140,000,000. We were at 220 parts per billion, now
10 we're down to 140 parts per billion, and we've reduced it
11 somewhat, but not a great deal.

12 A 140,000 parts per billion, it's .14 percent, there is
13 no point in reducing it to parts per billion, it's .14 percent.

14 Q You said that was 140,000 parts per million, did you
15 not, sir?

16 A Well, .14 percent is a 140,000 parts per million,
17 or 140,000,000 parts per billion.

18 Q All right, that's exactly right.

19 A But it is still .14 percent.

20 Q So you have to have that soil, that man would have to
21 eat soil contaminated with 140 parts per billion, and that
22 comes down to 140 over a thousand, which is 14 percent?

23 A No, sir, that's .14 percent. It is 140,000,000
24 parts per billion, we just calculated that.

1 Q Well, you said 140,000, so it is 140---

2 A It is 140,000 parts per million, or 140,000,000 parts
3 per billion, or .14 percent.

4 Q What you are saying is 140,000,000 parts per billion
5 is what you are saying, Dr. Paget?

6 A It's .14 percent, it is 7,000 micrograms in five
7 grams.

8 Q And that is how many parts per million, or how many
9 parts per billion?

10 A That's .14 percent, .14 percent is 140 parts per
11 thousand, or 140,000 parts per million, or 140,000,000---I'm
12 sorry.

13 Q Dr. Paget, you are completely fouled up on your math.

14 A Well, I wouldn't be surprised.

15 Q 140 parts per thousand is it, sir?

16 A Well, it's .14 percent, so .14 percent is 140 parts
17 per thousand.

18 Q No, Dr. Paget, 140 parts per thousand is 14 percent,
19 not .14 percent, you misplaced your decimal point two places.

20 A No, 14 percent is 14 parts per hundred.

21 Q Yes, or 140 parts per thousand.

22 A I'm sorry, sir, you are losing me. .14 percent---

23 Q Take 140, put it over a thousand, and scratch off the
24 last zero of each and you have 14 over a hundred, don't you,

1 Dr. Paget?

2 A Quite right. This is .14 percent, so it's 140 parts
3 per thousand, 140 parts per ten thousand, you are quite right.

4 Q Now you are getting closer, Doctor.

5 A It is 140 parts per ten thousand, or 140,000 parts
6 per ten million, or 140 or---wait a minute, let me put those
7 right---that's 14,000,000 parts per billion.

8 Q 14,000,000 parts per billion.

9 A Or .14 percent.

10 Q So now we are down to 14,000,000 parts per billion,
11 is that correct, sir?

12 A If my arithmetic is to be relied on, which it is
13 quite obviously not under these circumstances.

14 Q So to eat, now, 14,000,000 parts per billion is a
15 threshold level for chloracne?

16 A If you ate five grams of soil containing 7,000
17 micrograms of 2,3,7,8 TCDD, that would be correct.

18 Q Which would be contaminated with 14,000,000 parts per
19 billion? Dr. Paget, you've got 50 percent of the workers at
20 the pentachlorophenol Department 236 got chloracne. Now, are
21 they being exposed to a product that has 14,000,000 parts per
22 billion of 2,3,7,8 TCDD?

23 A I don't know, sir.

24 MR. HEINEMAN: In penta?

1 BY MR. CARR:

2 Q Anything they're working with. Doctor, according to
3 Monsanto, 2,3,7,8 TCDD is not even in pentachlorophenol?

4 A And I believe that may be true, sir.

5 Q Now, Doctor, do you know any Monsanto product that
6 contains 2,3,7,8 TCDD at the level of---or any product any-
7 where that's ever been manufactured to your knowledge at any
8 time anywhere that contained 14,000,000 parts per billion of
9 2,3,7,8 TCDD?

10 A No, sir.

11 Q And, Doctor, you know there is a lot of people got
12 chloracne, people at Nitro, West Virginia, got chloracne,
13 people at Krummrich Plant got chloracne, are you saying that
14 all these people had to ingest, had to eat something, had to
15 take into their bodies, not just be exposed to it, and touch
16 their skin, but get into their system 14,000,000 parts per
17 billion of 2,3,7,8 TCDD, the product they are working with,
18 they have to take it in?

19 A Yes---

20 MR. HEINEMAN: Objection, your Honor. He's comparing
21 apples and oranges with this witness. He went from taking a
22 dose up to a large amount, and now he is talking about that
23 level in the product.

24 THE COURT: Overruled.

1 A Well, sir, the point about the calculation we've just
2 gone through was it started with the assumption you consume
3 five grams of soil, as you correctly pointed out, just about a
4 sixth of an ounce, but those people are exposed to lower
5 concentrations of vastly greater amounts, obviously.

6 Q Vastly greater amounts of which?

7 A Of the material from which they absorbed the dose.

8 Q Well, they have to get in their systems equivalent of
9 soil that's contaminated or anything---it doesn't have to be
10 soil, whatever they're working with has got to be contaminated
11 and they have to get it in their system something that's
12 contaminated with 14,000,000 parts per billion.

13 A They have got to get in their systems 7,000 micro-
14 grams.

15 Q And they are not going to take in pure 2,3,7,8, are
16 they, sir? They are going to get it because it is going to be
17 contaminating something, correct, sir?

18 A Yes, sir.

19 Q And this is 14---

20 MR. HEINEMAN: Are you talking about 1,400,000, Mr.
21 Carr?

22 A In five grams of soil, sir.

23 Q Well, it doesn't have to be soil, it can be any-
24 thing.

1 A In five grams.

2 Q In five grams. It has to be contaminated with
3 14,000,000 parts per billion of 2,3,7,8, doesn't it, sir?

4 MR. HEINEMAN: Well, now, your Honor, let me object.
5 Witness continually said .14 percent.

6 MR. CARR: And I had him break that down to parts
7 per billion, and he broke it down to 14,000,000 parts per
8 billion.

9 MR. HEINEMAN: Well, I'm confused because----

10 MR. CARR: I'm sure you are.

11 MR. HEINEMAN: I get 1,400,000.

12 THE COURT: Objection overruled, I followed the
13 calculations. Go ahead, Mr. Carr.

14 A Well, .14, it is still .14 percent whatever it is in
15 terms of parts per billion, sir.

16 Q Dr. Paget, would you like to recalculate your figures?

17 A I can't see the point, sir.

18 Q Neither can I, because you came up with the
19 14,000,000 parts per billion.

20 A I said .14 percent, that's what I said.

21 Q Excuse me, and did you not also say 14,000,000 parts
22 per billion contamination in that soil, sir?

23 A That's how I calculate it, not necessarily correctly.

24 Q Sir---

1 A I say that was the reasoning, I am not necessarily
2 correct. I know the figure I am talking about is .14 percent.

3 Q Dr. Paget, I want you---you are testifying here
4 under oath, you gave calculations to Mr. Heineman yesterday
5 that I am working with, and I am asking you to do the same
6 thing today that you did with Mr. Heineman, you said then it
7 would be off by a factor of 500,000, the 22 nanograms, well
8 that seemed like a lot to me, and this seems right in line with
9 that, I don't see anything wrong with that, 500 times 22,
10 500,000 times 22 will come pretty close to this figure, the
11 figure you gave yesterday was pretty close to what you gave to
12 me.

13 A If it is the same as .14 percent, I agree.

14 Q I don't. I am taking your calculations. You are
15 doing the calculations, I am putting them here. Now, these
16 people at Sturgeon can go home and rest at night because that
17 soil doesn't contain 14,000,000 parts per billion of 2,3,7,8,
18 does it, sir?

19 A That's so, certainly, yes, sir.

20 Q And the workers at the Krummrich Plant can relax
21 because there's never been any product made by anybody that you
22 know of that contains that kind of 2,3,7,8 concentration, is
23 that correct, sir?

24 A As far as eating five grams of the material, yes, sir.

1 Q It doesn't make any difference, they are not going to
2 eat it, maybe it is going to get on their skin, so they can
3 have a lot greater contamination of 14,000,000 parts per
4 billion, it is not all going to be in---I think you said 10
5 percent goes into the skin?

6 A That's the rough figure, yes.

7 Q So they can have ten times that contamination on
8 their skin?

9 A If all they were exposed to was five grams, yes, sir.

10 Q Five grams is a pretty lot, isn't it, sir?

11 A That's one-sixth of an ounce, as you pointed out.

12 Q I'm sorry?

13 A I said it is one-sixth of an ounce, as you pointed
14 out.

15 Q Yes, so these workers at Krummrich Plant that got
16 chloracne were exposed to something that contained the equiva-
17 lent to 14,000,000 parts per billion---

18 A No, sir.

19 Q ---of 2,3,7,8?

20 A No, sir. It depends on the amount of material they
21 were exposed to.

22 Q Well, whatever they are exposed to has to be
23 contaminated to that extent.

24 MR. HEINEMAN: Objection, your Honor.

1 BY MR. CARR:

2 Q Whatever they are exposed to---

3 MR. HEINEMAN: Your Honor, he is comparing apples and
4 oranges, and he is intentionally trying to confuse the witness.
5 He knows that we are not talking about 2,3,7,8 when you are
6 talking about pentachlorophenol. You are talking about totally
7 different dioxins, and the contamination level may be
8 completely different.

9 THE COURT: Overruled.

10 BY MR. CARR:

11 Q We know the other dioxins are a lot less toxic than
12 2,3,7,8, I think the most toxic one was 1,3,7,8, and I think
13 it was supposed to be according to Dr. Wilson or somebody, I
14 can't recall who now, one-tenth as toxic as 2,3,7,8. So these
15 dioxins that these workers at the Krummrich Plant are being
16 exposed to, if 2,3,7,8 isn't there, is a lot less toxic, isn't
17 it, sir?

18 A I don't know about the Krummrich Plant, sir. If
19 they were different dioxins, yes, they would be less toxic.

20 Q And so for them to get chloracne, it would have to
21 be a lot more exposure, it would have to be contaminated with
22 the dioxin at a greater level than 14,000,000 parts per
23 billion, wouldn't it, sir?

24 A No, sir, not at all.

1 Q It wouldn't? Why not, sir?

2 A Because you are talking about contamination that five
3 grams of soil would have to have if you were to eat five grams
4 of soil and get 7,000 micrograms. If you get 7,000 micrograms
5 from a very much larger quantity of material---

6 Q Well, how much?

7 A The contamination rate would be less.

8 Q Well, how much more would they have to eat than five
9 grams of soil, these workers, in order to get chloracne?

10 A It depends. You don't have to eat it, and you can
11 absorb it over a period.

12 Q Okay, how much? They have to absorb it, they have to
13 get it in their system in order to get chloracne, the equivalent
14 of five grams of soil that would be contaminated to the level
15 of 14,000,000 parts per billion 2,3,7,8, don't they, sir?

16 A They have to absorb 7,000 micrograms or thereabouts
17 over---from the material to which they are exposed over some
18 reasonably short period, yes, sir.

19 Q And by reasonably short period of time, you mean
20 what, in 30 days?

21 A Something of that sort, I believe, yes.

22 Q So they have to take into their system the equivalent
23 of five grams of soil that would have been contaminated with
24 14,000,000 parts per billion of 2,3,7,8 in 30 days time in

1 order to get chloracne?

2 A They have to take something like 7,000 micrograms,
3 yes, sir.

4 Q Is the answer to my question correct, Dr. Paget, the
5 one I am asking you, not the one you are answering?

6 A Yes, sir, that's the way I am stating it.

7 Q Thank you. And these workers so far as you know,
8 they are not eating anything, are they, sir?

9 A I don't know anything about it.

10 Q They are under compunction, they are under orders to
11 wash their hands and leave out their clothing and make sure
12 that they don't ingest that material, aren't they, sir?

13 A I don't know, sir.

14 Q You don't know that? You are in the division of
15 medicine and health, responsible for the health and safety of
16 those workers, weren't you, Dr. Paget?

17 A But setting the rules---

18 Q Weren't you, Dr. Paget?

19 A Yes, sir.

20 Q And you don't know the rules for health and safety?

21 MR. HEINEMAN: Your Honor, I'm going to object to
22 that. Mr. Carr's confusing the witness with two different
23 things. Mr. Carr knows darn well that this guy was in DMEH
24 from December the 29th, 1978, until the fall of 1979. Now,

1 when did the penta department close, Mr. Carr? Is that in
2 evidence?

3 THE COURT: Objection is overruled.

4 MR. HEINEMAN: Before then.

5 BY MR. CARR:

6 Q Doctor, in the course of your practice for Monsanto,
7 in order to adequately protect the workers, you have to know
8 the rules for exposure as far as they are concerned, don't you,
9 sir?

10 A No, sir.

11 Q You don't?

12 A No, sir.

13 Q Now, Doctor, if they are down in the material digging
14 with their hands, they are going to get a different dose than
15 if they are simply working with it with gloves on and with
16 masks on and they take their gloves off and their masks off
17 when they eat and everything else, isn't that correct, sir?

18 A Somebody has to be aware of that, it was not my
19 responsibility to do that.

20 Q How can you adequately determine whether or not your
21 workers are being exposed to risky levels of 2,3,7,8 or any
22 other chemical without knowing the precautions that they are
23 instructed to take, and the precautions that they do take?

24 A One has to say how much material they must not

1 absorb, and then from the concentrations you can work out what
2 the permissible operating procedures might be.

3 Q Well, one way or another, these workers got chloracne,
4 didn't they, sir?

5 A Yes, sir, they did.

6 Q And for them to get chloracne, they had to get into
7 their system, they had to ingest, it had to come into their
8 system, because the chloracne works from the inside out, it had
9 to get into their system, that material that they were working
10 with, pentachlorophenol, did they not, sir?

11 A Or some contaminant, yes, sir.

12 Q Well, the contaminant isn't going to fall out of the
13 penta, it is going to be in the penta?

14 A They have to absorb it, yes, sir.

15 Q And that penta has to be the pure product, if they
16 are taking it, it has to contain dioxins at greater level than
17 14,000,000 parts per billion, mustn't it, sir?

18 A No, sir.

19 Q Oh, no? What would it have to contain?

20 A That depends on the amount from which they absorbed
21 it.

22 Q Well, if they absorb five grams in a month---

23 A If all they absorbed was that, and they had 7,000
24 micrograms in five grams, they might well get chloracne, yes, sir.

1 Q They would have to absorb something, the other
2 dioxins they would have to absorb, they would have to be taking
3 into their systems the equivalent of, let's see, 65 grains in
4 an aspirin, they would have to be taking in the equivalent of
5 60 aspirins of this product per month in order to get chloracne,
6 wouldn't they, sir?

7 A They would have to take in, yes, that's roughly, yes.

8 Q They are going to do that how, sir? How are they
9 going to get it in their systems?

10 A I don't know, sir.

11 Q And it would have to be contaminated at a greater
12 level, since there would have to be at least ten times the
13 level of this?

14 A If all they took was five grams, yes, sir.

15 Q The dioxins that would be in that penta would have
16 to have contained dioxin at least at the level of 140,000,000
17 parts per billion, wouldn't it, sir?

18 A If all they took was five grams, if all they were
19 exposed to was five grams of material, yes, sir.

20 Q Not exposed to, you said it different, Doctor. Not
21 exposed to, but ingest.

22 A Well---

23 Q They have to take into their system---

24 A Five grams.

1 Q Five grams in order to get chloracne, don't they, sir?

2 A If that's the contamination level, yes, sir.

3 Q Now, Doctor, then I take it, and you don't know of
4 any amount of exposure where they would get, well if they take
5 in less than five grams, it's got to have in it more than 140
6 parts per billion of dioxin, doesn't it? 140,000,000 parts per
7 billion of dioxin, doesn't it, sir, if they take in less than
8 five grams?

9 A If they take in less, yes.

10 Q If they take in more than five grams, it can come
11 down by whatever factor we want to assume; if they take in a
12 hundred grams a month, then we can divide this by a hundred,
13 can't we, sir? No, divide it by 20?

14 A 20, yes, sir.

15 Q So divided by 20, they have to be working with, they
16 have to be ingesting something that has slightly under a
17 million parts per billion of dioxin content?

18 A I don't---yes, under those circumstances.

19 Q 140 divided by 20?

20 A Is something like 70.

21 MR. HEINEMAN: Why don't you use the calculator?

22 BY MR. CARR:

23 Q It would be about 7,000,000 parts per billion.

24 MR. HEINEMAN: Don't let Mr. Carr tell you, use the

1 calculator.

2 MR. CARR: Your Honor, is Mr. Heineman going to
3 instruct the witness what to do?

4 THE COURT: Go ahead, Mr. Carr.

5 Q The amount of material, if they took in 50 grams a
6 month of 140,000,000 parts per billion, that's what they would
7 have to take in in order to get chloracne, wouldn't they, sir?

8 A They would have to take in 7,000 micrograms in what-
9 ever concentration they took it in.

10 Q No, no, no. If it's one-tenth the toxicity of
11 2,3,7,8, they would have to take in 70,000 micrograms, wouldn't
12 they, sir?

13 A Yes, they would take in 70 milligrams.

14 Q And Doctor, since we---all the people then in the---
15 since only 50 percent got chloracne in Department 236, the
16 other 50 percent must have taken in less than 50 grams of the
17 material they were producing, is that correct?

18 A That's a possibility, yes.

19 Q So they could take in 48 grams and not get chloracne?

20 A Well, it doesn't exactly work like that, but they
21 have to take in---they would take in some acnogenic dose for
22 them.

23 Q Dr. Paget, then inasmuch as the only danger from
24 dioxin is chloracne, and you don't know---have you ever heard

1 of any soil anywhere that was contaminated to the level of
2 14,000,000 parts per billion of 2,3,7,8 TCDD?

3 A No, sir.

4 Q Then the concern that we have about Times Beach and
5 Minker-Stout where it has, oh, levels ranging from less than
6 a part per billion to maybe a hundred parts per billion or
7 maybe even six hundred parts per billion in some places,
8 actually all that concern that we have over that soil is
9 misplaced, isn't it, Dr. Paget?

10 A I believe that, yes, sir.

11 Q The government has spent millions of dollars in just
12 doing--just doing useless things, because that soil, none of
13 that soil is contaminated at the level of 14,000,000 parts per
14 billion, is it, sir?

15 A No, sir.

16 Q Now, Dr. Paget, do you really believe that the EPA
17 and the CDC and everybody else that's concerned about the levels
18 of dioxin in soil, do you really believe what you are saying
19 here that it has to be contaminated to this extent before you
20 have any concern?

21 A No, sir. I said if you were to take a chloracnogenic
22 dose in five grams of soil or any other five grams, that was
23 the level it would have to have.

24 Q Well, Doctor, you are talking about eating it, you

1 are talking about not just walking on it, not laying on it, not
2 rubbing it on your face, not taking a bath, not putting it in
3 your ears, but washing it out, you are talking about eating it,
4 because you are only going to absorb ten percent of it in the
5 soil from what you have given us. So you can wallow in soil
6 that's contaminated to 14,000,000 parts per billion, wallow in
7 it as long as you kept your mouth shut and washed your hands,
8 didn't get it in you, you could wallow in it every day for the
9 rest of your life, because it is only that which you take in
10 in a 30-day period that has any consequence, no way could you
11 absorb enough to get chloracne, isn't that correct?

12 A I don't know that.

13 Q Well, figure it out. If you were not going to
14 absorb the ten percent that's on you, that ten percent doesn't
15 get ingested immediately, it takes some time.

16 A If you had been wallowing in soil, I'm sure it would
17 have more than five grams, probably a thousand more, a million
18 times more than five grams.

19 Q Ingested, taken in.

20 A On your skin?

21 Q On your skin, Doctor, but we are talking about
22 ingesting it.

23 MR. HEINEMAN: Well, you keep switching horses on
24 him, Mr. Carr. Why don't you stick with one and let him answer?

1 BY MR. CARR:

2 Q Doctor, there really is no concern about soil that
3 has a thousand parts per billion TCDD contamination, is there,
4 sir?

5 A I don't think there is, no, sir.

6 Q There is really no concern that has a million parts
7 per billion TCDD, is there, sir?

8 A I would be getting to be anxious about that, yes, sir.

9 Q Well, anxious, why? You are just one-fourteenth of
10 the amount that you need to eat in five grams in order to get
11 it, and nobody's going to go around, children may, indeed, on
12 occasion ingest that. But all they're going to get is a little
13 bit of chloracne, and that chloracne is going to go away as
14 soon as they quit eating that dirt?

15 A I wouldn't want to see children getting chloracne.

16 Q Neither would I. But chloracne has been described in
17 some places, your workers have been told on occasion that
18 chloracne looks just like a case of teenage acne, your know
19 that, too, don't you, sir?

20 A I don't know that.

21 Q You don't know that? We will demonstrate that.

22 MR. HEINEMAN: What evidence is there of that?

23 MR. CARR: There will be as soon as we have Dr.
24 Rousch. There will be.

1 MR. HEINEMAN: Well, if there is no evidence of it
2 now, I object to it, and I ask that the jury be instructed to
3 disregard it.

4 MR. CARR: Your Honor, just as Mr. Heineman asked
5 the witness to assume certain facts that are not yet in
6 evidence, but he believes will be, I'd like for you to assume---

7 MR. HEINEMAN: Can you name an occasion when that
8 occurred?

9 THE COURT: Objection is overruled.

10 MR. CARR: Just this morning, counsel.

11 MR. HEINEMAN: Pick one.

12 BY MR. CARR:

13 Q Dr. Paget, is the only problem that you are going to
14 get from the dirt contaminated with 14,000,000 parts per
15 billion of 2,3,7,8 TCDD is chloracne which is going to go away
16 within a month of the time you are not exposed to it, why the
17 concern about soil that has one part per billion or 45 parts
18 per billion or a hundred parts per billion or 600 parts per
19 billion which is just a small fraction of that, which is
20 necessary to cause chloracne? Why concern about it?

21 A Well, I don't think there is concern about soil that
22 contains one part per billion. In fact, I think that's been
23 said as a safe level by the Center for Disease Control.

24 Q Doctor, you know as a matter of fact that they have

1 said that one part per billion is not a safe level, cannot be
2 considered safe. You know that, don't you, sir?

3 A No, sir. I don't know that.

4 Q And my question went beyond just one part per
5 billion. My question went to 45 parts per billion and a
6 hundred parts per billion and 600 parts per billion, didn't it,
7 sir?

8 A Yes, sir.

9 Q I direct your attention just to the statement that
10 you just made that one part per billion is safe. Would you
11 look at Exhibit 1255 and turn to Page 49 thereof. And for the
12 record, 1255 is a document issued by the Center for Disease
13 Control, Renate Kimbrough, one of the authors thereof. And it
14 is dated 1984. Have you got Page 49?

15 A Yes, sir.

16 Q It says there, does it not, "In residential areas, levels
17 at or above one part per billion TCDD in soil cannot be
18 considered safe, and represents a level of concern." Doesn't
19 it say that, sir?

20 A Yes, sir.

21 Q And doesn't it use the words, "levels at one part per
22 billion TCDD in soil cannot be considered safe"?

23 A Yes, sir.

24 Q And now, has that corrected your thought on what the

1 CDC has said about the level of soil contamination?

2 A That statement---

3 Q Sir?

4 A That means the level is less than one part per
5 billion can be considered safe.

6 Q Is that what that means, sir?

7 A Yes, sir.

8 Q No, it specifically doesn't say that at all. It says
9 levels at or above one part per billion in soil cannot be
10 considered safe.

11 A No, sir, and the converse---

12 Q Isn't that what it says?

13 A Yes.

14 Q And the converse is?

15 A The converse that levels below it can be considered
16 safe.

17 Q And one part per billion, levels above one part per
18 billion then are unsafe, right?

19 A That's what it says.

20 Q And something that has above one part per billion
21 cannot be considered safe, can it, sir?

22 A Yes, sir. That's what it says.

23 Q Is that right? That's what it says, and that's what
24 you believe, isn't that correct, sir?

1 A No, sir.

2 Q That's not what you believe?

3 A No, sir, it depends on the circumstances.

4 Q Oh, that's right, you believe it takes 14,000,000,
5 don't you, sir?

6 A In five---

7 Q You used the word, you estimate that one part per
8 billion 2,3,7,8-tetrachlorodibenzo is probably acceptable
9 medically in santophen.

10 A Yes, sir.

11 Q And above, it follows that above one part per
12 billion is not acceptable medically, isn't that correct?

13 A No, sir.

14 Q That doesn't follow?

15 A No, it doesn't, no, sir.

16 Q Now, Dr. Paget.

17 MR. CARR: Your Honor, I'm sorry. I have gone beyond
18 eleven already.

19 THE COURT: Okay. We will take a short break at this
20 time. I would remind you during all the breaks, this admonish-
21 ment will hold, you are not to discuss this matter among your-
22 selves or with anyone outside the jury panel or as of yet form
23 any opinions or conclusions about the matters on trial. The
24 Court will be in a short recess.

(Court was in recess.)

(Plaintiffs' Exhibit 1274 was marked for identification.)

MR. CARR: Your Honor, I'd offer Exhibit 1274 into evidence. It is Dr. Paget's calculation on the necessity of 14,000,000 parts per billion 2,3,7,8 for the material to be contaminated.

(Plaintiffs' Exhibit 1274 was offer into evidence.)

THE COURT: Any objection?

MR. HEINEMAN: Just a moment. No objection.

THE COURT: Fine. Admitted without objection, thank you.

(Plaintiffs' Exhibit 1274 was admitted into evidence.)

BY MR. CARR:

Q Doctor, I'll now hand you Plaintiffs' Exhibit 1194, which is a box containing Lysol. It has on the front of it the contents of the dibenzo-p-chlorophenol concentration of 4.5 percent. Would you look at that and see if that isn't correct, sir?

A Yes, sir.

Q Now, I would like for you to calculate, if you would, that's 4.5 percent of that bottle has the material in it that

1 is used, is prepared at Monsanto, that material is made for
2 santophen, you understand that, don't you, sir?

3 A Yes, sir.

4 Q I'd like for you to calculate for me, if you would,
5 the amount of contamination with 2,3,7,8 TCDD that would have to
6 be in that 4.5 percent before ingesting the contents of that
7 bottle, or the number of bottles you have to ingest in order to
8 get chloracne at the level you have given us here.

9 MR. HEINEMAN: Well, I would object to that, your
10 Honor. That's calling for too many unknowns, there is no way
11 to make that calculation.

12 THE COURT: Objection is overruled.

13 A Also, you have to be aware if you drank the contents
14 of this bottle you would die from poisoning, from the phenol.

15 Q Dr. Paget, that isn't the question that I am asking.
16 I'm asking you, making the assumption that you wouldn't die,
17 what's the level of contamination for that lysol that you would
18 need with 2,3,7,8 before you would get chloracne?

19 A We are going to assume---

20 Q The calculation before, to make it easy for you,
21 Doctor, you can round it off, your calculation before was based
22 on soil with ten percent of OCP in it, and that is Lysol, the
23 4.5 percent of the santophen, so you just round off the 4.5 and
24 make it much easier, just use the figure 5.

1 A I'll round it off to five, five percent of five grams
2 at a hundred---

3 MR. HEINEMAN: You are asking him in the whole
4 bottle?

5 A It's .14 percent.

6 Q Again, it's .14 percent, of course.

7 A Or, 1.4 million parts per billion, in fact.

8 Q 1.4?

9 A Yes, I made an error in calculation.

10 Q So you are telling us now you made an error?

11 A I made an error. I corrected it when I sat down here
12 and looked at that. It's actually 1.4 million parts per
13 billion, not 140. Well, I'm sorry, sir, I calculated incorrectly.

14 Q Well, you want to calculate it again?

15 A Yes, sir, can I do it with you?

16 Q You started out .14 percent, did you not, sir? Is
17 that still the figure you are working from?

18 A That's .14 parts in ten---

19 Q Excuse me, Doctor, if you could just go with me,
20 1.4 percent.

21 A .14 percent, .14 percent, 7,000 micrograms in five
22 grams.

23 Q .14 percent, correct, sir?

24 A 0.14 percent.

1 MR. HEINEMAN: You said 1.4, Mr. Carr, that's why he
2 is correcting you.

3 Q Excuse me, .14 percent.

4 A .14 percent, yes.

5 Q .14 percent is 14 over a thousand, is it not, sir?

6 A Well, can I do it---

7 Q No, Doctor, if you don't mind, let's do it so that we
8 can understand it.

9 A Well, I'm trying to do it so I can understand it, sir.

10 Q 1.4 percent would be---

11 A .14 percent.

12 MR. HEINEMAN: Objection, your Honor. If he is
13 asking this man to do the calculation, then why doesn't he let
14 this man do it the way he wants to do it?

15 THE COURT: Overruled. It is proper, what he is
16 doing.

17 BY MR. CARR:

18 Q Doctor, your initial calculation is .14 percent,
19 correct, sir?

20 A Yes, sir.

21 Q Of whatever material that we are talking about?

22 A Yes, sir.

23 Q If it contains .14 percent of 2,3,7,8 TCDD it will
24 cause chloracne?

1 A If it was in five grams, sir. We are talking about
2 five grams.

3 Q All right.

4 A As the material, yes, five grams of material.

5 Q Well, we will take the five grams, if the five grams
6 contains .14 percent of 2,3,7,8 TCDD, then that's going to cause
7 chloracne?

8 A A single dose might well.

9 Q All right. And 1.4 percent is over a hundred, isn't
10 it, sir?

11 A No, .14 percent---

12 Q Would you just---1.4, sir.

13 A Well, you keep saying 1.4, and I say .14 percent.

14 Q Doctor, would you please wait a moment? I am
15 perfectly aware of where the decimal point is in these two
16 figures. I can see that. I put it there. I know where it is.
17 1.4 percent is over a hundred, isn't it, sir?

18 A 1.4 over a hundred is 1.4 percent.

19 Q And .14, if we put 14 over a thousand, what do we
20 have, sir?

21 A That's .14 percent, yes.

22 Q .14 percent?

23 A No, that's 1.4 over it, and a thousand is 1.4.

24 Q 1.4 over a hundred is 1.4 percent.

1 A 1.4 in ten squared.

2 Q Dr. Paget, forget about the ten squared.

3 A Is 1.4 percent.

4 Q That's right, Doctor. And move the decimal point
5 over one place, do we not, sir? Move over one place, and we
6 add a zero, don't we, sir?

7 A All right, sir. No, .14 over a hundred is .14 percent.
8 1.4 over a hundred is 1.4 percent, .14 over a hundred is .14
9 percent.

10 Q Yes, but if we eliminate the point, Doctor, move the
11 point over one place, eliminate the point, we add a zero.

12 A No, sir.

13 Q No?

14 A One 14 parts per thousand is 1.4 percent.

15 Q Sure it is. That's exactly right. 14 parts per
16 thousand is 1.4. If you multiply 1.4 times a thousand, what
17 will you get, Doctor?

18 A You will get, well, you've got 14, in fact---

19 Q And that's 14 out of a thousand, isn't it, sir?

20 A That's 1.4 percent---well, 14 out of a thousand is
21 1.4 percent, I'm sorry, sir, 14 parts per thousand is 1.4
22 percent, not .14 percent.

23 Q I agree, Doctor, and we are talking---

24 MR. HEINEMAN: Well, you've just been using different

1 figures with him, Mr. Carr. You told him 1.4 over a hundred---

2 MR. CARR: Yes, sir, that's 1.4 percent.

3 A Yes, and 1.4 over a hundred is 1.4 percent, and 14
4 over a thousand is .14 percent.

5 Q Yes.

6 A So we are talking about 1.4 percent and not .14
7 percent.

8 Q All right. .14, and we put that over a thousand,
9 what will you have, Doctor?

10 A Well, I'm not sure. ...14 over a thousand, what you
11 are trying to convey by that, sir.

12 Q Doctor, .14 percent is less than one percent of a
13 hundred, isn't it, sir?

14 A Yes, sir.

15 Q It's a little more than a tenth?

16 A Yes, sir.

17 Q And we end up then with 1.4 parts per thousand, do
18 we not, sir?

19 A 1.4 parts per thousand, right.

20 Q Is that correct, Doctor?

21 A Yes, sir. That's the way I wanted to do it.

22 Q All right. Fine. And so we end up then with what?
23 What is our final calculation, Doctor?

24 A 14 parts per 10,000, 140 parts per 100,000, or 1,400

1 parts per million, and so on, and we come to 1.4 million parts
2 per billion.

3 Q 1.4?

4 A Million parts..

5 Q Well, Doctor, let's even work with that figure, all
6 right? That's 1,400,000, isn't it, sir?

7 A Yes.

8 Q So now the contamination that's necessary in five
9 grams of soil has been reduced by a factor of ten. It's now
10 1,400,000 parts per billion?

11 A Yes.

12 Q All right. And we can eliminate the other calcula-
13 tion and use---no we can't, because we are out of paper. We
14 will put it back on this one, with your permission, and we will
15 put a scratch through that one and put in its place, reduce it
16 by a factor of ten, 1.4, make that a zero---a comma, rather---
17 now, is that correct, Doctor? Do you now go with this figure?

18 A Yes, sir.

19 Q All right. We've got down some 240 parts per
20 million to 14 million parts per billion to 1,400,000 parts per
21 billion in the soil to be consumed?

22 A For one dose to be absorbed from five grams to give
23 you chloracne.

24 Q Or absorbed over a period of a month?

1 A Yes, sir.

2 Q Because it does accumulate in the body?

3 A Yes, it does.

4 Q And every day as you eat some soil, that 2,3,7,8 goes
5 to the fat, a portion of it, doesn't it, sir?

6 A That's believed to be so, yes, sir.

7 Q As a matter of fact, wouldn't one have to be---how
8 much of that 2,3,7,8 is being taken from the soil, Doctor?
9 It's not all taken from the soil, is it, sir?

10 A No, sir.

11 Q There have been some recent studies that indicate
12 that of the soil you consume only thirty percent is actually
13 2,3,7,8 comes out of it. Are you aware of these studies?

14 A I believe that's so, yes, sir.

15 Q So actually you would have to multiply that by three,
16 wouldn't you, sir?

17 A Yes, sir.

18 Q If it is in soil?

19 A Yes, sir.

20 Q So actually it's not the soil would have to be
21 contaminated with 4,200,000 parts per billion in order to cause
22 chloracne, wouldn't it, sir?

23 A If one dose of five grams were to cause chloracne,
24 yes, sir.

1 Q All right. So actually we are now back up to
2 4,200,000 parts per billion in soil because two-thirds of the
3 2,3,7,8 that's in that soil is going to pass out and not be
4 stored and therefore won't be there long enough to cause any
5 problems?

6 A Yes, sir.

7 Q So you have to get in your body, accumulate it, these
8 7,000 micrograms that you are discussing for a 70-kilogram,
9 150-pound man, correct, sir?

10 A Yes, sir.

11 Q So actually this is the final figure we are talking
12 about, 4,200,000 parts per billion, according to your now most
13 recent calculations, is that correct, sir?

14 A Yes, sir.

15 Q All right. Now, Dr. Paget, a child, of course, say
16 a child that weighs one-third the man's weight, say he weighs
17 50 pounds, which would of course---he could take in one-third
18 of that content, correct, sir?

19 A Yes, sir.

20 Q So a child would have to eat in a month's time either
21 soil that's contaminated, five grams of soil that's contaminated
22 with 12,600,000 parts per billion in the five grams of soil,
23 or would have to eat 15 grams of soil contaminated with
24 4,200,000 parts per billion, is that correct, sir?

1 A No, sir, the child would eat less, I presume, if the
2 child is smaller, a smaller dose would produce chloracne.

3 Q Oh, why yes, I tripled it instead of dividing it,
4 correct. So he could eat one and a third grams of soil contam-
5 inated with 4,200,000 parts per billion in order to get
6 chloracne?

7 A Well, strictly, one and two-thirds.

8 Q Well, one and two-thirds, isn't that correct, Doctor?

9 A Yes, sir.

10 Q Now, do you know any product at Monsanto that could
11 be---or any other product anywhere that would be capable of
12 contaminating soil with 4,200,000 parts per billion of
13 2,3,7,8 TCDD?

14 A No, sir.

15 Q There isn't any? You've never read or heard of any
16 manufacturing process anywhere that could cause soil to be
17 thusly contaminated, isn't that correct, sir?

18 A That's so, sir.

19 Q And therefore, no soil that a child is likely to play
20 in contaminated with 2,3,7,8 can cause chloracne, isn't that
21 correct, sir?

22 A By the absorption of one five gram, or one and two-
23 thirds gram dose, yes, sir.

24 Q Now, if they eat more than---well, they would have to

eat soil that contains a thousand parts per billion, how many grams of soil would they have to eat, Dr. Paget, contaminated with a thousand parts per billion of 2,3,7,8 in order to get chloracne?

A About 50 milligrams.

Q 50 milligrams?

A Yes, sir.

Q I thought five grams would---you would have to eat five grams containing 4,200,000 parts per billion?

A I made the same mistake that you made, sir. I divided and should have multiplied, so let me multiply instead of dividing.

Q Surely.

A Well, with reservations about my arithmetic, about 210 grams.

Q 210 grams?

A Yes, sir.

Q At a thousand? Now, Doctor, your man has to eat five grams of soil with four million---now I've reduced it to 1,000 parts per million---per billion---I've reduced it by 4,200 parts. So wouldn't you multiply by 4,000 times the five or the 4,000 times the one and two-thirds grams?

A Well, 4,000 times one, yes. I'm sorry, you're quite right, yes, sir.

MEMLOCK

1 Q So, 4,000 times two grams, you would eat 8,000 grams
2 of soil?

3 A Yes, sir.

4 Q A 50-pound child would have to have ate---

5 A Over a period, yes.

6 Q In a period of a month?

7 A Yes.

8 Q 8,000 grams of soil, if there is 30 grams to the
9 ounce, how many pounds of dirt would he have to eat to get
10 chloracne?

11 A About 16 pounds, about eight kilograms, about 16
12 pounds.

13 Q So do you know of any child anywhere that has---have
14 you ever heard of a child eating 16 pounds of dirt a day?

15 A No, sir.

16 Q And have you ever heard of any soil---

17 A It is not a day, sir. It is in a month.

18 Q In a month's time?

19 A I'm not sure that that's not possible. It is about
20 a half a pound a day.

21 Q Have you ever heard of any soil that's been contami-
22 nated as much as a thousand parts per billion?

23 A No, sir.

24 Q So then really all this concern that we have had

about the dioxin sites in Missouri where their contamination levels are many, many times lower than a thousand parts per million, really all of that we've just been barking up the wrong tree; haven't we, Dr. Paget?

A I think a lot of that concern is misplaced, yes, sir.

Q And the CDC's concern, you wouldn't really be concerned about contamination of 1,000 parts per billion in the soil for children, and the CDC's concern of one part per billion is way off base?

A Well, sir, of course in any estimation you could include considerable safety factors. We have been talking about a dose that would cause chloracne.

Q Dr. Paget, that this chloracne is going to go away a month after the child quits eating dirt. Now, every child--- and every child that I know of gets acne at some time or another in his life that lasts from sometimes for years. I had acne that lasted for many years, all through my teenage years and into my manhood. Now, that's not unusual to have acne?

A That's very common, yes.

Q And if chloracne is really nothing worse than a case of teenage acne, what's the concern, Doctor?

A Well, sir, one doesn't want children to have---I'm sure you, having been a sufferer, you would agree that if you

1 could prevent acne it would be something that's very highly
2 desirable. It is a dreadful disease.

3 Q Is it highly desirable that they would condemn an
4 entire town and move the people out just so the kids wouldn't
5 get a case of acne, Doctor?

6 MR. HEINEMAN: Excuse me. He is asking this witness
7 to speculate or give his opinion of propriety of the actions of
8 the EPA or the U.S. Government at Times Beach, that's irrele-
9 vant and immaterial to this lawsuit, and I object to it.

10 THE COURT: Overruled. I think it is relevant and
11 material.

12 A Well, sir, if you include a safety factor in the
13 calculations we have been doing and the safety factor of a
14 thousand fold might not be inappropriate for this sort of
15 thing, and I think you would agree that--

16 Q Doctor, we are not even talking of a safety factor
17 of a thousand fold, because the thousand is what I gave you
18 hypothetically. You are talking about soil that has to be
19 contaminated to 4,200,000 parts per billion. We are not talking
20 about a safety factor of a thousand, are we, Doctor?

21 A We were talking about that concentration being such
22 as would be required to give chloracne from one dose of five
23 grams, sir.

24 Q Or a lot of little doses over a period of a month

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1 adding up to five grams.

2 A Amounting to five grams.

3 Q And, Doctor, we are not talking about a safety factor
4 here. What you are saying to us as a representative of
5 Monsanto is that there is no concern about soil until it reaches
6 the level of 4,200,000 parts per billion in the soil?

7 A No, I didn't say that, sir. I said that that's the
8 dose which would surely give chloracne, and if one has to---

9 Q No, you said that was a threshold level. You didn't
10 say would surely give, you said that is the threshold level for
11 chloracne, isn't that correct, Dr. Paget?

12 A Yes, sir, that's the dose at which I was quite wrong
13 to say surely. This was the dose at which chloracne might be
14 expected, yes.

15 Q And in a lot of people it would take a lot more than
16 that to cause chloracne, and in some people, according to your
17 testimony here before, they are just not going to get chloracne,
18 no matter how much 2,3,7,8 TCDD they ingest?

19 MR. HEINEMAN: Objection, your Honor, it mischaracter-
20 izes his testimony.

21 THE COURT: Overruled.

22 A I don't believe I ever said that, and if I said that,
23 it was not correct.

24 Q Well, you did suggest that the chloracnogenic response

varies from person to person.

A Yes, sir.

Q And what you have given us was the threshold level for the most sensitive person, didn't you, sir?

A Yes, sir.

Q So there has got to be---and since there are some people that have chloracne and some people that don't, fifty percent of the people there didn't have chloracne. Apparently, and from the facts that we know as far as their exposure and what they took in, apparently half the people there didn't get chloracne, and presumably they were working in the same area, you know nothing to the contrary, isn't that correct, Dr. Paget?

A That's correct. I know nothing to the contrary.

Q So the threshold dose of 4,200,000 for a 70-kilo man eating five grams of dirt in a period of a month would have to be increased for those less sensitive, correct, sir?

MR. HEINEMAN: Objection, your Honor, that's not the threshold dose. He is using the wrong term again.

THE COURT: Overruled.

Q Isn't it the threshold dose, Dr. Paget?

A That's under the very special circumstances---

Q And it is a threshold dose?

A Of eating that five grams of soil.

MR. HEINEMAN: In soil, Mr. Carr, you get 7,000

micrograms of a dose.

Q And, Doctor, this threshold level is for the most sensitive human beings, isn't it, sir?

A That's the 7,000 micrograms as the level at which one might expect most sensitive people to get chloracne.

Q And these people that ingest that amount of soil contaminated---or any other product in the same five grams of anything---it doesn't have to be soil, would not get chloracne and they wouldn't get anything else, and so they don't need to worry about it?

A No, sir, because one likes to incorporate very large safety factors.

Q Well, why? The only thing they are going to get is chloracne, isn't that correct, Dr. Paget?

A I wouldn't say that even ordinary acne is something that you could describe as---

Q Well, Doctor, isn't the only thing that they are going to get is chloracne?

A That's what I believe, yes, sir.

Q And so we have indeed then spent these years of concern about 2,3,7,8 TCDD in exposure to children and to human beings, really what we're really talking about is acne, that's all we are really talking about, that's our only concern, is that correct, Dr. Paget?

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1 A No, sir.

2 Q Do we have other concerns because of exposure to
3 2,3,7,8, Doctor?

4 A Well, until the situation is completely understood,
5 yes, of course one has to have concerns.

6 Q Do we have concern that very low doses might accumu-
7 late in a period of time, doses, insignificantly small fraction
8 of 4,200,000 parts per billion, just might cause cancer in some-
9 body, do we have that concern, Doctor?

10 A One has a concern about---

11 Q Doctor, do we have that concern with relation to
12 2,3,7,8 TCDD?

13 A Until the factor is studied, yes, of course one has
14 that concern.

15 Q It's been studied for a number of years, and we still
16 have that concern?

17 A Yes, sir.

18 Q And should we not be concerned about very low doses
19 over a period of time causing neuropathies?

20 A One should be concerned about the possibility that it
21 causes anything, including things that we don't even know about.

22 Q Excuse me, Doctor, could you just direct your atten-
23 tion to the ones that I am talking about? Should we have
24 concern that very low doses over a period of time will cause

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EDITOR CONTENT

1 peripheral neuropathy?

2 A That depends on what you mean by very low doses.

3 Q Any doses?

4 A No, not any doses.

5 Q Doctor, haven't we established that the EPA has not
6 yet established a no-effect level for 2,3,7,8 exposure?

7 A I don't know that, sir.

8 Q You don't know that?

9 A No, I don't.

10 Q Now, Doctor, would you assume that it's been testi-
11 fied here by toxicologists that---you are a toxicologist,
12 aren't you, sir?

13 A Yes, sir.

14 Q Don't you keep up on what the EPA pronounces?

15 A Well, I don't know that they have not established an
16 effect level. I know that they haven't established a maximum
17 safe level.

18 Q Well, have they established a minimum safe level?

19 A I don't think they ever do that for anything.

20 Q Well, the question is have they established a no-
21 effect level that you know of, Dr. Paget?

22 A No, sir.

23 Q And, Doctor, they are not willing to say that any
24 dose of 2,3,7,8 TCDD, no matter how small, may not have effects

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1 upon man, isn't that correct, sir?

2 A I don't know that, sir, no.

3 Q You don't know that, Dr. Paget?

4 A No, sir.

5 Q Well, have they announced a level of which it is
6 safe?

7 A No, sir, and that's different.

8 Q All right. And, Doctor, they can measure down to the
9 million parts per billion, can't they, sir? They have the
10 capacity to do these same calculations that you do?

11 A Oh, yes, sir.

12 Q And, Doctor, shouldn't we be concerned then about
13 very low doses causing loss of libido, for instance, in man?

14 A I don't know, sir.

15 Q My question is not whether you know, my question is
16 shouldn't we have concern about that?

17 MR. HEINEMAN: Well, I object to it. If he doesn't
18 know, how can he answer the question?

19 THE COURT: Overruled.

20 A It depends on what you mean by very low doses.

21 Q Low dose is a lot, lot, thousands and thousands of
22 times smaller than 4,200,000 parts per billion?

23 A That's not a dose, sir.

24 Q It is if you eat in five grams of soil, Dr. Paget.

MEMORANDUM

1 A That's the dose we expect might very well cause
2 chloracne, so one would want to have a very large safety
3 measure between that dose and---

4 Q Doctor, we are not now talking about---

5 MR. HEINEMAN: May he answer the question, your
6 Honor?

7 MR. CARR: If he answered the question I asked, I
8 wouldn't mind.

9 MR. HEINEMAN: I would like a little courtesy in the
10 Courtroom.

11 THE COURT: Overruled. It was not responsive.

12 MR. HEINEMAN: I think it was responsive.

13 A Could you repeat the question, please?

14 MR. CARR: I'd like the Court to instruct the jury
15 that they should disregard what Mr. Heineman just said and did.
16 They should not be influenced by comments that counsel makes
17 that are completely improper to a Court that's making its
18 ruling, and I would ask the jury to disregard what he just said.

19 THE COURT: The jury is so instructed. When I make
20 a ruling, that stands.

21 MR. HEINEMAN: Your Honor, with my respect to the
22 Court---

23 MR. CARR: Your Honor, I suggest it is not respectful
24 to the Court for him to say what he said.

1 MR. HEINEMAN: Your Honor, it was respectful to the
2 Court. I believe I have a right---I am certainly not question-
3 ing this Court's rulings with respect to the evidence in the
4 case.

5 MR. CARR: What did you just do if you didn't question
6 his ruling?

7 THE COURT: Mr. Heineman, the point is that the time
8 to express your opinion as to a ruling is before it is made
9 when the point is being argued before the ruling is made. I
10 would assume if you made the objection that your opinion is,
11 however it is expressed in the objection, it does not need to
12 be repeated after the ruling has been made, which is what you
13 did in this particular case. I'd let it go before, but counsel
14 did properly note it, and I am instructing the jury to disregard
15 it.

16 MR. HEINEMAN: Very well, sir.

17 THE COURT: Please read the question back.

18 (The previous question was read by the
19 Court Reporter.)

20 BY MR. CARR:

21 Q Doctor, have you ever at Monsanto or anybody that you
22 know of, have you ever advised the EPA or the Center for
23 Disease Control or OSHA when they came to the plant that they
24 are way off base in their concern about human and worker safety?

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1 MR. HEINEMAN: Excuse me, your Honor. May I object?
2 He is changing the question and abandoning the question that he
3 just asked.

4 THE COURT: I assume if he hasn't followed it up he
5 is abandoning the question.

6 MR. HEINEMAN: He is not asking the witness to answer
7 that question? All right.

8 THE COURT: Go ahead.

9 A No, sir. I have never advised the EPA about their
10 concern, no, no, sir.

11 Q Well, do you know if Monsanto has?

12 A I don't know, sir, no.

13 Q Do you know if--well, you know, Doctor, that there
14 are immense sums of money being spent relative to the dioxin
15 problem, you are aware of that?

16 A Yes, sir.

17 Q And you are aware of the Agent Orange case involving
18 millions of dollars, and you are aware of the Times Beach
19 cleanup and Minker-Stout cleanup costing millions of dollars?
20 You are aware of all those--

21 MR. HEINEMAN: Your Honor, I object to this. It is
22 nothing but a speech to the jury. He is just trying to inflame
23 the jury. It has nothing to do with the merits of this lawsuit,
24 and I object to it.

1 THE COURT: Overruled. I think it's properly a subject
2 of the question.

3 A Well, it depends what you mean by aware, sir. Some
4 of these I have the same awareness of any reader of the news-
5 paper has, and that's all.

6 Q Well, that's enough. Monsanto presumably, you among
7 others read the newspapers, don't you, sir?

8 A Yes, sir.

9 Q And you know what's going on here. Have you ever,
10 you at Monsanto during the period of time that you were on
11 this case and a toxicologist, did you ever advise---well, OSHA
12 was there, OSHA was there during the time you were a toxicolo-
13 gist and they made a report during the time you were a toxi-
14 cologist working for the Krummrich manufacturing process. Did
15 you tell OSHA, well, that's only 150, only 150 or 120 parts per
16 billion in that soil. And you don't need to rope off that
17 space there, those workers aren't going to get down there and
18 eat five grams of soil a month, and even if they did, it's only
19 got 150 parts per billion of 2,3,7,8 in it? Did you ever tell
20 OSHA they were concerned about nothing?

21 MR. HEINEMAN: Your Honor, I'll object. The witness
22 has already testified that he was not involved in the OSHA
23 situation at all.

24 THE COURT: Overruled.

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1 A No, sir.

2 Q Doctor, you did have a meeting in which you discussed
3 the 2,4 dichlorophenol being produced and marketed at the
4 Monsanto plant, didn't you, sir?

5 A I'm sorry, sir, there may as well have been such a
6 meeting, yes.

7 Q Let me hand you a letter that we received yesterday
8 afternoon at 1:30.

9 (Plaintiffs' Exhibit 1275 was marked for
10 identification.)

11 Q I'm handing you what's been marked Plaintiffs'
12 Exhibit 1275 and ask you to look at that and see if you don't
13 recognize that as involving you and where you made an evaluation.
14 You recognize that as a memo involving you?

15 A Yes, sir.

16 MR. CARR: I offer 1275 into evidence, if it pleases
17 the Court.

18 (Plaintiffs' Exhibit 1275 was offered
19 into evidence.)

20 THE COURT: Any objection?

21 MR. HEINEMAN: Your Honor, we have previously
22 objected in this case to any information relating to 2,4 di-
23 chlorophenol as not being relevant to the merits of the issues
24 in this case. We would continue that objection with respect

1 to this particular document, and of course we have previously
2 objected on other grounds which the Court has ruled on, which
3 is why Mr. Carr got the letter yesterday afternoon.

4 THE COURT: Fine, okay. It is admitted over
5 objection. Gentlemen, could I see you at the bench for just a
6 minute, please?

7 (Plaintiffs' Exhibit 1275 was admitted
8 into evidence.).

9 (The following proceedings were held at
10 the bench.)

11 THE COURT: Before we get into this, it is close to
12 noon. I want to break now. Before that, I want to tell you.
13 You submitted something in camera yesterday. One letter, a
14 memorandum or however you characterize it---

15 MR. HEINEMAN: Yes, I think that's right.

16 THE COURT: I want you to produce that except for the
17 part on legal fees, the footnote on legal fees. You can white
18 that out if you want, but the rest of it has to be produced.

19 MR. HEINEMAN: The whole thing, you mean?

20 THE COURT: There is one section on legal fees, have
21 you seen the document?

22 MR. HEINEMAN: I think I've got a copy. I've only
23 looked at it very casually.

24 THE COURT: Okay. For the record, I want you to

1 produce all of it except the part on legal fees. If you don't
2 understand which parts I mean, I will take you in Chambers and
3 show you the part.

4 MR. HEINEMAN: Would you please?

5 THE COURT: Okay. And we will break for lunch at
6 this time and I want it done by 1:30.

7 MR. HEINEMAN: That's no problem.

8 (The following proceedings were held in
9 open Court.)

10 THE COURT: Ladies and gentlemen, we are going to
11 break for lunch at this time. The admonishments that I gave
12 you earlier would apply during this break also, and we will
13 resume at 1:30. Thank you for your attention and cooperation.
14 The Court is in recess for lunch.

15 (At this time Court was in recess for lunch.)

16 (The following proceedings were held in Chambers.)

17 THE COURT: Okay, what are we doing back here?

18 MR. HEINEMAN: The thing I talked to you about right
19 before lunch, about making the record.

20 THE COURT: Right. We will have to do that. That
21 will just take a minute.

22 MR. HEINEMAN: The Judge, the Court has ordered that
23 we turn over to Mr. Carr a portion, or turn over the document
24 which was submitted for the Court's review in camera on Friday

1 with certain portions deleted. We would ask before we turn
2 this over to the Court, obviously, we have taken the position
3 that this information besides being privileged is totally
4 irrelevant and not calculated to lead to the discovery of
5 admissible evidence which I am assuming the Court has already
6 considered in making its ruling.

7 THE COURT: Right.

8 MR. HEINEMAN: We would ask the Court at this time
9 to stay its Order to turn this over and to certify this
10 question for appeal so that we might be able to take it up
11 before this information is disclosed to the attorneys for the
12 Plaintiffs.

13 THE COURT: Do you have anything you wish to say,
14 Mr. Carr?

15 MR. CARR: Yes, your Honor. They could have taken
16 that position a year ago if they wanted to. We're very close,
17 hopefully, just a few days away from resting. And there is no
18 time to delay the trial of this case while they take that up
19 on appeal.

20 THE COURT: Anything else you want to say?

21 MR. HEINEMAN: No, your Honor. This document was not
22 responsive to any other request of Mr. Carr's other than the
23 most recent occasion when the Court ordered us to produce
24 anything that had the word dioxin in it. It was subject to

1 that Order that this document was turned up, and it's clearly
2 not related to any of the other requests that Mr. Carr has
3 made. Therefore, it's only very recently that it's turned up,
4 fairly recently that it's been responsive to any ordered
5 production. And therefore, we can't help the shortness of
6 time. We're stuck with it just as everyone else is, and we
7 still make the request to the Court.

8 THE COURT: I am denying the request. First of all,
9 I think it has been covered in prior requests. Number two, I
10 think it is relevant and material, and in fact is probably
11 relevant and material to the matters in the section of the
12 trial that we are in at this time. And you could have taken
13 this position on this document a long time before. I don't
14 think that there is any substantial compelling or just reason
15 to delay enforcement of this. I am ordering you to turn it
16 over, and I am denying your request for a stay to allow you to
17 appeal to the Appellate Court on it. Okay?

18 MR. HEINEMAN: That's it.

19 (The following proceedings were held
20 in open Court.)

21 MR. CARR: I need to pass Exhibit 1275 to the jury
22 at this time.

23 THE COURT: Fine.

24 BY MR. CARR:

1 Q Doctor, this Exhibit deals with, as we started to get
2 into before lunch, a meeting that was held on the 22nd---
3 apparently on the 11th of May, 1979, and again on the 22nd of
4 May, 1979, is that correct, sir?

5 A Yes, sir.

6 Q And you were one of the participants at either one
7 or both of these meetings, is that correct, sir?

8 A Yes, sir.

9 Q And you were asked to give your judgment to evaluate
10 the 2,4,6 trichlorophenol that is present in many of the
11 chlorinated phenols produced by Monsanto, isn't that correct,
12 sir?

13 A Yes, sir.

14 Q And you, of course, knew that the 2,4,6 trichloro-
15 phenol is also present and was present in the orthochlorophenol
16 crude that was manufactured in this case---

17 A I don't know.

18 Q You don't know that?

19 A No.

20 Q Well, you do know that there was trichlorophenols in
21 that product, don't you, sir?

22 A I believe there were other chlorophenols, sir. I
23 don't know which ones were present; no.

24 Q Well, there is an Exhibit in evidence that indicates

1 that trichlorophenols were present in the OCP tank car. Would
2 you accept that, please, sir?

3 A Yes, sir.

4 Q For the purpose of this. And the 2,4,6 trichloro-
5 phenol or any trichlorophenol for that matter would be
6 considered an impurity, wouldn't it, in the product you are
7 putting out?

8 A Yes, sir.

9 Q And you of course also, now back in the trichloro-
10 phenols there can be tetrachlorodibenzo-p-dioxins, you know
11 that, don't you, sir?

12 A I believe that, yes, sir.

13 Q And the 2,4 dichlorophenol that's being manufactured,
14 of course, is being sold to customers and it contains levels
15 of 2,4,6 trichlorophenol and also contains levels of dioxin at
16 that time. You knew that, did you not, sir?

17 A I didn't know the levels of dioxin, no, sir.

18 Q Well, I didn't ask you if you knew the levels of
19 dioxin. You knew it did contain levels of dioxin, didn't you?

20 A Yes, sir.

21 Q And at that point in time, you of course had in your
22 mind the levels of contamination that would have to be 2,3,7,8
23 TCDD before you would consider it something that could cause
24 chloracne, you had that in your mind at that time, did you not,

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1 sir?

2 A Yes, sir.

3 Q And you were asked to give an opinion as to whether
4 or not a hazard existed relative to the 2,4 dichlorophenol that
5 was being sold, were you not, sir?

6 A Yes, sir.

7 MR. HEINEMAN: Objection. Oh, you mean in this
8 matter?

9 MR. CARR: Yes.

10 MR. HEINEMAN: All right. I thought you meant back
11 in '79.

12 MR. CARR: This was in '79, counsel. This meeting
13 was in May of '79.

14 MR. HEINEMAN: Well, I thought you meant February.

15 BY MR. CARR:

16 Q You were asked to give an opinion at that time as to
17 whether or not the impurities in the 2,4 dichlorophenol was
18 being manufactured and sold to your customers were of a nature
19 as to pose a substantial risk of injury to the health of the
20 ultimate users or the environment, isn't that correct, sir?

21 A No, sir.

22 Q Would you direct your attention to the last paragraph
23 on this document, Page 1275, last paragraph on the first page?

24 A Yes, sir.

1 Q Are you discussing there whether or not 2,4 dichloro-
2 phenol as being in produced and marketed represents a substantial
3 risk to---

4 A That's what the meeting was about. That's not what
5 I was asked to evaluate.

6 Q You were asked only to evaluate only the 2,4,6 tri-
7 chlorophenol?

8 A I was asked to evaluate just specifically an NCI
9 bioassay report on the carcinogenicity of the material on the
10 2,4,6.

11 Q Well, did you offer an opinion then on just the NCI
12 bioassay study dealing with 2,4,6 trichlorophenol?

13 A That's what I was asked to evaluate, yes, sir.

14 Q And you did not evaluate any other impurity or the
15 risk that might be associated with other contaminants in the
16 2,4 dichlorophenol other than the 2,4,6 tripchlorophenol
17 contaminant?

18 A No, sir, that's what I was asked to evaluate.

19 Q Well, did anybody at that meeting, did you not
20 discuss the fact that dioxins are known to be in the 2,4 di-
21 chlorophenol when you all determined whether you should or
22 should not notify the EPA as to the existence or nonexistence
23 of a substantial risk?

24 A I didn't, no, sir.

1 Q Was it even discussed at those meetings?

2 A I can't recall, no, sir.

3 Q Dr. Paget, if you all knew dioxins were in 2,4 di-
4 chlorophenol, you all knew that, did you not, sir?

5 A I am not sure what was known at that time, sir, in
6 May. I certainly wouldn't have known what specific dioxins
7 were there.

8 Q Well, you would have known that it contained the
9 tetradoxins that elute at the same retention time as 2,3,7,8
10 TCDD?

11 A I'm not sure whether that was known or not, sir.

12 Q Well, please accept my word for it that it was not
13 known, and there are existing Exhibits in evidence that
14 reflect that.

15 A If you say so, yes, sir.

16 Q And was it---you had to know that in order to give
17 an opinion as to whether or not a hazard exists?

18 A Sir, I was not asked to give an opinion as to whether
19 a hazard existed, but only to evaluate---

20 Q Well, didn't you---what did you do then just at that
21 meeting, ignore the fact that TCDD's and other dioxins were in
22 2,4 dichlorophenol?

23 A I don't know what other people did, but my participa-
24 tion in that meeting was limited to evaluating the NCI bioassay

1 report.

2 Q Well, Doctor, you know from your experience and
3 knowledge as a toxicologist that 2,3,7,8 TCDD is thousands and
4 thousands of times more toxic than 2,4,6 trichlorophenol, you
5 know that, don't you, sir?

6 A I don't know about thousands and thousands. I know
7 it is more toxic, yes, sir.

8 Q Doctor, wouldn't the fact that the 2,4 dichlorophenol
9 that is being manufactured by Monsanto contains more than just
10 2,4,6 trichlorophenol as an impurity, that it also contains
11 tetradoxins that elute the same way as 2,3,7,8 TCDD elutes,
12 the same retention time, don't you consider that that presence
13 of the tetras in that 2,4 dichlorophenol poses a greater threat
14 to the ultimate user, to the house of the user or the environ-
15 ment than the possible effects of 2,4,6 trichlorophenol?

16 A I don't know what the concentrations were, sir. This
17 meeting was to consider the 2,4,6.

18 Q There were chemists at that meeting, there was J. D.
19 Wilson. He was there, he is an organic chemist. Did you
20 inquire of Mr. Wilson, Dr. Wilson, if any chemists as well were
21 asked to determine whether or not we should notify the EPA
22 about 2,4 dichlorophenol, are there possibly TCDD's in this
23 that we should consider, did you ask that, Dr. Paget?

24 A No, sir.

1 Q Did anybody ask that at that meeting?

2 A I don't recollect whether they did or not, sir.

3 Q Dr. Paget, at this point in time you were surely
4 aware of the program that was being undertaken, it had been
5 under way since March, at least, to determine the TCDD content
6 of the various products, and you had reports by this time, a
7 number of reports, and you are taking it up to the Biohazard
8 Committee. Surely at that meeting you were aware of the fact
9 that there could be something in your 2,4 dichlorophenol that
10 could be of a greater hazard to the health of the people than
11 just 2,4,6 trichlorophenol, surely you were aware of that, were
12 you, sir?

13 A I don't know, sir. I don't know what was discussed
14 other than the evaluation of this 2,4,6 trichlorophenol from
15 the NCI which was what the meeting was called to discuss.

16 Q Now, Doctor, there was further mentioned in this
17 memo that in order to prevent possible misuse of the product
18 by a customer, it is recommended that the responsible business
19 group send a letter to its customers for this product referring
20 to the NCI bioassay describing the present 2,4,6 trichloro-
21 phenol content of the product, and the plans which are under
22 way to improve the purity of the product. Now, do you know
23 whether or not the customers were sent such a letter?

24 A No, I don't, sir.

1 Q And if such a letter were sent, do you know whether
2 or not they discussed and told the customers that there is more
3 than just 2,4,6 trichlorophenol in this product, there is in
4 addition, tetrachlorodibenzo-p-dioxins in this product, do you
5 know whether or not that was ever done?

6 A No, sir.

7 Q Now, Doctor, did you have meetings at Monsanto in
8 which you discussed with others your opinions as to the amount
9 of 2,3,7,8 TCDD that would be necessary to ingest before one
10 would get a case of chloracne, was that discussed by you and
11 others?

12 A At this meeting, sir?

13 Q Not at that meeting, at any meeting?

14 A I'm sure it was, yes, sir.

15 Q And all of the actions that were taken by the---or
16 the actions that were taken by Monsanto that you know of, they
17 had in mind this premise of yours as to the toxicity of dioxin?

18 MR. HEINEMAN: Let me object to the form of the
19 question calling for sheer speculation.

20 THE COURT: Overruled.

21 Q Do you know that, Dr. Paget?

22 A No, sir, I don't know that.

23 Q You don't know what it was or was not?

24 A No, sir.

1 Q You do know that you expressed that opinion?

2 A I expressed what opinion? I'm sorry, could you say
3 what opinion you assume I expressed?

4 Q You expressed your opinion as to the amount of dioxin
5 it would take in order to cause chloracne. We have discussed
6 it a greater part of the morning.

7 MR. HEINEMAN: Object. It is vague and indefinite,
8 expressed to whom, when, vague and indefinite, your Honor.

9 THE COURT: Overruled. I think that was clarified.
10 in the questions prior to that one. Overruled.

11 Q Could you answer that question?

12 A If I have been asked my opinion, I would have given
13 it.

14 Q My question is, you did give that opinion, did you
15 not, sir?

16 A I can't recall when I gave it or on what occasions,
17 no, sir.

18 Q Well, did you discuss this subject with Dr. Rousch?

19 A I'm sure I did, yes, sir.

20 Q And did he agree with you, or you and he in agreement
21 as to the amount of dioxin it takes to cause acne to occur?

22 A I'm sure we would've been, yes, sir.

23 Q Have you learned anything from Dr. Rousch since that
24 time that he has perhaps changed his mind as to the level of

1 dioxin contaminant necessary before one gets the condition
2 called chloracne?

3 A I don't believe we discussed this, sir.

4 Q Well, at any event, you all decided at that meeting
5 that you did not need to notify the EPA and that you did not
6 need to notify the customers as to anything other than the
7 2,4,6 trichlorophenol content of the products, is that correct,
8 sir?

9 A That's so, yes, sir.

10 Q And you of course, you are aware of the fact that the
11 2,4 dichlorophenol goes into products such as Weed-B-Gon and
12 2,4 D that we have. I don't think I've discussed it with you,
13 but that Mr. Musgrave has discussed with witnesses prior to the
14 time you took the stand. You knew that had taken place, I take
15 it?

16 A I'm sorry, I'm not sure what you are asking.

17 Q Well, I am not sure that I put it in a frame that
18 you could properly answer, Dr. Paget. You are aware of the
19 fact that we had discussed in this case that Weed-B-Gon and
20 2,4 D contains Monsanto product called 2,4 dichlorophenol?

21 A No, sir, I am not aware of that.

22 Q You are not aware of that?

23 A No.

24 Q Well, do you know that 2,4 dichlorophenol goes to

1 customers who use it in making the products known as 2,4 D or
2 Weed-B-Gon?

3 A Yes, sir.

4 Q All right. And you do know that ultimately, the
5 product is going to be used by the---well, by the homeowner,
6 by people that have farms, by all kinds of people that are
7 involved in controlling dandelions and other weeds?

8 A Yes, sir.

9 Q And you do know that it's going to be sprayed on the
10 lawn, it's going to be mixed in gallons of water, for instance.
11 I think if you looked at that Weed-B-Gon can you will note that
12 it takes four teaspoons of Weed-B-Gon to a gallon of water.

13 A I don't know it, but I believe that might be the case.

14 Q And do you know that the Weed-B-Gon contains nearly
15 eleven percent of the 2,4 dichlorophenoxyacetic acid?

16 A I don't know, but if you will tell me so, I will
17 believe it, yes.

18 Q And you do know that customers will be ultimately
19 exposed to that content either on your lawn or on their dirt,
20 or somehow they can come in contact with it?

21 A Yes, sir.

22 Q Now, would the same percentage that is .14 percent
23 that you gave us for the soil contaminants, and you mentioned
24 it for the Lysol, would that same percentage work for the

1 2,4 dichlorophenol that has 2,3,7,8 TCDD in it?

2 MR. HEINEMAN: Your Honor, let me object to the form
3 of that question as being so vague and indefinite. We are
4 talking about different material, different substances,
5 different amounts. I can't imagine how anybody could figure
6 that out.

7 THE COURT: Overruled.

8 A You would have to tell me what assumptions you wish
9 me to make, sir.

10 Q Well, is the toxicity of 2,3,7,8 TCDD affected by
11 the substance that it contaminates?

12 A Not as far as I am aware, no, sir.

13 Q If you get it into your system, it doesn't make any
14 difference whether it's on grass and you eat the grass, or on
15 the dirt and you eat the dirt, or if it's on the grass and you
16 lay on the grass as Mr. Kidwell fell to the ground in Sturgeon,
17 or if you---however you come in contact with that. If it gets
18 into your system, whether you eat it or inhale it or drink it,
19 it gets into your system, and it has this same effect, doesn't
20 it, sir?

21 MR. HEINEMAN: Let me object, your Honor. That's
22 eight different questions in one. And Mr. Carr surely knows
23 the differences in concentration, whether it's on grass or
24 whether it's in soil or in water or some place else. It's

1 misleading and it's eight different questions in one, and I
2 object.

3 THE COURT: Overruled. It is a proper question. It's
4 one question.

5 A You would have to let me know what assumptions about
6 the spread of the diluted material over the ground I should make
7 before I can even begin to answer that question, sir.

8 Q Doctor, does it make a difference to you in deter-
9 mining whether or not chloracne is going to be caused---you
10 have to take in, no matter how you get it, the same amount of
11 2,3,7,8 TCDD, don't you, sir?

12 A Yes, sir.

13 Q For an average 150-160 pound man, you have to take in
14 7,000 micrograms, don't you, sir?

15 A Yes.

16 MR. HEINEMAN: We are talking about a one-shot dose
17 now.

18 Q Or in an accumulative dose over a period of time,
19 isn't that correct?

20 A Over 30 days or so, yes, sir.

21 Q Isn't that correct, sir?

22 A Yes, sir.

23 Q So it really doesn't make any difference how you get
24 that 7,000 micrograms in your system, does it, sir?

1 A Not in the strict form in which you absorb it. The
2 amount of the material you absorb of course affects you whether
3 you take 7,000 micrograms on---

4 Q Well, I certainly agree with that, Doctor. I didn't
5 suggest there was anything different. You have to have it into
6 your system whether it comes from eating it as I suggested to
7 you earlier or whether it comes from eating the grass, eating
8 the soil, drinking the gallon of water that has it in it. How
9 many gallons of water would you have to drink in order to get
10 7,000 micrograms of 2,3,7,8 TCDD if you assume that it's got
11 ten percent 2,4 dichlorophenol in the Weed-B-Gon and that four
12 teaspoons go into a gallon of water?

13 A And how much 2,3,7,8 TCDD am I to assume that there
14 was in the original material?

15 Q Any level that you want. Say 50 parts per---let's do
16 the same way we did the soil. You had 45 there. Say it's 45
17 parts per billion that goes into the 2,4 dichlorophenol that
18 goes into Weed-B-Gon.

19 A Well, sir, you have to bear with me while I make this
20 calculation, because it is more complicated than any we've done
21 so far.

22 Q All right. Round them off so it will be easier for
23 you. If you want to use 45 or 50 might be easier.

24 MR. HEINEMAN: Do you want to include the fact of

1 any dilution of 2,4 di becoming 2,4 D?

2 MR. CARR: Sure, that'll be fine.

3 MR. HEINEMAN: Do you have that figure?

4 MR. CARR: Mr. Musgrave said assume that that was all
5 2,4 dichlorophenol in that Weed-B-Gon can, and that's okay, I
6 will accept that.

7 MR. HEINEMAN: I understand from Mr. Musgrave that
8 that's inaccurate.

9 MR. CARR: Well, Mr. Musgrave put it on the board and
10 just assumed that it was all 2,4, he is the one that did the
11 calculations on the Weed-B-Gon, if my memory serves me right.
12 And he didn't give any factor of dilution other than the
13 dilution when it gets into the gallon of water which we have to
14 work with in a moment. And if you want to assume that it's
15 further diluted, assume that it's diluted another 50 percent,
16 it's fine with me, Doctor.

17 A It's three teaspoons in a gallon.

18 Q Four teaspoons in a gallon?

19 A Three teaspoons in a gallon.

20 Q No, four teaspoons, and according to the directions
21 of course some customers use a lot more than that and some use
22 less, I suppose. But take the four teaspoons per gallon.

23 A You would have to drink, I think, 25 gallons, sir.

24 Q To get 7,000?

1 A Micrograms.

2 Q Micrograms?

3 A Yes.

4 Q If it contained 50?

5 A If the original dichlorophenol contained 50 parts per
6 million and if you assume that it's diluted in the manufacture
7 of the Weed-B-Gon by 50 percent, I have 25 parts per million,
8 and the raw material of Weed-B-Gon, if you like, and that
9 would mean there was 2.5 parts per million.

10 Q No, you left out a calculation because it diluted
11 further in the can by ten percent. It's only ten percent of the
12 can.

13 A Yes, I'm coming to that. So that material in the
14 can, the total can, would contain 2.5 parts per million. It's
15 diluted ten percent in the can.

16 Q 2.5 parts per billion?

17 A 2.5 parts per billion, not million. I'm sorry, I
18 have to assume 50 parts per million.

19 Q No, 50 parts per billion.

20 A Oh, I'm sorry. Well then, that will make it very
21 much more, of course.

22 Q Indeed it will. 25,000 gallons.

23 A Yes, sir, that would be just exactly a thousand times
24 more.

1 Q Yes. So one could get, if you had your product
2 contaminated with 50 parts per billion of 2,3,7,8 TCDD, you
3 would have to drink, somebody would have to drink, 25,000
4 gallons of water before he could get chloracne?

5 A If he drank the diluted Weed-B-Gon, yes, sir.

6 Q Once he drank the diluted Weed-B-Gon and 25,000
7 gallons of water is a pretty good sized swimming pool, isn't
8 it, sir?

9 A Yes. I don't know about a swimming pool, but it is
10 a fair sized amount.

11 Q That would be a swimming pool about 20 by 30,
12 wouldn't it?

13 A I don't know. I don't own a swimming pool,
14 unfortunately.

15 Q That is your calculation as to the amount, and that's
16 predicated, that's based upon the same figures that you used to
17 arrive at the 4,200,000, or I'm sorry, 1,400,000 parts per
18 billion in soil. You got to it at exactly the same way, didn't
19 you, sir?

20 A The same type of calculation, yes, sir.

21 Q And of course then the people at Monsanto knowing how
22 the 2,4 dichlorophenol is being used, they would know that it
23 would be physically impossible for anybody to drink in a month's
24 time 25,000 gallons of water, isn't that right, sir?

1 A Yes, sir.

2 Q Yeah. So, and even if you had 2,4 dichlorophenol that
3 contained 150 parts per billion of 2,3,7,8 TCDD, they would
4 have to drink 8,000 gallons of water of that nature, wouldn't
5 they, sir?

6 A Of the diluted Weed-B-Gon, yes, sir.

7 Q And again that's something that a person probably
8 won't drink that much in his lifetime.

9 A I don't know about that, sir, but---

10 Q In any event, you at Monsanto all operated on this
11 premise when you made a decision that this does not contain
12 a substantial hazard to the people involved.

13 MR. HEINEMAN: What premise, Mr. Carr?

14 MR. CARR: That it would take 25,000 gallons of
15 water, not swimming in it, but drinking 25,000 gallons of
16 water before you would get chloracne.

17 MR. HEINEMAN: Now, are you asking, Mr. Carr, if
18 that was the only consideration?

19 BY MR. CARR:

20 Q I'm asking if that was a consideration that you used
21 when you determined whether or not you were going to notify the
22 customers?

23 A At this meeting, sir?

24 Q Yes, at that meeting. And any subsequent meeting.

1 I asked you yesterday whether or not there was a plan on the
2 part of Monsanto to withhold this information relative to what
3 dioxin was in the products, withhold it from the workers,
4 withhold it from the people at Sturgeon, withhold it from your
5 2,4 dichlorophenol customers, withholding from your Lysol
6 santophen customers, from the employees in the plant. I asked
7 you yesterday, was that answer yesterday you were part, in
8 fact, of such a meeting that discussed whether or not customers
9 should be notified, weren't you, Dr. Paget?

10 MR. HEINEMAN: Okay, your Honor, the witness has
11 testified that he was asked to comment on the 2,4,6 study and
12 that he didn't remember the other aspects of the meeting. If
13 I am---I may be mistaken, but that's what I thought I heard him
14 say.

15 THE COURT: You're objecting on this?

16 MR. HEINEMAN: I am objecting to this, besides the
17 fact that Mr. Carr just gave a speech, and I would request---
18 I would object to the speech. I request that the jury be
19 instructed to disregard it.

20 THE COURT: It was a proper question, number one.
21 And number two, your objection is overruled.

22 BY MR. CARR:

23 Q Dr. Paget, was this meeting that you had in May one
24 of a series of meetings held by Monsanto personnel at which

1 you arrived at the Monsanto policy on what you should or---or
2 would not---surely not should, what you would tell these people
3 that I mentioned, your employees, your customers, and the people
4 at Sturgeon, or the public at large?

5 A Not as far as I am aware, sir, no.

6 Q There were other meetings held, sir, weren't there?

7 A I don't know, sir. .

8 Q Well, you held a meeting later in June where you
9 discussed the position that you all were going to take. You
10 gave that to your Senior Vice President, Mr. Throdahl, didn't
11 you, sir?

12 A That was a paper to discuss the establishment of an
13 ultra-trace laboratory, sir.

14 Q You also discussed the very small amounts of TCDD in
15 the human environment of certain circumstances of intimate
16 exposure may have significance, didn't you, Doctor?

17 A Yes, sir.

18 Q Somebody could drink, insofar as the 2,3,7,8 TCDD
19 concentration is concerned, somebody could drink the entire
20 bottle of Lysol or drink the entire bottle, entire can of
21 Weed-B-Gon and not suffer any ill effects, not suffer any
22 chloracne, not suffer anything so far as you know from the
23 2,3,7,8 TCDD that might be in there, isn't that correct, Dr.
24 Paget?

1 A Yes, sir. It is not a course I would advise.

2 Q Dr. Paget, just what then did you have in mind the
3 exposure might be where you said in Plaintiffs' Exhibit ¹²⁶² ~~1267~~,
4 "In the absence of precise knowledge of human susceptibility
5 and in view of the extreme sensitivity of some species, it is
6 obvious that very small amounts of TCDD in the human environ-
7 ment in certain circumstances of intimate exposure or of casual
8 worker procedures may, and we repeat may, have significance."
9 What amounts did you have in mind, sir? What kind of exposure
10 did you have in mind if you could drink the product and not
11 suffer any consequences from?

12 A I was referring here to the method of analysis in
13 assuming one was dealing with the most sensitive species, and
14 circumstances where an exposure might occur, we would have to
15 assume that the human being, where we didn't know the precise
16 sensitivity of the human being was as sensitive as the most
17 sensitive species.

18 Q You said here, "It is obvious that very small amounts
19 of TCDD in the human environment may have significance in
20 certain circumstances of intimate exposure." How intimate can
21 you get if you take your product and drink it?

22 A You can't get much more intimate than that, sir, no.

23 Q And you believe from what you have said in this room
24 today, and you at Monsanto believe that you could drink that

1 product and suffer no consequences? You wouldn't even get
2 chloracne, isn't that correct, sir?

3 A I think that's true, yes, sir.

4 Q And, Doctor, please, what is the very small amount
5 then of TCDD in certain circumstances of intimate exposure?
6 What intimate exposure did you have in mind?

7 A Well, for example, drinking it, sir.

8 Q And is that the only intimate exposure you had in
9 mind?

10 A Applying it as though cosmetic, perhaps.

11 Q Applying Weed-B-Gon or Lysol as a cosmetic?

12 A No, sir, this was not confined to Weed-B-Gon or
13 Lysol. There was a situation where any of our products might
14 contain TCDD in this particular instance.

15 Q Now, Doctor, the customer could---and you talk about
16 abuse or misuse. A customer could take the entire can of
17 Weed-B-Gon and pour it in a gallon of water and drink that
18 gallon and he wouldn't get chloracne, would he, sir?

19 A No, sir, I don't believe he would.

20 Q How much more customer abuse could you have other
21 than taking the entire can and putting it in a gallon of water?

22 A We are not talking about---

23 Q Take the entire can and put it in a quart of water.

24 MR. HEINEMAN: Why don't you let him answer the

1 question before you interrupt him?

2 A We are not talking about only Weed-B-Gon. We are
3 talking about any conceivable product at that time or any time
4 thereafter.

5 Q Well, you are talking about Lysol, that's another
6 product?

7 A Yes, sir.

8 Q And you are not making pentachlorophenol at that
9 time, so you are not talking about the wood preservative?

10 A No, sir.

11 Q You are talking about santophen that goes out and
12 gets into Lysol, and you are talking about 2,4 D that goes out
13 and gets in Weed-B-Gon, and you are talking about orthochloro-
14 phenol that goes out, and others make it into pentachlorophenol
15 for a wood preservative, and you are talking about parachloro-
16 phenol and 2,4 D that may be used in oil well drilling, and
17 things of that sort, is that correct, sir?

18 A Yes, sir.

19 Q Now, what abuse could a worker have, how could a
20 worker possibly be exposed to levels under what circumstances
21 in the plant, under what circumstances could that customer
22 possibly be exposed to levels of 2,3,7,8 TCDD that could cause
23 him harm?

24 A I don't know, sir.

1 Q Well, you must have had in mind, because you said it
2 was obvious. So you must have known something. You said it is
3 obvious that very small amounts---this is what you said in June
4 of '79, not what you are saying now in March---what month are
5 we in? We are not in March, April of '85. Doctor, what are
6 the certain circumstances of intimate exposure that could have
7 significance?

8 A I don't know, sir. I wouldn't know then until they
9 were---

10 Q What did you have in mind in 1979 where you said it's
11 very obvious, it's obvious, not very obvious, it's obvious that
12 very small amounts of TCDD in the human environment in certain
13 circumstances of intimate exposure or of abuse or misuse or
14 casual worker procedures may have significance? What did you
15 have in mind, Doctor?

16 A Well, in casual worker procedures where people worked
17 without the indicated protective clothing.

18 Q Well, Doctor, how is that going to hurt them? They
19 have to absorb 7,000 micrograms in a month's time of pure
20 2,37,8 TCDD to even get a case of teenage acne.

21 A I don't think you get teenage acne, you get
22 chloracne.

23 Q Chloracne, which has been described by you as having
24 the same results---not by you, but by your company---is that

1 it looks just like a case of adolescent acne.

2 A Well, I don't know that, sir.

3 Q Well, Doctor, assume that I can prove what I say in
4 this Courtroom. Would you assume that, please? Because if I
5 don't prove it, the jury will hold me to account for it.

6 MR. HEINEMAN: Why don't you show it then?

7 MR. CARR: Because I'm saving it for Dr. Rousch.

8 A Well, sir, I will make that assumption.

9 Q And, Doctor, under what circumstances can the worker
10 take in that level of 2,3,7,8 TCDD in your product when you
11 have only the maximum that I have seen by anybody is the
12 University of Nebraska saying that your 2,4 dichlorophenol had
13 2,600 parts per million in it, how could they possibly be hurt
14 by that?

15 A We are not talking about specific products, sir.
16 We were talking about establishing a general policy about
17 dioxins and establishing a laboratory which would enable us to
18 know under any circumstances with any product that's then or at
19 any time in the future, what the dioxin levels were, and
20 circumstances where we would have to make a worst case analysis
21 and assume that human beings were exposed to some level of
22 dioxins that might be relevant to the most sensitive species,
23 for example, the guinea pig.

24 Q Now, Doctor, you are not talking about detecting it

1 in this paragraph that I read to you and Mr. Heineman has read
2 to you. You are talking about the small amount, very small
3 amounts of TCDD. Well, let's start---define, please, what you
4 mean by very small amounts of TCDD. Do you know 1,400,000
5 parts per billion---

6 MR. HEINEMAN: Were you about to say, Mr. Carr, that
7 he wasn't referring in the paragraph to extreme sensitivity of
8 some species, because it is certainly there.

9 Q Could you please answer my question, Dr. Paget?

10 A We were talking about levels of dioxin that might
11 be hazardous, for example, guinea pigs---

12 Q No, you are talking about humans here. You are say-
13 ing very small amounts of TCDD in the human environment, didn't
14 you use the words human environment?

15 A Yes, sir.

16 Q You didn't say animal environment?

17 A Yes, sir, but in the same sentence---

18 Q Dr. Paget, please, if you would, I want to know what
19 is the very small amounts of TCDD in the human environment?
20 What small amounts do you have in mind?

21 A It depends on the precise circumstances.

22 Q Give me the small amounts that you had in mind,
23 whatever the circumstances may be.

24 A One would want to analyze reliably---

1 Q I didn't ask you that. I want to know what are the
2 very small amounts that you had in mind when you used the words
3 in this paragraph.

4 A Of the order of parts per billion or parts per
5 million, yes.

6 Q The order of parts per million or parts per billion?

7 A Or parts per million.

8 Q What parts per million?

9 A I didn't have a specific number in mind, sir. That
10 was a document suggesting---

11 Q Would one part per billion meet your definition of a
12 very small amount of TCDD in the human environment?

13 A One part per billion in some circumstances is a very
14 small amount.

15 Q My question is, would one part per billion meet your
16 specification of very small amount?

17 A That is a very small amount.

18 Q Well, Doctor, that can't possibly cause anybody any
19 harm, and you would have to eat tons of dirt.

20 A I didn't say that it caused harm, sir.

21 Q Well, Doctor, you are saying it here. It may have
22 significance, what you mean by that surely is significance from
23 a health viewpoint.

24 A No, sir.

1 MR. HEINEMAN: He didn't say it was one part per
2 billion there.

3 Q Isn't that what you have in mind, Dr. Paget?

4 A No, sir, that isn't necessarily what I have in mind.

5 Q What are the very small amounts in your opinion where
6 they have intimate exposure before it would have significance?

7 MR. HEINEMAN: Objection, that has been asked and
8 answered.

9 Q My question is not what you know, what did you have
10 in mind at that time, Doctor?

11 A Any small amount, sir, but depending on the circum-
12 stances----

13 THE COURT: Overruled.

14 Q Would one part per billion have a deleterious effect
15 upon human beings?

16 A I don't know, it depends on the circumstances.

17 Q Any circumstances.

18 A Personally, I don't think one part per billion would
19 have an ill effect.

20 Q Then, one part per billion would never under any
21 circumstances pose any hazard to human beings?

22 A Not any circumstances I can imagine, no, sir.

23 Q And what about a hundred parts per billion?

24 A Well, I think that if you drank a gallon of water

1 every day containing that, you could eventually get a body
2 burden that might lead to chloracne.

3 Q Doctor, we just went through---were you drinking
4 water that contains---you would have to have 25,000 gallons,
5 you could drink the pure thing and not get chloracne, and now
6 you are saying something different.

7 A No, sir, I am saying you could drink that every day
8 of your life---

9 Q How much would you accumulate if you drink in a
10 month's time? Is dioxin going to accumulate over a lifetime,
11 Doctor?

12 A I don't know, sir.

13 Q Well then, Doctor, why are you saying that if you
14 don't know that?

15 A I don't know that.

16 Q A hundred gallons of water, or rather a gallon of
17 water a day containing a hundred parts per billion is going to
18 give you chloracne?

19 A No, sir.

20 Q Then, why did you say it, Doctor?

21 A No, that was a---I misspoke.

22 Q Well, tell me what is the level that you consider
23 in your product could cause---what are the very small amounts
24 that could cause---that could be significant?

1 A Well, significance doesn't mean necessarily a health
2 effect, sir.

3 Q Well, what does it mean, Doctor, if we are not talk-
4 ing about the human health environment? What other significance
5 are we talking about?

6 A We are talking about the circumstances as for example
7 now where we are debating about very small amounts, which I
8 don't think---

9 Q Doctor, we're debating small amounts only because it
10 has a deleterious effect on the health of human beings. We
11 don't care about it in the other context, do we, sir?

12 MR. HEINEMAN: Objection. Would you please let the
13 man answer the question before you start shouting at him
14 again?

15 THE COURT: Objection overruled. The answer was not
16 responsive to the question.

17 Q Doctor, was there any context in which you want to
18 talk about TCDD other than human health effects that has any
19 relevance whatsoever?

20 A Yes, sir, of course there are.

21 Q What, sir? Give them.

22 A Well, for example, if ill-informed people make
23 statements about our products, we would like to know from our
24 point of view what is in those products.

1 Q And, Doctor, they are making those statements only
2 because of the health effects of what they believe, isn't that
3 right, sir?

4 A If they are ill-informed, they are ill-informed
5 about the health effects as well.

6 Q Isn't there any other conceivable thing at all that
7 2,3,7,8 could do to hurt anything other than health effects?

8 A I don't know of any, sir.

9 Q Well then, Doctor, why do you say those things?
10 You are talking about here, you are talking about 2,3,7,8.

11 MR. HEINEMAN: Are you going to let him answer the
12 question?

13 Q What do you talk about, then? Why are you concerned
14 about very small amounts of TCDD in the human environment if
15 you are not concerned about the health?

16 A Because I would be concerned about what people might
17 say about the product, and we would like to know precisely what
18 the facts are about a product.

19 Q And why would they say it about the product, Dr.
20 Paget?

21 A Because they are ill-informed.

22 Q And why would it be of concern to you? Why would you
23 care if they said oh, there is a lot of 2,3,7,8 in there if it
24 isn't because it would injure somebody or if they are saying it

1 would injure somebody, what other reason would you have?

2 A We would want to know what the facts are before we
3 rebut them.

4 Q I understand that. But you are talking about the
5 subject of human health, whether they are ill-informed or fully
6 informed, you are talking about human health, aren't you, sir?

7 A Yes, sir.

8 Q Now, Doctor, give me anything other than health where
9 it has any relevance whatsoever.

10 A Well, that's not strictly to do with health, sir.
11 If we don't believe there is a health hazard, somebody else
12 says there is---

13 Q Doesn't that have to do with health if you don't
14 believe it is a health hazard, Doctor?

15 MR. HEINEMAN: Objection.. He keeps interrupting the
16 witness.

17 Q If he is exposed to it and he says healthy, aren't we
18 talking about health, Dr. Paget?

19 A Well, of course, sir.

20 Q Now, Dr. Paget, I want you to tell me then what are
21 the very small amounts of TCDD that you believe could under
22 some circumstances have significance on humans' health.

23 A It depends what people said about the product.

24 Q What they say can't affect your health. They can tell

1 you all day long that 2,3,7,8 is bad stuff, it's not going to
2 make you sick. It's only going to make you sick if you get
3 exposed to it and if you take it in and then you've got to take
4 it in in certain levels high enough to give you acne. Doctor,
5 that's what you were talking about. I want to know, sir, and
6 forget about the uninformed public. I want to know what you
7 are talking about when you said very small amounts of TCDD in
8 the human environment may have significance, what were you
9 talking about?

10 MR. HEINEMAN: Object. It's been asked and answered.

11 THE COURT: Overruled. It has not been answered.

12 A I was talking about very small amounts, sir.

13 Q Were you talking about one part per billion in
14 santophen that goes in nurseries?

15 A I would like to know that---

16 Q Are we talking about one part per billion that goes
17 in nurseries, sir?

18 A I would like to know that, yes, sir.

19 Q You were talking about it, weren't you, sir?

20 A Yes, sir.

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

23 (An off-the-record discussion was held at
24 the bench.)

1 THE COURT: Ladies and gentlemen, we will take a short
2 recess at this time. The admonishments that I gave you earlier
3 will apply during this break also. The Court is in recess.

4 (At this time Court was in recess.)

5 MR. CARR: I have no further questions of the
6 witness, your Honor.

7 THE COURT: Okay, Mr. Heineman. Do you have any
8 further questions?

9 MR. HEINEMAN: Yes, sir.

10 FURTHER CLARIFICATION EXAMINATION

11 BY MR. HEINEMAN

12 Q Dr. Paget, Mr. Carr was asking you to compare the
13 dose that someone might receive from a one-shot exposure to
14 five grams, either by eating it or by rubbing it on their skin,
15 with the exposure that one would get or one might have gotten
16 in the pentachlorophenol, Department 236, do you remember that,
17 sir?

18 A Yes, sir.

19 Q Now, of course, in the pentachlorophenol Department,
20 what you had was the continual manufacture of a product, isn't
21 that right, sir?

22 A Yes, sir.

23 Q Is that your understanding?

24 A Yes, sir.

1 Q So what you would have is if there were a contaminant
2 present, you would have a continually regenerated source of that
3 contaminant, wouldn't you, sir?

4 A Yes, sir.

5 Q So that one might be exposed to small amounts in
6 large amounts of material over a very long period of time,
7 might one not?

8 A Yes, sir.

9 Q And if there was some material that went out, then
10 they would manufacture some more?

11 A Yes.

12 Q So a worker in that department would continually be
13 exposed to small amounts of material, is that right?

14 A Yes, sir.

15 Q And there is a big difference, is there not, sir, in
16 dose? As I recall your description of dose, you said that was
17 a measure of the concentration times the area in which---

18 A Times the volume.

19 Q Times the volume, yes. And so that if the concentra-
20 tion is very small---

21 A Yes.

22 Q ---and the volume is very large---

23 A Yes, sir.

24 Q ---there can be a dose---

1 A Yes, sir.

2 Q ---derived from that. And there can be a dose derived
3 from an amount that's very small, and a concentration that's
4 very large?

5 A Yes, sir.

6 Q Right?

7 A Yes, sir.

8 Q (So) you could have a lot of this material in a very
9 small amount, and if somebody took all of that small amount,
10 they would get a large dose, wouldn't they?

11 A Yes, sir.

12 Q And if somebody had a little bit and was exposed to a
13 great deal of material, they would have a large dose?

14 A Yes, sir.

15 Q So you can talk about wallowing around in dust as
16 opposed to taking one five-gram sample and eating it, right?

17 A Yes.

18 Q And wallowing around in dust might very well expose
19 you to a great deal more?

20 A Especially if you did it every day, day-in and day-out.

21 Q And especially apropos to this, to the penta
22 comparison that you had a product that was continually being
23 generated day after day after day, correct, sir?

24 A Yes, sir.

1 Q But I think what Mr. Carr wants to have you forget,
2 sir, that at Sturgeon there was just one amount, right?

3 A Yes, sir.

4 Q And that amount either was carted off by trucks---

5 A Yes, sir.

6 Q Or was blown away in the wind?

7 A Yes, sir.

8 Q Or was washed down the stream?

9 A Yes, sir.

10 Q But whatever was there, there was not more than at
11 the moment about three grams?

12 A At the very most that was the amount there the night
13 of the spill, yes, sir.

14 Q Now, you recall, sir, that the Kligman thing, the
15 Kligman study that you relied on was a skin test, isn't that
16 right?

17 A Yes, sir.

18 Q So the Kligman study wasn't one involving oral
19 ingestion as far as you know?

20 A No, sir.

21 Q You told us that in terms of concentrations claimed
22 to be in Times Beach soil, now those aren't doses, are they,
23 sir?

24 A No, sir.

1 Q They are not doses until somebody takes that soil and
2 actually gets an exposure to it and then actually you measure
3 how much of that contaminant in that soil actually gets into
4 the body, right?

5 A Yes, sir.

6 Q But with respect to the levels in soil at Times
7 Beach, I gather from what you told Mr. Carr that it's your
8 opinion that those levels should not be your concern?

9 A That's exactly what I believe, yes.

10 Q Now, with respect to the Center for Disease Control
11 report which is Exhibit 1255, you have that in front of you,
12 don't you, sir?

13 A No, sir, I don't.

14 Q Plaintiff's Exhibit 1255?

15 A No, sir.

16 MR. CARR: Here it is.

17 Q Let me hand that back to you, sir. Now, as I recall,
18 you said that it was your impression that the Center for
19 Disease Control report said that one part per billion of TCDD
20 in soil or less---

21 A Yes.

22 Q ---would be considered safe or of no concern, is
23 that right?

24 A That was my understanding, yes.

1 Q And Mr. Carr read to you from Page numbered 49?

2 A Yes.

3 Q In that report, didn't he, sir?

4 A Yes, sir.

5 Q And he asked you to read that sentence that said, "In
6 residential areas, levels at or above one part per billion TCDD
7 in soil cannot be considered safe and represent a level of
8 concern."

9 A Yes.

10 Q Now, would you look at Page 48, the page just before
11 that.

12 A Yes, sir.

13 Q It says here, "We have concluded that residential
14 soil levels greater than one part per billion TCDD pose a level
15 of concern."

16 A Yes, sir.

17 Q Correct?

18 A Yes, sir.

19 Q So that that would be consistent with what you
20 originally reported, isn't it?

21 A Yes, sir.

22 Q And it also goes on to say, "The appropriate degree
23 of concern for which management decisions are made should also
24 consider an evaluation of the specific circumstances at each

1 contaminated site," isn't that correct, sir?

2 A Yes, sir.

3 Q Now, as I understand it, sir, you don't agree with
4 CDC that anything above one part per billion concentration of
5 TCDD in soil is necessarily a concern?

6 A No, sir, I don't agree.

7 Q And indeed, what they did here was to set a level,
8 and they attempted to set a level below which there would not
9 be any concern, and above which they said they would not
10 consider it safe and it might represent a level of concern.

11 A They said you would have to make specific decisions
12 in each specific case, yes, sir.

13 Q Now, if I can direct your attention to the page of
14 this report numbered 74.

15 A Yes, sir.

16 Q You see that paragraph right there in the middle of
17 the page, just above the part that's labelled "Risk Assessment" ?

18 A Yes, sir.

19 Q And they say for the sake of brevity extreme total
20 daily dose estimates were compiled for two divergent levels of
21 TCDD soil contamination, one part per billion and 100 parts per
22 billion, based on the assumptions set forth above, at an
23 initial soil contamination of one part per billion in residen-
24 tial areas, the average daily TCDD dose to an individual over

1 a 70-year lifetime would be 44.6 picograms?

2 A Yes, sir.

3 Q Now, sir, they're saying that at the one part per
4 billion level which is the level over which they would develop
5 a degree of concern, that one part per billion in soil would
6 give rise to 44.6 picograms of TCDD dose taken in by an
7 individual every day for 70 years?

8 A Yes, sir.

9 Q Correct?

10 A Yes, sir.

11 Q Didn't you compute what the parts per billion or what
12 the dose would be of 45 parts per billion in 69,000 parts per
13 million of OCP?

14 A Yes, sir.

15 Q The level of that?

16 A That was, I think, 300 and some femtagrams per kilo-
17 gram, yes.

18 Q And you and Mr. Carr agreed on some figure being
19 based upon if you assumed that there was a ten percent contam-
20 ination of the soil with the OCP, if you assumed ten percent
21 and there wasn't a single level found by Western Environmental
22 Services, or OH materials, which was ten percent, they were all
23 below that, right?

24 A Yes, sir.

1 Q So if you assume there was ten percent OCP in the soil,
2 that the dose from that in a 5-gram sample would be 22 pico-
3 grams?

4 A Yes, sir.

5 Q Now, a 5-gram sample of a seven percent OCP solution
6 would, in soil, would burn you, wouldn't it?

7 A Yes, it would indeed, sir, yes.

8 Q So somebody wouldn't eat five grams of OCP with---or
9 soil with OCP in it, would they?

10 A No, sir.

11 Q Because it would burn them?

12 A Yes, absolutely.

13 Q Now, even with seven percent or with ten percent, 22
14 picograms, that is one-half?

15 A Yes.

16 Q Of the level that the CDC says you could eat every day
17 for 70 years?

18 A Yes, sir.

19 Q Is that right?

20 A Yes, sir.

21 Q Now, let me direct your attention to Page 50 of that
22 report, sir. Do you see that?

23 A Yes, sir.

24 Q I'm looking at the first full paragraph at the top of

1 the page starting with the words, "The method".

2 A Yes, sir.

3 Q It says, "The method used for conducting a risk
4 assessment and identifying a level of concern for TCDD in soil
5 is complicated by many uncertainties, namely, insufficient data
6 on the toxicology of TCDD, insufficient information about
7 exposure of people to soil, and insufficient information about
8 intake of TCDD by humans from such soil."

9 A Yes.

10 Q It does say that, sir?

11 A Yes, sir, it does.

12 Q Nevertheless, despite those uncertainties, the Center
13 for Disease Control said that at one part per billion and below,
14 or even if you take that part that Mr. Carr read to you, below
15 one part per billion, there would be no level of concern?

16 A Yes, sir.

17 Q Now, I want to get into, again, if I may, your
18 position paper, which is Plaintiff's Exhibit 1262. Do you have
19 that before you there, sir?

20 A Yes, sir.

21 Q Now, Mr. Carr went over with you again and again and
22 again the last paragraph on that page, did he not, sir?

23 A Yes, sir, he did.

24 Q Now, would you tell the jury what you mean by the

1 term significance and how that relates to the worst case analy-
2 sis that you have told the jury about before?

3 A Yes, sir. Of course, the word significance in this
4 paragraph meant significant to Monsanto, and it could be
5 significant in several respects and an obvious one which Mr.
6 Carr went on about is if that level were of health significance
7 in relation to the people that were exposed to it. But it could
8 also be significant if for example somebody alleged that there
9 was an amount of material in our product that was possibly
10 damaging, that could be significant because we would wish to
11 allay the concern from a basis of certain knowledge about how
12 much was there. It could also be significant if for example
13 we wanted to understand exactly what was happening in a parti-
14 cular process that could be significant. We would also want to
15 know, even although we believed that there was no conceivable
16 hazard to human beings, when we did this analysis which was
17 called the worst case analysis, we would want to know, would
18 that level that we found in an environment or in a product or
19 wherever, would it be something which would be significant if
20 the human being was as sensitive as the most sensitive species
21 which we knew, and since as I said in the beginning of the
22 paragraph, some species are very sensitive, we would have to
23 look at very small amounts. Now, that's not to say that we
24 believed those small amounts would be injurious to human beings,

1 but we needed to know the amounts before we could make a certain
2 judgment. You can only make certain judgments from--certain
3 judgments you can only be certain in your judgment if you can
4 be a little clearer about it. You can only be certain in your
5 judgment if you know the exact facts, and this paper recommended
6 that we put ourselves in a position to know the precise facts
7 about dioxins and products in the environment.

8 Q Now, sir, when you were making your decisions in
9 1979 with respect to what Harry Gilmer had to be told up
10 there, you engaged in a worst case analysis, didn't you, sir?

11 A Yes, we did, sir.

12 Q And you weren't talking about whether or not how
13 much material would be required to cause chloracne as opposed
14 to anything else?

15 A Yes, sir.

16 Q You wanted to be sure that if you assumed any person
17 exposed to that had the sensitivity of the most sensitive
18 species, namely a guinea pig, would the amount of 2,3,7,8
19 present in that product conceivably harm them? Isn't that what
20 you were analyzing?

21 A That's exactly the worst case analysis, yes, sir.
22 And moreover, that if you assume that all the dioxins were
23 2,3,7,8, which was not clear at that time, that those were the
24 worst assumptions we could make, and those were the ones we

1 did make.

2 Q And those assumptions on a 5-gram intake of soil
3 would give rise to femtagrams of dose?

4 A Depends upon the precise concentration in the soil,
5 but certainly in the order of femtagrams or occasionally
6 picograms, yes.

7 MR. HEINEMAN: That's all I have, your Honor.

8 THE COURT: Okay, Mr. Carr?

9 MR. CARR: Nothing, your Honor.

10 THE COURT: Okay, Dr. Paget. You may step down.
11 Thank you, sir.

12 MR. CARR: I'd like to recall Mr. Kaley to the stand,
13 your Honor.

14 THE COURT: Okay, gentlemen, could I see you at the
15 bench?

16 (The following proceedings were held at
17 the bench.)

18 THE COURT: Any offers of proof or anything out-
19 standing with this witness before we let him go?

20 MR. HEINEMAN: Let me check to be sure.

21 THE COURT: Okay. Are there any with you, Mr. Carr?

22 MR. CARR: No.. There's none for them either.

23 MR. HEINEMAN: None, your Honor.

24 THE COURT: Okay, fine. Thank you.

(The following proceedings were held in
open Court.)

ROBERT C. KALEY,

(being recalled as an adverse witness under
Section 2-1102 of the Civil Practice Act, having
previously been duly sworn, on oath testified
as follows:)

CROSS EXAMINATION

BY MR. CARR

Q Dr. Kaley, you understand, of course, that you are
still under oath?

A Yes, I do.

Q And you understand you're being called today because
Dr. Wilson is unavailable and I want to prove some Exhibits by
you that I had in mind to prove by Dr. Wilson, do you under-
stand that as well?

A That is my understanding, yes.

MR. CARR: I'd like to pass 1120 to the jury. It's
already in evidence.

THE COURT: Fine.

Q Dr. Kaley, you recognize 1120 as a report authored
by Dr. Hileman that was---a copy of which was sent to Mr. Ward,
Mr. Wilson, to Mr. Mieure, to yourself, and to Tom Taulli?

A Yes, that's so indicated.

1 Q And appended to 1120 is what is described as 1128.
2 Do you see that, sir? That's the table that's attached to it.

3 A Okay. It's not so marked, but I will take your word
4 for it. I will take your word for it that it is marked that way
5 up there.

6 Q Yes, it is.

7 A May I take a few minutes to read it? I am not
8 familiar with the contents of this.

9 Q Oh, sure. Doctor, I'm not going to ask that many
10 questions about it.

11 A Fine, I just wanted to be familiar with it.

12 Q Do you understand that this is the spill sample
13 number three that was referring to the material that spilled in
14 February of '79 in the Department 237?

15 A Yes, I would have that understanding.

16 Q And at that time in February of 1980, this document
17 identifies the various isomers that was found on January the
18 11th or whenever it was found, it was at least reported by Dr.
19 Hileman on January the 11th, and identifying various isomers,
20 isn't that correct, sir?

21 A Well, I think the memo says materials which coeluted
22 at those retention times, with that proviso.

23 Q Well, at that time you had these standards, the
24 1,3,6,8; 1,2,3,4; 2,3,7,8; and 1,2,7,8?

COLLISION QUESTION

1 A That's correct.

2 MR. HEINEMAN: Your Honor, I object to this. Excuse
3 me, Mr. Carr, I object to this line of questioning. We have
4 been through the same set of questions with about four
5 witnesses on this document. Now, if he intends to prove
6 documents, that's one thing. But this document is in evidence,
7 these are the same questions that's been asked before, I object.
8 It's repetitive and he is intending to unduly prolong the
9 examination of witnesses here.

10 MR. CARR: Your Honor, Dr. Hileman could not identify
11 this as being the material from the spill. He objected to me
12 asking questions of Dr. Hileman about the spill. He knew
13 nothing about any spill, and all I was going to do with this
14 witness was identify that this was from the spill and that
15 these isomers were discovered.

16 THE COURT: Go right ahead, objection overruled.

17 MR. CARR: And if it were not objected to at the
18 time of Dr. Hileman, I would not have had to do this.

19 BY MR. CARR:

20 Q Doctor, now these were identified at that point in
21 time in January 1980 connected with those spill samples, the
22 2,3,7,8 isomer in the level of 120 parts per billion.

23 A Okay, it's a material which coelutes with 2,3,7,8.
24 It is not identified in the body of the memo, it specifically

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1 says that the recovery for 2,3,7,8 was based only on the high
2 level spike, because the low level spike was concealed by TCDD
3 isomer coeluting with 2,3,7,8. So we are back to the same
4 coelution.

5 Q This was not a coelution question. He identifies it
6 in this document as 120 parts per billion.

7 A Material that is coeluted, it is stated in the memo.

8 Q I don't care whether it is coelution, he identifies
9 it here as coelution.

10 A As a material which coelutes with 2,3,7,8, yes.

11 Q And, Doctor, we of course have gone through the
12 University of Nebraska examination, and at the bottom of this
13 page he also talks about the 400 parts per billion of TCDD
14 present, correct, sir?

15 A Yes. He makes a statement it is approximate total
16 of 400.

17 Q Which is in reasonable agreement with spill samples
18 number one and spill samples number two?

19 A That's what the words say, yes.

20 Q Thank you. Doctor, I now hand you Plaintiffs'
21 Exhibit 1256 and ask leave to pass copies of that to the jury,
22 if it please the Court?

23 THE COURT: That's already been admitted, I believe.

24 MR. CARR: Already in evidence.

THE COURT: Fine, you may pass it to the jury.

MR. MUSGRAVE: You don't mean this is in evidence, do you, Mr. Carr?

MR. CARR: I assume it is, is 1256 in, Jerry?

MR. SEIGFREID: Yes.

BY MR. CARR:

Q That is the number on that document, isn't it, Dr. Kaley?

A Yes, that's the way it is marked on this particular document.

Q Is there any question about it? You recognize that as a report sent to Monsanto by the University of Nebraska?

MR. MUSGRAVE: Mr. Carr, I have 1256 as Monsanto Biohazards Committee meeting of February 19, 1979.

(Plaintiffs' Exhibit 1276 was marked for identification.)

Q I hand you now what's been marked Plaintiffs' Exhibit 1276, Dr. Kaley. Do you recognize that as the 2,4 dichlorophenol samples that were sent to the University of Nebraska for analysis and their report on those samples?

A There is no identification of the samples other than by numbers.

Q Well, that may be, but I'm asking you, don't you know, Dr. Kaley, that those were samples sent to University of

1 Nebraska, I think we have some Exhibits in evidence, yes, that
2 were sent to the University of Nebraska for analysis, 2,4
3 dichlorophenol from the spill sample.

4 A I really can't testify to that, that that is what
5 this is.

6 Q Now, Doctor, did you go to the University of Nebraska
7 in August of 1979?

8 A I think it was July, yes, I did go, yes.

9 Q July? And did you not at that time either send or
10 have sent to them or know they were already sent samples from
11 the 2,4 dichlorophenol spill?

12 A Okay, I certainly did not. I think Brian Ward may or
13 may not have, he was there at the same time I was, and I am
14 frankly not totally positive about what samples Brian had.
15 They were independent visits that happened to coincide.

16 Q Now, Doctor, I didn't ask you whether or not you were
17 totally positive. Do you recognize that as a report to the
18 Monsanto Industrial Chemical Department?

19 A Yes.

20 Q And do you recognize that it's dated September 11,
21 1979?

22 A Yes.

23 Q And it is a report, that's reporting on some samples
24 analyzed, is it not, sir?

1 A That's correct.

2 Q And of chlorinated phenols?

3 A It isn't so stated in here, and I'm--that I can find.

4 Q Do you recognize some of the same numbers, Doctor,
5 on Exhibit 1169A under the column of the University of Nebraska
6 column?

7 A Yes, I do.

8 Q And that talks about the DCP reserve sample?

9 A Yes, it does.

10 MR. CARR: I offer 1276 into evidence if it please
11 the Court.

12 (Plaintiff's Exhibit 1276 was offered
13 into evidence.)

14 MR. MUSGRAVE: If the counsel offers this with regard
15 to 2,4 DCP, make the same objection that we have been making
16 previously with regard to that. It's irrelevant and immaterial
17 and has no bearing on the issues in this lawsuit.

18 THE COURT: Okay, fine. It is admitted over objection.
19 Your objection is noted for the record.

20 (Plaintiff's Exhibit 1276 was admitted
21 into evidence.)

22 BY MR. CARR:

23 Q And, Doctor, the Exhibit, this report has in written,
24 typed form the same information that appears or some of the

1 same information at least that appears in 1169A, does it not,
2 sir, with regard to the University of Nebraska?

3 A Yeah, the numbers---some of the numbers are the same,
4 the sample designations are different and some of the numbers
5 aren't the same.

6 Q Well, the sample designations are the same, it has
7 2,4 D too here, does it not? And the sample over here has
8 2,600 parts per million?

9 A This one doesn't say 2,4 D, but, yes, that's correct.

10 Q And then the next column is the third sample. It has
11 27 under the University of Nebraska, it has got 2700 parts per
12 million. And over here, I'm sorry, per billion. And over here
13 it is described as 2,700 parts.

14 A Yeah, but on that document it's got additional
15 information.

16 Q Dr. Kaley, I am perfectly aware of that. All I'm
17 attempting to do is to get you to agree that these figures
18 that are entered into this Exhibit 1169A also appear on 1276.

19 A Okay. Those three specific numbers do appear on
20 this 1276 that I am looking at, yes.

21 Q Now, Dr. Kaley, I hand you now what's marked---not
22 been marked anything yet, but would you mark it please?

23 (Plaintiffs' Exhibit 1277 was marked
24 for identification.)

1 Q 1227, do you recognize that, Dr. Kaley---oh, I'm
2 sorry, 1277.

3 A I don't have a specific recollection of this document,
4 no.

5 Q Well, do you recognize what it's discussing?

6 A I do recognize the sample numbers. I think it had
7 come up in my previous testimony, yes.

8 (Plaintiffs' Exhibit 1278 was marked for
9 identification.)

10 Q Doctor, handing you now Exhibit 1278, it can help
11 you identify that particular Exhibit. Dr. Kaley you recognize
12 your handwriting on the table in that Exhibit, the table
13 attached?

14 A I'm sorry, there is no handwriting on the table I
15 have.

16 Q Oh, you didn't get one with handwriting on it. I
17 thought I handed you another one. The number of this should
18 be---we will have to renumber this 1278. Handing you now a
19 new Exhibit 1278 and ask you if you recognize your handwriting
20 on that Exhibit. Do you recognize that, Dr. Kaley?

21 A Yes, I recognize that as my handwriting.

22 (Plaintiffs' Exhibit 1278A was marked
23 for identification.)

24 Q Do you recognize that Exhibit 1278A as being that

1 table but without handwriting?

2 A Yes, that's correct.

3 MR. CARR: I offer 1278 and 1278A, if it please the
4 Court.

5 (Plaintiffs' Exhibits 1278 and 1278A were
6 offered into evidence.)

7 THE COURT: Any objections?

8 MR. MUSGRAVE: You say you offer?

9 MR. CARR: Yes.

10 MR. MUSGRAVE: Is that the handwriting?

11 MR. CARR: Yes.

12 MR. MUSGRAVE: So you are going to have one with
13 and one without the handwriting?

14 MR. CARR: You have one with the handwriting.

15 MR. MUSGRAVE: I wanted to see if he has the same
16 one you gave me, Mr. Carr. Your Honor, I would object to 1278
17 and 1278A in that it would appear from what Mr. Carr has shown
18 us here that this deals with at least the one sample, a
19 santophen residue, which has nothing to do with this lawsuit.
20 It is irrelevant and immaterial. The other samples are not
21 identified in this document, 1278, and for that reason, there
22 has been no showing that it would have any relevancy or
23 materiality, and we would object on that basis.

24 THE COURT: Objection is overruled. Both of them

1 are admitted over objection.

2 (Plaintiffs' Exhibits 1278 and 1278A were
3 admitted into evidence.)

4 BY MR. CARR:

5 Q Now, Doctor, the Exhibit that's on the board that has
6 the concentration that has the same retention time as 2,3,7,8
7 has 56---I'm sorry, 560,000 parts per billion, does it not?

8 A No, that's parts per trillion.

9 Q Per trillion, does it not, sir?

10 A Yes, 560,000 parts per trillion, yes.

11 Q And that is the santophen residue that's described
12 in the other Exhibit that I gave you a moment earlier?

13 A Yes, that is the same sample designation number
14 according to my handwriting on this sheet.

15 Q And the next line, that has got the 380 parts per
16 trillion is MB 758, that is santophen, is it not, sir?

17 A I have no way of knowing that.

18 Q You have no way of knowing that?

19 A Not without some documentation.

20 Q Well, let me show you Plaintiffs' Exhibit 1131 which
21 is already in evidence and ask you to look at that and see if
22 that doesn't help you identify that sample.

23 A According to this document, 758 is described as
24 santophen 1, that's correct.

1 MR. CARR: Your Honor, I'd like leave to pass that
2 Exhibit to the jury. It will be the one that has the hand-
3 writing on it, I forgot to do that.

4 THE COURT: 1278?

5 MR. CARR: Yes.

6 THE COURT: Okay.

7 MR. CARR: Your Honor, I note I haven't offered 1277
8 into evidence. I'd like to offer that. I don't know, did I
9 pass one to the Court? It looks like that, your Honor.

10 (Plaintiffs' Exhibit 1277 was offered
11 into evidence.).

12 THE COURT: Yes, I've got mine. Any objections to
13 1277?

14 MR. MUSGRAVE: Same objection. Again, relevancy and
15 materiality dealing with santophen.

16 THE COURT: Okay. It is admitted over objection.

17 (Plaintiffs' Exhibit 1277 was admitted
18 into evidence.).

19 MR. CARR: And ask leave to pass it to the jury,
20 your Honor.

21 THE COURT: Fine.

22 (Plaintiffs' Exhibit 1277A was marked for
23 identification.)

24 BY MR. CARR:

1 Q Doctor, 1277A is a blowup of 1277, is it not?

2 A Yes.

3 MR. CARR: I offer 1277A into evidence as well, your
4 Honor.

5 (Plaintiffs' Exhibit 1277A was offered
6 into evidence.).

7 MR. MUSGRAVE: Same objection as to 1277, your Honor.

8 THE COURT: Fine. Same ruling.

9 (Plaintiffs' Exhibit 1277A was admitted
10 into evidence.).

11 BY MR. CARR:

12 Q Doctor, this report, have you read enough of that
13 memo to identify that the 759A is santophen residue that they
14 tested and that 758 is santophen?

15 A Yes, santophen flakes, yes.

16 Q And they tested the 758 on two times and found that
17 which coelutes with 2,3,7,8 at 380 parts per trillion and 440
18 parts per trillion, did they not, sir?

19 A Yes, that's correct.

20 MR. CARR: Your Honor, that's all the questions that
21 I have of Dr. Kaley.

22 THE COURT: Do you have any questions?

23 MR. MUSGRAVE: Just a couple.

24 CLARIFICATION EXAMINATION

1 BY MR. MUSGRAVE

2 Q Dr. Kaley, referring you back---well, while we're
3 on it, let's just take a look at Plaintiffs' 1278. This is
4 this University of Nebraska report. As you indicate, that is
5 in parts per trillion, isn't it?

6 A Yes, it is, that's correct, parts per trillion.

7 Q And the blowup that Mr. Carr here has, 1278A, doesn't
8 have parts pertrillion indicated on it any place, but the
9 handwritten notes that you identified as your handwriting on
10 the original document do have it?

11 A That is correct.

12 Q Did you get that information from the body of the
13 report, Plaintiffs' Exhibit 1278?

14 A I really don't remember where I got it to make that
15 original---

16 MR. CARR: It describes it in the Exhibit that I
17 gave him earlier.

18 A Yeah, parts per trillion.

19 Q All right. Now, again, on the blowup, Mr. Carr
20 doesn't show your handwritten notes to be samples five and six
21 that would be the MB 758, is that correct?

22 A That is correct.

23 Q And was there a blowup of the other table that he
24 just looked at from Plaintiffs' Exhibit 1131, is there a

1 blowup of that, Mr. Carr?

2 MR. CARR: I'm sorry, what, counsel?

3 MR. MUSGRAVE: Is there a blowup of Plaintiffs'
4 Exhibit 1131 of the last table, Table 2? Did you ever blow
5 that up?

6 MR. SEIGFREID: Yes.

7 MR. CARR: It should be somewhere, 1131A if you
8 find it.

9 MR. MUSGRAVE: I would like to have it.

10 THE COURT: Why don't we just take a 10-minute break
11 and you can find it and set it up?

12 MR. MUSGRAVE: Fine, your Honor.

13 THE COURT: We will take a short break at this time,
14 ladies and gentlemen, The admonishments I have given you
15 earlier will apply during this break also. The Court is in
16 recess.

17 (At this time Court was in recess.)

18 MR. MUSGRAVE: Your Honor, we determined 1131A was
19 in fact not a blowup but a xerox copy of the same table and it
20 had been previously passed to the jury, and I took the liberty
21 to repass it to the jury so we could move on.

22 THE COURT: Fine, thank you.

23 BY MR. MUSGRAVE:

24 Q So the jury does have in front of them Table 2 from

1 Plaintiffs' Exhibit 1131A, which is what, Dr. Kaley, I think you
2 had previously referred to as being, that is Plaintiff's 1131A,
3 being the analysis that Orville Hicks did of this sample in his
4 report dated July of 1979, is that correct, sir?

5 A Yes.

6 Q And this Table 2 for MB 758 he reports total tetras,
7 does he not?

8 A Yes.

9 Q That's what's reported under the Cl 4 column?

10 A That's correct.

11 Q And he reports a less than 20, and is that parts per
12 billion that he is reporting?

13 A Yes, that is correct.

14 Q Now, in this instance, this is once of those instances
15 where the ND does not appear before the less than 20?

16 A That's correct.

17 Q And that again indicates that there was an interfer-
18 ence there and he could not reach the level of detection that
19 he could not identify what he was seeing because of the
20 interference?

21 A That is correct.

22 Q So if anything was there, he was saying here it was
23 less than 20 parts per billion?

24 A Yes, that's correct.

1 Q Now, with regard to that same sample that was analyzed
2 by the University of Nebraska in Plaintiffs' 1278 which is up
3 here on the chart, shown up here on the chart as Plaintiffs'
4 1278A, again that would be sample five and six, I assume they
5 ran a replicate, ran it once and then ran a replicate as six.

6 A We actually submitted two samples as replicates.

7 Q Incidentally, you indicated you had been in Nebraska
8 coincidental to Brian Ward going and took some separate samples?

9 A That is correct.

10 Q So you do know about those samples?

11 A That is correct.

12 Q Now, these two samples then are shown, or the reports
13 are in parts per trillion.

14 A That's correct.

15 Q Now, the column here, 2,3,7,8 TCDD column, they are
16 reporting isomers that coelute with 2,3,7,8, is that correct?

17 A Yes, that's what the footnote 1 says.

18 Q So in September of 1980---well let me---strike that.

19 MR. CARR: '79, counsel.

20 Q Yes, strike that. University of Nebraska appears to
21 have a lower level of detection than Monsanto?

22 A That's correct.

23 Q All right. But nonetheless, in September of 1979
24 they were not isomer specific, were they?

1 A No, they were not.

2 Q Now, who prepared these samples? Do you recall who
3 prepared these samples?

4 A They would have been prepared by Orvill Hicks in our
5 laboratory.

6 Q Do you know why Monsanto prepared them as opposed to
7 Nebraska?

8 A At the time it was my understanding Nebraska didn't
9 have any experience with separating the dioxins from phenolic
10 type materials, so we used our own extracts.

11 Q Now, going back though to their report. What they
12 report here, for instance, sample five as 380 parts per
13 trillion, what does that translate to in parts per billion?

14 A Well, .38 or approximately .4, almost half a part
15 per billion.

16 Q A half a part per billion?

17 A Yes.

18 Q So that was below our levels of detection in July of
19 1979, Monsanto's?

20 A That's correct.

21 Q And the sample six which is the replicate sample, it
22 reported 440 parts per trillion of isomers coeluting with the
23 2,3,7,8 standard, is that correct?

24 A That's right.

1 Q And that would be in parts per billion how much?

2 A .44.

3 Q .44 parts per billion?

4 A Yes.

5 Q All right. So less than one part per billion?

6 A Yes.

7 Q And again that would be below the detection limits
8 of Monsanto in July of 1979?

9 A That's correct.

10 Q Now, with regard to the other September, 1979
11 Nebraska report, I believe that's Plaintiffs' 1277 or---let me
12 be sure.

13 A 76.

14 Q 1276. Now, Mr. Carr referenced you to a number on
15 that Nebraska report which he then, this number right here of
16 2,700, the one of 2,700.

17 A Yes, that's correct.

18 Q Now, do you know if this University of Nebraska report,
19 September 11, 1979, that was done, or at least was reported, at
20 the same time as the samples you took up there? Do you know
21 if that's in parts per trillion, sir?

22 A Okay, on their data table they give their detection
23 limits or their concentrations in nanograms per milliliter,
24 which is parts per billion.

1 Q Uh-huh. Well, do you know why they would have
2 reported parts per trillion in one and parts per billion on
3 another?

4 A I assume it would have had something to do with the
5 experts at detection limits that were experienced on the
6 particular samples.

7 Q So they may have been on one particular sample if
8 they get down to parts per trillion, on another particular
9 sample they were reporting parts per billion?

10 A As detection limits.

11 Q As detection limits. And is this something that is,
12 should I say, not unusual when you are talking about analytical
13 chemistry and the ability to achieve detection limits in
14 different matrixes, different mixtures of those chemicals?

15 A That's absolutely correct, detection limit is an
16 experimentally termed performance characteristic. It is very
17 highly matrix dependent.

18 Q In any event, we have just established that
19 September of 1979 by their own report they were not isomer
20 specific for 2,3,7,8, isn't that correct?

21 A That's correct.

22 Q So obviously this report that was issued at the
23 same time when those same---different samples were taken up
24 there by Dr. Ward does not reflect 2,600 parts per billion of

1 2,3,7,8, isn't that correct?

2 A Yes, that's correct.

3 Q As a matter of fact, the table itself states that,
4 does it not, in Plaintiffs' Exhibit 1276?

5 A Okay, there is a statement that samples showed
6 previously peaks with isomers other than 2,3,7,8, that's
7 correct.

8 Q So there is a statement on the table from the
9 Nebraska report that reported this 2,600 that says, "Many
10 samples showed previously allowing peaks which may be isomers
11 other than 2,3,7,8 TCDD".

12 A Right.

13 Q So there is no way of knowing whether---how much of
14 that 2,600 for instance---is 2,3,7,8, if any of it is?

15 A That's correct.

16 Q And, Dr. Kaley, any representation that may have
17 been made in this Courtroom or other places that the Nebraska
18 report showed 2,600 parts per billion of 2,3,7,8 would be
19 incorrect, wouldn't it?

20 A Based on the evidence that I have, yes, that's
21 incorrect.

22 Q And that's the evidence that Mr. Carr just put into
23 evidence, isn't it? You were here when he put it into
24 evidence, isn't that correct?

1 A I don't recall him telling me whether it was 2,3,7,8,
2 but yes, the evidence that he has shown me says that there is
3 tetrachlorodibenzo, but not 2,3,7,8 necessarily.

4 Q The evidence upon which you rely in answer to my
5 question that a representation that there was a Nebraska report
6 saying there were 2,600 parts per billion of 2,3,7,8 in the
7 sample given us upon what you relied, saying that that's not
8 so because Nebraska was not isomer specific is the very
9 document that you saw here today?

10 A Those documents and the fact that I had visited
11 Nebraska.

12 Q Of course those are documents that Mr. Carr showed
13 you and put into evidence in this case?

14 A That's correct.

15 Q Now, Plaintiffs' 1120, sir, the January 11, 1981
16 memo of Dr. Hileman.

17 A Okay, I don't have that in front of me anymore.

18 MR. MUSGRAVE: Did you take that back, Mr. Carr?

19 MR. CARR: Not to my knowledge. It's here, though.

20 Q Now, Mr. Carr kept asking you if this table attached
21 to Plaintiffs' Exhibit 1120 didn't say that there was a finding
22 in spill sample number three of 120 parts per billion of
23 2,3,7,8. Do you remember those questions?

24 A Yes.

1 Q And you kept saying, that's not what it says, it says
2 it coelutes, isn't that correct?

3 A That's correct.

4 Q Well, now, and you referred to the first page of the
5 Exhibit, Dr. Kaley, does it expressly state on the first page
6 of this Exhibit exactly what you kept telling Mr. Carr?

7 A Yes, it does.

8 Q And would you read that to the jury?

9 A Okay. It says in this memo, "The isomeric configura-
10 tion associated with that peak indicates the particular TCDD
11 isomer which coeluted with the peak in question. It does not
12 serve as a positive identification of that particular peak."

13 Q And that information on the table is footnoted and
14 referred to right here and says the same thing, doesn't it?

15 A That's correct.

16 Q And is it plain English? Can you understand it very
17 clearly, Dr. Kaley, when you read the body of the report that
18 is clearly saying that this is not isomer specificity, but
19 simply coelution?

20 A Yes.

21 Q It's fairly easy to understand, isn't it?

22 A Yes.

23 MR. MUSGRAVE: That's all I have, your Honor.

24 Doctor, thank you.

1 MR. CARR: Nothing, your Honor. I'd like to call
2 Dr. Mieure back to the stand again.

3 THE COURT: Okay.

4 DR. JAMES MIEURE,

5 (being recalled as an adverse witness under
6 Section 2-1102 of the Civil Practice Act,
7 having previously been duly sworn, on oath
8 testified as follows:)

9 CROSS EXAMINATION

10 BY MR. CARR

11 Q Doctor, you understand that your oath taken
12 previously still binds you at this time?

13 A Yes, I do.

14 (Plaintiffs' Exhibit 1279 was marked for
15 identification.)

16 Q Handing you now what's been marked Plaintiffs'
17 Exhibit 1279.

18 MR. CARR: And that is the Exhibit which has been
19 previously identified as Monsanto Exhibit 839, your Honor.
20 No, I'm sorry, that's not correct, referred at that time but
21 I don't believe that's been marked before.

22 Q Dr. Mieure, you recognize that---

23 MR. MUSGRAVE: What's the number on this?

24 MR. CARR: You've forgotten already?

1 THE COURT: Plaintiffs' 1279.

2 Q You recognize that as a memo created by Mr. Ivory of
3 the Dayton Laboratory referring to some testing that took place
4 for various products including orthochlorophenol and dichloro-
5 phenol?

6 A The subject says analysis of chlorophenols, yes, sir.

7 Q And parachlorophenols as well. You recognize that,
8 don't you, Dr. Mieure?

9 A Yes, I do.

10 MR. CARR: I offer that Exhibit into evidence and
11 ask leave to pass copies to the jury.

12 (Plaintiffs' Exhibit 1279 was offered into
13 evidence.)

14 MR. MUSGRAVE: Let me just have a moment, your
15 Honor.

16 THE COURT: Sure, go ahead.

17 (Plaintiffs' Exhibit 1279A was marked for
18 identification.)

19 Q You recognize 1279A as one of the tables, Table 2
20 that's in that Exhibit, Dr. Mieure?

21 A Yes, sir.

22 MR. CARR: I offer 1279 and 1279A.

23 (Plaintiffs' Exhibit 1279A was offered
24 into evidence.)

1 MR. MUSGRAVE: Have you not previously marked the
2 September 15, 1981 document?

3 MR. CARR: Yes, it is previously marked, but this is
4 not that document.

5 MR. MUSGRAVE: But it embodies the same data, and we
6 need to get that to make sure of the references, your Honor,
7 with regard to Plaintiffs' 1279. It refers to analysis of
8 products other than orthchlorophenol or orthchlorophenol crude
9 and for the same reason we have previously objected, we continue
10 to object to it being irrelevant and immaterial.

11 THE COURT: Same argument for 1279A?

12 MR. MUSGRAVE: Yes, in that it does refer to OCP and
13 OCP crude, we do not object.

14 THE COURT: They are both admitted over objection.

15 (Plaintiffs' Exhibits 1279 and 1279A were
16 admitted into evidence.)

17 MR. CARR: And ask leave to pass copies to the jury?

18 THE COURT: Leave is granted.

19 BY MR. CARR:

20 Q Doctor, direct your attention to Table 2 of that
21 Exhibit, if I might. Table 2 refers to the dichlorophenols.

22 A Yes, sir, that's the heading.

23 Q Yes. And sample 7003 has dichlorophenol in that
24 sample, reports to have two particular quantities of tetras,

1 does it not, sir?

2 A There are two figures given there in the footnote.
3 It is not clear to me why there are two figures there.

4 Q Well, the footnote tells you, Footnote A tells you
5 that the 4.5 is quantitation that was carried out on an isomer
6 other than that in question, does it not, sir?

7 A That's what the footnote says.

8 Q Yes. And the body of the report then tells you the
9 standard that was being used, doesn't it, sir?

10 A I will have to read it to see. I don't see where it
11 does say what standard was being used.

12 Q I think you're right. A later report will refer to
13 the standard when we get to the September '81 report which is
14 a repeat of this report, we will identify it. But in any
15 event, this Exhibit does show that there were 9.5 parts per
16 billion of a tetra, one or more tetra isomers detected in
17 sample 7003, isn't that correct, sir?

18 A Apparently so. Again, I am not sure why there are
19 two notations there.

20 Q Dr. Nieuwe, you wrote a memo on it. We will get to
21 it very shortly. You actually wrote a memo, and I think it is
22 the---yes, it is the next Exhibit as a matter of fact in which
23 you discuss the shortcomings of this particular report. And
24 all I ask you really right now is that it is identified here

1 as 9.5 parts per billion of tetra isomers in the 2,4 dichloro-
2 phenol that's been analyzed, and I will now hand you---

3 (Plaintiffs' Exhibit 1280 was marked for
4 identification.)

5 Q ---handing you what's been marked Plaintiffs'
6 Exhibit 1280, and see if you can recognize that as a memo that
7 you wrote on December the 30th, 1980?

8 A Yes, sir, it is.

9 Q And it relates to this Exhibit that we were just
10 referring to, does it not, sir?

11 A Yes, it does.

12 Q And you make a number of constructive, critical
13 comments regarding that Exhibit, that report, don't you, sir?

14 A Yes, sir.

15 Q And you sent that memo dated---

16 MR. CARR: Did I offer that into evidence?

17 THE COURT: Not yet.

18 MR. CARR: I offer that Exhibit into evidence.

19 (Plaintiffs' Exhibit 1280 was offered into
20 evidence.)

21 MR. MUSGRAVE: This is the December 30 memo?

22 MR. CARR: That's correct.

23 MR. MUSGRAVE: To the extent it refers to orthchloro-
24 phenol and orthochlorophenol crude, we have no objection. To

1 the extent that it refers to other products, we object on the
2 basis of relevance and materiality and no probative value of
3 the issues.

4 THE COURT: It is admitted over objection to the
5 extent that objection has been raised.

6 (Plaintiffs' Exhibit 1280 was admitted into
7 evidence.)

8 BY MR. CARR:

9 Q Dr. Mieure, let me hand you another Exhibit.

10 (Plaintiffs' Exhibit 1281 was marked for
11 identification.)

12 Q Handing you now what's been marked Plaintiffs'
13 Exhibit 1281, do you recognize that as the same Exhibit but
14 this time with handwriting on it, do you not, sir?

15 A Yes, sir, that is correct.

16 MR. CARR: I offer that Exhibit into evidence, if it
17 please the Court.

18 (Plaintiffs' Exhibit 1281 was offered into
19 evidence.)

20 MR. MUSGRAVE: Same objection, and also object with
21 regard to the handwritten portions unless they are identified,
22 your Honor.

23 MR. CARR: I'll stand by it as given to me, your
24 Honor. This is the way it was given to me.

1 THE COURT: I will admit it over objection.

2 (Plaintiffs' Exhibit 1281 was admitted into
3 evidence.)

4 MR. CARR: Let me see if the witness can identify the
5 handwriting.

6 Q Do you know whose handwriting that is?

7 A No, sir, I am not sure whose that is.

8 Q It's somebody that commented on the---or was replying
9 to your various critiques, isn't that correct, sir?

10 A Apparently so, yes.

11 Q And in some places discusses and states in effect
12 that some of the things that you were criticizing have already
13 been done and the retesting has been done and reported to you.

14 MR. MUSGRAVE: Just a moment, Mr. Carr. Your Honor,
15 I don't know whether the Court has ruled on that.

16 THE COURT: I did. I may have not said it loud
17 enough.

18 MR. MUSGRAVE: Fine, you overruled my objection?

19 THE COURT: I'm sorry if I didn't say it loud enough.

20 MR. CARR: And can we pass this Exhibit?

21 THE COURT: Yes, you may.

22 BY MR. CARR:

23 Q Dr. Mieure, the first paragraph of this report you
24 state that the methodology appears to be flawed and the report-

1 ing format is so ambiguous that you can't understand or use the
2 data, is that correct, sir?

3 A That's what it says, yes.

4 Q And in point of fact, you caused that to be reanalyzed,
5 didn't you, sir?

6 A I don't know, sir.

7 Q You don't know?

8 A Uh-huh.

9 Q Well, I will give you another Exhibit then.

10 (Plaintiffs' Exhibit 1282 was marked for
11 identification.)

12 Q Handing you now what's been marked Plaintiffs'
13 Exhibit 1282 and ask you if you can recognize that as a memo
14 dated September the 5th, 1981, and this is, counsel, also
15 Monsanto Exhibit 839. Do you recognize that, sir, as involving
16 the same samples?

17 MR. MUSGRAVE: Also marked as what?

18 MR. CARR: 839, September the 15th, 1981.

19 MR. MUSGRAVE: September 15th?

20 MR. CARR: That's what I said.

21 MR. MUSGRAVE: You said 5th.

22 MR. CARR: And offer whatever the number of this one
23 is, 1282, into evidence as well, your Honor, along with the
24 Exhibit that I just handed the witness.

1 (Plaintiffs' Exhibit 1282 was offered into
2 evidence.)

3 THE COURT: Any objection?

4 MR. MUSGRAVE: I would only object to it, your Honor,
5 again on the same grounds to the extent that it involves
6 references to items other than orthchlorophenol and orthchloro-
7 phenol crude.

8 THE COURT: Fine. It is admitted over the objection
9 to the extent that it's objected to.

10 (Plaintiffs' Exhibit 1282 was admitted into
11 evidence.)

12 MR. CARR: And leave to pass---

13 THE COURT: Yes.

14 MR. CARR: ---1282 to the jury also.

15 THE COURT: Okay. Leave is granted.

16 Q Dr. Mieure, I want to direct your attention back to
17 the memo written by you dated December 30, 1980, that is
18 Plaintiffs' Exhibit 1281.

19 A Okay.

20 Q All right. Now you by now have had the opportunity
21 to compare Exhibit 1282 with Exhibit 1280, have you not---
22 1279 it would be.

23 A I'm sorry, sir. What was the question?

24 Q You have had an opportunity to compare 1279 and 1282,

1 that is the memo dated October the 10th, 1980 and the memo
2 dated September 15th, 1981, directing your attention to Table 2
3 on both Exhibits.

4 A Please, sir, I believe you said a chance to compare
5 Table 2 out of the two documents?

6 Q Table 3 out of the September 15th, '81 Exhibit, it
7 would be Table 3.

8 MR. MUSGRAVE: What are you asking him to compare,
9 Mr. Carr?

10 MR. CARR: Table 2 in the October 10, 1980 to
11 Table 3 in the September 15, 1981 Exhibit.

12 (Plaintiffs' Exhibit 1282A was marked for
13 identification.)

14 BY MR. CARR:

15 Q And Dr. Mieure, Plaintiffs' Exhibit 1282 is an
16 accurate blowup of Table 3 in Exhibit 1282, is it not, sir?

17 A Yes, sir.

18 MR. CARR: I offer 1282A into evidence if it please
19 the Court.

20 (Plaintiffs' Exhibit 1282A was offered into
21 evidence.)

22 MR. MUSGRAVE: Same objection.

23 THE COURT: Same ruling.

24 (Plaintiffs' Exhibit 1282A was admitted into

evidence.)

BY MR. CARR:

Q Now, Doctor, once again this Exhibit 1282A, Table 3 refers to 9.5 parts per billion of a tetra, doesn't it, sir?

A In one sample, apparently, yes, uh-huh.

Q Apparently, yes, it does, does it not?

A In one sample.

Q And in this report, that is the September 15th, 1981 report, the standards used are identified, aren't they, sir?

A I don't know.

Q Well, would you look at the report on the second page, Page No. 2, and see if they do not identify the standard used in identification process, the tetra standard being the 2,3,7,8 tetrachlorodibenzo-p-dioxin.

A Yes, sir. That's what Table 1 says.

Q So that deficiency that you pointed out existed in the October 10th, 1980 memo has been satisfied and he is now identifying the standard used, is he not, sir?

A Apparently the standard, I haven't read this in detail, sir, but according to what you asked me to read it would appear that a standard has been identified.

Q Well, read it and make sure that I am not misleading you, Dr. Mieure, that the standard table one describes the standards used to identify the various isomers in this Exhibit---

1 MR. MUSGRAVE: He answered that, Mr. Carr.

2 MR. CARR: He said apparently. I don't want any
3 apparently. I want him to say yes or no. I want him to be
4 firm on it. I don't want any apparently business.

5 A It says that these are the standards used in the
6 spiking solution and you are using the terms to identify, and
7 I testified previously that we weren't able to identify the
8 2,3,7,8 isomer.

9 Q I didn't ask you that question. What you said was
10 these were the standards used in the identification process or
11 in identifying the tetras that had existed. You had the
12 standard, the 2,3,7,8 standard, and that's what you used to
13 identify.

14 A No, sir. That's what was used to quantitate.

15 Q And what standard did you use to identify?

16 A The mass spectral pattern was used.

17 Q You didn't use any standard to identify. You compared
18 the peaks that you got on this standard, the 2,3,7,8 peak on
19 this standard when you put in your spiking solution in the
20 chromatogram with the peak that you got in the sample tested,
21 did you not, sir?

22 A You compare the mass spectral characteristics, sir.

23 Q And isn't that what you did, sir?

24 A That's not what I did, no. This was work done in

1 Dayton.

2 Q Dr. Mieure, when I say you, when you know that you
3 were not personally involved, you understand that I was talking
4 about Monsanto and its personnel?

5 MR. MUSGRAVE: Mr. Carr, that's not always true, sir,
6 and I think the witness is entitled to have you specify when
7 you are talking about him or Monsanto. You flip-flop back and
8 forth like night and day.

9 Q Dr. Mieure, is the tetra standard that was used in
10 this report the 2,3,7,8 TCDD standard?

11 A Yes, sir.

12 Q And does he so identify it as that standard?

13 A Yes, sir.

14 Q And the 9.5 per billion quantities in the tetra
15 column, he used the 2,3,7,8 standard to quantify that amount of
16 tetra, did he not, sir?

17 A He used the tetra standard to quantitate the tetra.

18 Q He used the 2,3,7,8 standard to quantify the amount
19 of tetra that was in that material, that is 9.5, he quantified
20 that using the 2,3,7,8 standard, did he not, sir?

21 A Apparently so, yes.

22 Q And so he said there are 9.5 parts per billion of
23 something in this material that coelutes with the standard that
24 we have, the 2,3,7,8, isn't that correct, sir?

1 A I don't see where it says that something coeluted
2 here, sir.

3 Q Well then, don't use the word coeluted. That it was
4 2,3,7,8 then?

5 A No, sir, I don't see where he says that either.

6 Q Now, Dr. Mieure, what does he say with regard to the
7 identification?

8 A He is reporting 9.5 parts per billion of tetra.

9 Q And the only standard he used to quantify that was
10 what standard?

11 A It was 2,3,7,8.

12 Q All right. And in using the 2,3,7,8 standard, he
13 quantified that sample as having 9.5 of the tetra isomer,
14 did he not?

15 A Of the tetra isomer, yes.

16 Q Now, Doctor, that is exactly what he reported but
17 without identifying the standard that he used to quantify it
18 in the October 10th, 1981 report, isn't it, sir? 9.5 parts per
19 billion tetras?

20 A Yes, sir.

21 Q Now, Doctor, referring if you will to your memo
22 dated December 30th, 1980.

23 A Yes, sir.

24 Q The second paragraph of that, that is an Exhibit

1 1281. You say, do you not, "possible presence of chloro-
2 dibenzo-p-dioxin or chlorodibenzofuran impurities products and
3 processes of critical concern to MIC, that's Monsanto, a
4 subsidiary of Monsanto?

5 A Monsanto Industrial Chemicals.

6 Q And to all Monsanto. "Because of their concern, we
7 considered reporting your data to EPA as a potential substantial
8 risk, TSCA Section 8(e) until we recognize the uncertainties
9 in your report," do you say that, sir?

10 A That's what the words say, yes.

11 Q Now, the level of tetra that was found in 2,4 di-
12 chlorophenol in the October 10, 1980 report was 9.5, was it
13 not, sir?

14 A One sample, yes.

15 Q And it was because of that finding, that report that
16 you considered reporting the data to the EPA as a potential
17 substantial risk, isn't that correct, sir?

18 A I will have to look at the other data tables, sir.

19 Q Look at them, please, sir.

20 A Well, I don't recall exactly what prompted us to,
21 but that appears to be the highest value of a tetra reported
22 in this report.

23 Q And it is the highest value of the most toxic sub-
24 stance that could be in this material, isn't it, sir?

1 A Well, the 2,3,7,8 would be the most toxic material.

2 Q And that's in the tetra column, is it not, sir?

3 A No, sir, all that's in the tetra column are tetras.

4 Q Doctor, what was reported to you in October of 1980
5 was there was 9.5 of something in the tetra column, parts per
6 billion, is that correct, sir?

7 A In what time period, sir?

8 Q On October the 10th, 1980.

9 A Yes, sir. Except it wasn't reported to me but it
10 was reported---

11 Q It was reported to Monsanto and you pointed it out
12 in your memo of December 30th that you at Monsanto considered
13 reporting that data to the EPA as a potential substantial risk,
14 didn't you, sir?

15 A Yes, sir.

16 Q And that was until you recognized the uncertainties
17 in the report, correct, sir?

18 A That's what it says..

19 Q Sir?

20 A That's what it says, yes.

21 Q Now, the September 15th, 1981 report eliminated those
22 uncertainties, didn't it, sir?

23 A I really don't know, sir..

24 Q Look at it and see. Did you write another memo

1 criticizing it?

2 A I was not in this area doing this sort of work.

3 Q Look at the September 15th memo and see if you
4 recognize it and see if there were any uncertainties in there.

5 A Sir, it was not my job responsibility to be reviewing
6 this information.

7 Q I am not saying it was.

8 A You're asking me what I did at this time and my job.

9 Q I'm asking you now, Dr. Misure, to look at the
10 September 15th, 1981 report and tell me whether or not the
11 uncertainties, the questionable methodology, the ambiguous
12 reports, the equivocal data was eliminated. Now, Dr. Hileman
13 testified that he worked on this one.

14 A Uh-huh.

15 MR. MUSGRAVE: Well, your Honor, I would object to
16 the question. It now calls for this witness to take one
17 document and to critique it as though he were doing it back at
18 the time he would have received it in '81 based upon a prior
19 critique. If the Court is going to permit the witness or
20 require the witness to answer that question, then I would
21 request that the Court give the witness ample time to fully
22 review those documents if Mr. Carr is going to ask him that he
23 critique these things after some four or five years since they
24 have been generated, and he authored them having in mind what

1 his criticisms were at the time.

2 THE COURT: Objection is overruled. The witness is
3 being given time right now to review them.

4 A Okay, sir, and what was your question again, please?

5 Q Did the report of September 15th, 1981 meet and
6 correct the flaws you found in the report on the same samples
7 on October 10th, 1980?

8 A It appears to, yes.

9 Q Now, Doctor, did you or did anyone else know that the
10 uncertainties were resolved now that the data is no longer
11 equivocal, now that the methodology is not questionable, now
12 that the ambiguous report was eliminated, did you report it to
13 the EPA that you got 2,4 dichlorophenol that has 9.5 parts per
14 billion of something in it that coelutes with 2,3,7,8 TCDD?

15 A Sir, as I've explained previously, I was not in any
16 job capacity with Monsanto where this would be my function to
17 make such a report. Furthermore, I was working under such a
18 different area that I wouldn't know what Monsanto personnel
19 would have done at that time.

20 Q If it was reported, you believed, I take it, that
21 9.5 tetras, if true, was a potential substantial risk, did you
22 not, sir?

23 A Not necessarily, sir.

24 Q Did you say that in your December 30, 1980 memo?

1 A I believe I used the term---let's see.

2 Q You used the term, "because of this concern we
3 considered reporting your data to the EPA as a potential sub-
4 stantial risk until we recognize the uncertainties in your
5 report," isn't that correct, sir?

6 A Yes, that's what it says.

7 Q And if the report was not uncertain, you would have
8 reported it, I take it, to the EPA?

9 A No, sir.

10 Q No, sir?

11 A I don't know whether he would or not, are you
12 familiar with the TSCA 8(e) procedure?

13 Q Yes, indeed. You stated that you considered it to
14 be a potential substantial risk.

15 A Potential is the key word, sir.

16 Q And that's what you are supposed to report, isn't it,
17 sir? Potential substantial risk?

18 A TSCA 8(e) stipulates that any time an employee of a
19 company that manufactures a material comes into possession of
20 information which might even be suggestive that a risk exists,
21 that that company or that individual then has the obligation
22 to go through an internal reporting procedure and an assess-
23 ment to determine if a substantial risk exists, so it would
24 have been my responsibility to report this to our Director of

1 Environmental Operations who would then convene a committee
2 which would consist primarily of representatives from our
3 Medical Department to determine if a substantial risk existed.

4 Q Doctor, doesn't your reference to TSCA Section 8(e)
5 refer to a notice to the Administrator of the EPA and not any
6 house business but report to the EPA?

7 A No, sir.

8 Q Would you mind looking at it?

9 (Plaintiffs' Exhibit 1283 was marked for
10 identification.)

11 Q Handing you Exhibit 1283, asking if you recognize
12 that as the TSCA act that you referred to in Section 8(e)
13 thereof. You recognize it, Dr. Mieure?

14 MR. MUSGRAVE: Well, may I see it, Mr. Carr?

15 MR. CARR: Sure.

16 MR. MUSGRAVE: Is this just a statute, Mr. Carr?
17 Do you have the regulations that deal with this particular
18 section, Mr. Carr?

19 MR. CARR: No, I don't, counsel.

20 MR. MUSGRAVE: Well, I think you ought to get them
21 and then if you are going to cross-examine this man with
22 regard to what Section 8(e) means, you ought to see if there
23 is any relation---

24 MR. CARR: I am cross-examining this man with

1 what he referred to in this Exhibit and what he said was
2 required---

3 MR. MUSGRAVE: The regulations, if there are regula-
4 tions, are part of the statute.

5 MR. CARR: ---and bring them forth, if you want to
6 exculpate Monsanto from their failure to report this. Your
7 Honor, it is a dereliction of duty---

8 MR. MUSGRAVE: I object to that comment by counsel,
9 your Honor, and I request that you instruct the jury to
10 disregard the comment.

11 THE COURT: Let me see the Exhibit first.

12 MR. MUSGRAVE: The comment I have specific reference
13 to is his accusation to Monsanto's dereliction of duty. It
14 was totally improper.

15 THE COURT: Just a second. Your objection is
16 overruled. Would you give this back to Mr. Carr, please?

17 BY MR. CARR:

18 Q Does your memo refer to TSCA Section 8(e), Dr. Mieure?

19 A The memo, sir, refers to a potential substantial
20 risk.

21 Q Could you answer that question, please?

22 A I just did, sir.

23 Q Does it refer to TSCA Section 8(e)?

24 A Yes, it does. I just told you that.

1 Q And do you have in front of you a copy of TSCA
2 Section 8(e)?

3 A The Act, yes. Not the regulations.

4 Q You refer to regulations or do you refer to the Act
5 in your memo, Dr. Mieure?

6 A It doesn't say which.

7 Q Well, Dr. Mieure, it refers specifically to TSCA,
8 which is your shorthand for the Act, Section 8(e), does it not,
9 sir?

10 A But I don't deal---

11 Q Excuse me, Doctor. I didn't ask you whether you
12 dealt with or what you dealt with.

13 A I don't refer to either one here. I refer to TSCA
14 8(e). It doesn't say whether it is the Act or the regulation.

15 Q T-S-C-A stands for Toxic Substances Control Act,
16 does it not, sir?

17 A Yes, it does.

18 Q And you refer to TSCA, Toxic Substances Control Act
19 Section 8(e), don't you, sir, in your memo of October the 10th,
20 1980?

21 A The memo as you are well aware I'm sure is an
22 abbreviation.

23 Q Excuse me. Would you answer that question, please?

24 MR. MUSGRAVE: He is trying to, if you let him finish,

1 object.

2 THE COURT: Overruled.

3 Q Do you refer to TSCA, T-S-C-A 8(e)?

4 A I make a reference to TSCA 8(e).

5 Q And have I given you a copy of TSCA Section 8(e)?

6 A You have given me a copy of the Act, but not the
7 regulations.

8 Q Do you refer to regulations in your memo or to the
9 Act, T-S-C-A stands for Act, Dr. Mieure?

10 A I refer to TSCA 8(e), but it is the regulations that
11 we deal with in every day life.

12 Q Doctor, I'm not asking you what you deal with. I'm
13 asking you what you refer to in this memo, and you refer to
14 TSCA Section 8(e)---

15 MR. MUSGRAVE: Object. It's been asked and answered.

16 THE COURT: Objection overruled.

17 A Yes, it has been answered.

18 THE COURT: Dr. Mieure, I will rule on the objections.
19 You have no status to quarrel with my ruling on an objection.
20 You are not the judge here and you are not a licensed attorney
21 in the State of Illinois. When I rule, you follow the ruling.
22 Do you understand that, Dr. Mieure?

23 A Yes, sir.

24 THE COURT: Now answer the question.

1 A Again?

2 THE COURT: Answer the question.

3 Q It refers to TSCA Section 8(e).

4 A TSCA 8(e), yes.

5 Q And TSCA 8(e), I've given you a copy of it, have I
6 not, sir?

7 A You've given me a copy of the Act but not of the
8 regulations.

9 Q Dr. Mieure, would you answer the question.

10 A I did.

11 Q Did I ask you whether or not I had given you a copy
12 of the regulations? Now, Mr. Musgrave is going to have all
13 day tomorrow to ask you those questions. I'm asking you this
14 question. Did I give you a copy of TSCA Section 8(e)?

15 A No, I think you gave me a copy out of TSCA 8(e), the
16 Table of Contents and one page.

17 Q Did I give you a copy of TSCA Section 8(e)?

18 A Let's see, does it complete all of 8(e)?

19 Q Do you see the Subparagraph (e) there?

20 A This appears to include all of 8(e), yes.

21 Q And I gave you a copy of that?

22 A Yes, sir.

23 Q And does it say notice of administrator of substan-
24 tial risk?

1 A Those are the words, yes, sir.

2 Q And the administrator referred to is the Administra-
3 tor of the EPA, is it not, sir?

4 A I would assume so, yes.

5 Q Doctor, at the time you wrote this memo, you
6 considered that---we considered reporting your data to the EPA,
7 and by EPA you mean the Environmental Protection Agency, do
8 you not, sir?

9 A That's the reference, yes.

10 Q And you were talking about reporting the data as a
11 potential substantial risk under this particular Act, isn't
12 that correct, sir?

13 A That's the reference.

14 Q Is the answer to my question yes, that is correct?

15 A Yes.

16 Q And, Doctor, you didn't report it because, "we
17 recognize the uncertainties in your report," isn't that
18 correct?

19 A That's only a small part of why it wasn't reported.

20 Q I'm asking you, isn't that what you said, Dr. Mieure,
21 in this memo of October 30, 1980?

22 MR. MUSGRAVE: You want to clarify that? You want
23 the exact words as they read in the memo or you want him to
24 tell you what the memo says, Mr. Carr?

1 BY MR. CARR:

2 Q Dr. Mieure, did you say we considered reporting it
3 until we recognize the uncertainties in your report?

4 A The memo says because of this concern we consider---

5 Q Excuse me, Dr. Mieure. Would you answer that
6 question, please, sir?

7 A I told you there were several reasons.

8 MR. CARR: Your Honor, would you direct the witness
9 to answer that question? I think he can say yes he said that
10 or no he didn't say that.

11 THE COURT: Answer the question.

12 MR. MUSGRAVE: Your Honor, if I may, Mr. Carr is
13 wanting him to interpret the memo on one hand, and when he
14 doesn't like the interpretation, he wants him to read what the
15 words say, and the witness can't do both.

16 THE COURT: Well, I don't think he is being asked to
17 do them at the same time, and I think the question posed to him
18 is crystal clear, and he has to answer it yes or no. It is a
19 question that can only be answered in that manner. Your objec-
20 tion is overruled; Dr. Mieure, answer the question.

21 A The question again, sir, is?

22 Q Did you not say in this memo that you considered
23 reporting the data, "until we recognize the uncertainties in
24 your report,"?

1 A That's a quote right out of here, yes, sir.

2 Q You said that, didn't you?

3 A Yes, sir.

4 Q Now, the memo of September the 15th, 1981, you have
5 acknowledged no longer contains these uncertainties, isn't that
6 correct, sir?

7 A I don't know whether it contains all, whether it's
8 taking care of all my concerns or not, but in just the few
9 minutes that I had to read this, it certainly has taken care
10 of many of those concerns, yes.

11 Q And, Doctor, you have no knowledge or do you have,
12 that the EPA was then reported the potential substantial risk
13 that would be involved with users of this shipment of 2,4
14 dichlorophenol in Weed-B-Gon or 2,4 D or something else that
15 it might be used in, or in the oil well workers working with
16 it, putting their hands in it if it is used in an additive of
17 that sort. Do you have any knowledge whether or not that level
18 of 2,4 dichlorophenol was ever reported to the EPA?

19 A I don't know whether it was or not, sir.

20 THE COURT: Mr. Carr, is this a good point at which
21 to quit?

22 MR. CARR: Yes, your Honor.

23 THE COURT: Ladies and gentlemen, we will break for
24 the day at this time. I would remind you on any overnight

1 breaks that you are not to read, listen to, or watch anything
2 about this case in particular or subject matter in general in
3 any of the media. Thank you for your attention and cooperation.
4 We will resume at 9:30 tomorrow morning. The Court is
5 adjourned.

6 (At this time Court was adjourned for the day.)
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1 STATE OF ILLINOIS)
2) SS.
3 COUNTY OF ST. CLAIR)
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7 I, Patricia A. Gandy, C.S.R., Official Court
8 Reporter in and for the Twentieth Judicial Circuit, and the
9 Official Court Reporter who transcribed the above-styled cause
10 had on April 9, 1985, do hereby certify that the foregoing
11 transcript of proceedings is a true, correct and complete
12 transcript of the proceedings had on said date.

13 DATED this 22nd day of April, 1985.
14
15
16

17 Patricia A. Gandy
18 PATRICIA A. GANDY, C.S.R.
19 Official Court Reporter
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1 STATE OF ILLINOIS)
2) SS.
3 COUNTY OF ST. CLAIR)
4
5

6 I, RICHARD P. GOLDENHERSH, Circuit Judge in and for
7 the Twentieth Judicial Circuit, hereby certify that the above
8 is a true and correct transcript of the proceedings had in the
9 case captioned: FRANCES E. KEMNER, et al., v. MONSANTO
10 COMPANY, et al., Cause No. 80-L-970, heard on April 9, 1985.

11 DATED this BRD day of April, 1985.
12

13 ENTER:
14

15 
16 RICHARD P. GOLDENHERSH, Circuit Judge
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