

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

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

Before the HON. RICHARD P. GOLDENHERSH, Judge

REPORT OF PROCEEDINGS

JURY TRIAL

December 16, 1985

APPEARANCES:

MR. REX CARR & MR. JERRY SEIGFREID, Attorneys at Law
Appeared on Behalf of the Plaintiff.

MR. KENNETH R. HEINEMAN & MR. JOSEPH NASSIF,
Attorneys at Law
Appeared on Behalf of the Defendant.

MARSHA SCHNIPPER
Official Court Reporter

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EXHIBITS SUBMITTED ON BEHALF OF THE PLAINTIFF:

Plaintiffs' Exhibit No.:

1646A

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1 BE IT REMEMBERED AND CERTIFIED that heretofore, on
2 to-wit: December 16, 1985, being one of the regular judicial
3 days of this Court, the matter as hereinbefore set forth came
4 on for hearing before the Honorable Richard P. Goldenherish, a
5 Judge in and for the Twentieth Judicial Circuit of the State
6 of Illinois, Belleville, St. Clair County, Illinois, and the
7 following was had of record, to-wit:

8
9 * * * * *

10
11 (The following proceedings were had in open Court.)

12 THE COURT: Morning.

13 FRANK DOST,

14 being called on behalf of the defendant, having been first
15 duly sworn, testified as follows:

16 REDIRECT EXAMINATION

17 BY MR. HEINEMAN:

18 Q. Dr. Dost, I'd like to ask you about the subject of
19 photodegradation, sir, and ask you if you recall when Mr.
20 Carr was examining you on that subject and suggesting to you
21 that Dr. Zabik had a calculated 36-hour photodegradation
22 period from a theory that the loss of the first ten percent
23 of the TCDD in the sunlight would hold true for the rest of
24 the time, and that the paper he relied on did not actually

1 substantiate his calculation. Do you recall that testimony,
2 sir?

3 A. Yes, I do.

4 Q. Now, I'd like you to assume, sir, that Dr. Zabik
5 actually testified as follows: Beginning with the first
6 answer on Page 96 on October 30th, 1985. I use the 36 hours
7 from the extrapolation of that graph, yes. Question: And
8 that graph doesn't in fact hold, support the theory of the
9 ten percent, does it, sir? Answer: It does for the first
10 half life, which is what we use. Question: Not for on soil.

11 Answer: For on soil it would be much faster if I
12 used the ten percent half life. Question: That's what I'm
13 talking about. Your theory doesn't hold true? Answer: No,
14 it would be faster if we were to use the ten percent.

15 And ask further, sir, that you assume that he
16 testified as follows also on October 30, 1985 at Pages 158
17 and 159. Question: And I thought you said something about
18 there is any other method. Well, explain the method that is
19 used to your knowledge by experts in photochemistry in
20 establishing half lives. Answer: Yes. Whenever we do a
21 half life, we run the reaction to ten percent completion,
22 generally run it past that, but we only use the first ten
23 percent of the reaction, because that is the reliable portion
24 of the reaction from many physical chemical properties of

1 that type of a reaction. We then plot the data, and we also
2 determine the first order of rate constant for it and then we
3 can determine the half lives. In the case of photochemistry
4 these reactions are first order, pseudo first order really.

5 Question: And the calculations that you did in
6 this case with regard to the Crosby data did they use the
7 first ten percent? Answer: No, I did not. That was the
8 steepest portion of the curve so to be conservative I used
9 the next slope which was a lot slower.

10 Question: So to be conservative you used-- you
11 didn't use the first ten percent? Answer: No, I did not.

12 Now, Dr. Dost, does Dr. Zabik's testimony indicate
13 to you that he used a ten percent projection in reaching his
14 36-hour half life?

15 A. No, sir, it does not.

16 Q. Are you familiar with the Crosby article which Dr.
17 Zabik was talking about?

18 A. Yes, sir, I believe I am.

19 MR. HEINEMAN: Do you have Defendant's Exhibit
20 1253? I have another copy of it if Tammy --

21 THE CLERK: I've got it now.

22 MR. HEINEMAN: Thank you. That's the one.

23 Q. Sir, let me hand you what's been marked as
24 Defendant's Exhibit 1253 and ask you if that's the Crosby

1 article that you're familiar with?

2 A. Yes, sir, it is.

3 Q. Now, directing your attention to Page 9, sir. What
4 do you see there on Page 9?

5 MR. CARR: Your Honor, this is suggesting the
6 answer desired.

7 THE COURT: Objection sustained. Would you rephrase
8 the question please.

9 Q. Would you tell the jury what there is on Page 9
10 there, sir?

11 A. Page 9 contains two figures, Figure 7, which is
12 photoreduction rate of TCDD on leaves and soil treated with
13 Agent Orange, and another one, photodecomposition on grass
14 after treatment with an olive oil emulsion of TCDD. Figure 7,
15 I think, is the figure that relates to the issue you're -- in
16 question.

17 Q. Now, sir, do you have an opinion if Dr. Zabik had
18 used the rate of photodegradation at the time only ten
19 percent of the TCDD had photodegraded, do you have an opinion
20 what the half life calculation would have been, sir?

21 A. Yes.

22 Q. What is that, sir?

23 A. Well, using that would come to about a half -- a
24 half time of about five hours if it used the first -- the

1 data representing the degradation of the first ten percent of
2 the TCDD that was placed on the soil.

3 Q. And what half life calculation rate did he actually
4 come to?

5 A. He used the -- he used a figure of 36 hours.

6 Q. Does that indicate anything to you, sir, with
7 respect to what portion of the curve for photodegradation he
8 actually used?

9 A. Well, he used more than ten percent. He used -- he
10 took -- the experiments ran for six hours and he took the
11 data for the entire six hour period and used that to project
12 a half time of 36 hours.

13 Q. What happens to the rate of photodegradation, sir,
14 after a period of time according to the Crosby article?

15 A. Well, it appears that there is an initial
16 relatively rapid conversion, and then it slows down, and from
17 the data that appears here it appears to be a linear --
18 linear degradation, that is, all of the points are in a
19 straight line after the the first ten percent.

20 Q. Thank you, sir. Now, sir, I'd like -- do you
21 recall on direct examination being asked, sir, about two
22 separate hypothetical questions?

23 A. Yes, I do.

24 Q. Do you recall what distinguished one question from

1 the other?

2 A. Well, the two questions differed essentially in
3 that one of them assumed the various cleanup operations and
4 the other assumed no cleanup at all.

5 Q. And did you give your opinion based upon the
6 assumptions in each question?

7 A. Yes.

8 Q. Now, sir, do you recall your cross-examination by
9 Mr. Carr on that subject?

10 A. Yes, I do.

11 Q. Do you recall his cross-examining you with respect
12 to whether you had ever known about a contamination level
13 under the passing track having been found at 9.2 percent of
14 OCP in it?

15 A. Yes, I remember that.

16 Q. And do you recall your answer to that question,
17 sir, or excuse me, that he went on in another point and asked
18 you that they tested the passing track after the initial
19 cleanup and found a higher level of contamination of OCP in
20 the passing track than the figure that was given to you in
21 the hypothetical question. Do you recall that, sir?

22 A. Yes, I remember that.

23 Q. Do you recall what your answer was?

24 A. I don't recall precisely, but I believe that I

1 remarked that that was after the -- after the spring rains or
2 spring thaw.

3 Q. Information that arose in the spring after the
4 thaw?

5 A. Something of that sort, yes.

6 Q. Now, were you aware, sir, of the 9.2 percent of OCP
7 and phenol being found in the passing track after the initial
8 cleanup and spring thaw?

9 A. Well, I do remember hearing something about that,
10 yes.

11 Q. Now, based upon that information --

12 MR. CARR: Your Honor, I object unless a source is
13 shown. It's hearsay.

14 THE COURT: I'm sorry.

15 MR. CARR: My objection is it's hearsay, he's
16 basing his opinion on hearsay.

17 THE COURT: Gentlemen, could you approach the bench
18 for a minute.

19 (At this time a conference was had at the bench out
20 of the hearing of the jury.)

21 THE COURT: Your objection is as to -- I couldn't
22 hear what you said.

23 MR. CARR: Mr. Heineman established that the
24 witness has heard somewhere that there was 9.2 percent in the

1 passing track, and counsel now is asking a question now based
2 on that information, and that's asking for opinion based upon
3 hearsay. Counsel should give that to him as a fact in this
4 case if he wants him to base an opinion on it, not on
5 something that he may have heard elsewhere.

6 THE COURT: Any objection to that?

7 MR. CARR: Source of where it came from.

8 MR. HEINEMAN: What I just read to him was Mr. Carr
9 asking him if he knew that there was a fact in this case of
10 9.2 percent.

11 MR. CARR: You're not acknowledging to the witness
12 that that is a fact in this case.

13 THE COURT: Well, no, that's different. First
14 you've got that and then you've got him hearing it. I think
15 if you want to use it, you have to give it to him as a fact
16 for our testimony. I think the objection is well taken.

17 MR. HEINEMAN: This is Ohneck's testimony, Judge.

18 MR. CARR: He's not identifying where he heard it
19 from. All he said was he heard it somewhere.

20 THE COURT: Right.

21 MR. HEINEMAN: Well, okay, sure. I thought that was
22 what we had already done.

23 THE COURT: No, I don't think so.

24 (The following proceedings were had in open Court.)

1 Q. Dr. Dost, I'd like you to assume as a fact, sir,
2 that there's been testimony that that 9.2 percent of phenol
3 in OCP was found in the passing track. You do assume that to
4 be true?

5 A. Yes.

6 Q. All right, sir. Now, does that fact, sir, have any
7 effect on the answer you gave to either the first or the
8 second hypothetical question?

9 A. No, sir, not at all.

10 Q. Now, based upon the information that was given to
11 you, sir, and assuming what I've just told you today about
12 the 9.2 percent, had you assumed that all of the contaminated
13 material was removed from the passing track?

14 A. No, sir.

15 Q. Now, what is the information that you have assumed
16 to be true with respect to how the -- what removal was done
17 in the passing track?

18 A. Well, my assumption was that the material was taken
19 down, I don't recall, eight, ten inches below the ties in
20 that area, it was under the passing track.

21 MR. CARR: I object unless he states the source of
22 where that information has come from. There's no such
23 information like that in this case.

24 THE COURT: Could you rephrase your question please.

1 Q. Let me ask you to assume this as a fact, sir, that
2 all the material between the passing track ties was removed
3 to a depth of eight to ten inches in the western 150 to 200
4 feet of the spill area, where the surface of the snow and the
5 ballast of the passing track had been visibly discolored by
6 the spilled chemical, all right, sir?

7 A. Yes.

8 Q. It was not eight to ten below the ties, it was a
9 total of eight to ten inches?

10 A. I see.

11 Q. Okay. Now, assuming that to be true, sir, does
12 that fact cause you to change in any way your response to
13 either of the hypothetical questions that I asked you?

14 A. No, sir, it does not.

15 Q. Now, I'd like to ask you some questions with
16 respect to your cross-examination by Mr. Carr with respect to
17 what Mr. Shroy said on volatilization. All right, sir?

18 Now, do you recall Mr. Carr discussing with you the
19 proposition that the TCDD would turn into a gas below the
20 surface where the soil meets the ballast and that it would
21 rise through the ballast as a gas and not attach to the
22 material in the ballast as it moved or rose after the OCP and
23 phenol had been removed from the soil.

24 A. Yes, sir, I recall that.

1 Q. All right. Now, sir, I'd like you to assume the
2 following testimony from Mr. Shroy, Page 177 on September
3 12. Question: And if any of the TCDD were in that soil and
4 that soil was removed, would the TCDD be removed? Answer:
5 Yes, sir. Question: And if it was removed, would it be
6 available to volatilize? Answer: No, sir.

7 And if clean dirt is then placed back upon the top
8 of that or clean ballast -- Answer: Yes, sir. And if there
9 was any down below the depth to where they took it, would the
10 TCDD in order to volatilize have to work its way up through
11 that area? Answer: Just like at Eglund, yes, sir.

12 Now, what is your understanding, sir, based upon
13 Mr. Shroy's testimony as to what would happen to TCDD as --
14 if it were covered by new ballast?

15 A. Well, it would -- there would be movement within
16 that soil of -- of molecules of TCDD. It would be random
17 movement, it would be exceedingly slow. He referred to
18 Eglund, and compared it to the situation at Eglund, and in
19 that experiment the material that was placed quite some years
20 ago and then studied later that was placed at a depth of, I
21 think, five inches in that -- in that soil still had not
22 emerged, had not reached the surface in 12 years, in the 12
23 years that intervened between the time it was placed and the
24 time that it was sampled. The movement upward in that -- in

1 that soil and ballast and so forth is going to be very, very,
2 very slow.

3 Q. Do you have an opinion, sir, as to what would
4 happen to TCDD in terms of photodegradation in the top two
5 millimeters of soil?

6 A. I think that it would be broken down.

7 Q. Or ballast?

8 A. Or ballast or whatever the matrix is. I would
9 expect that in that zone that photodegradation would
10 certainly take place.

11 Q. Now, do you have an opinion, sir, as to how long it
12 would take any TCDD in the passing track to volatilize up
13 through the ballast and reach that two millimeter zone if it
14 were covered by eight to ten inches of clean ballast?

15 MR. CARR: Objection, Your Honor, this witness has
16 shown no expertise in this area at all.

17 THE COURT: Gentlemen, could you approach the bench
18 please.

19 (At this time a conference was had at the bench out
20 of the hearing of the jury.)

21 THE COURT: I think you have to make that kind of
22 objection up here.

23 MR. CARR: Yes, that's right.

24 THE COURT: Can you continue the objection.

1 MR. CARR: Yes, my objection is there's been no
2 qualification of this witness as an expert in this area. As
3 Dr. Shroy, Mr. Shroy can give an opinion -- there's been
4 absolutely no qualification to answer such a question or give
5 such an opinion. It calls for an expert opinion that he's not
6 qualified to give.

7 MR. HEINEMAN: Your Honor, what this witness has
8 clearly stated that he's considering here is the -- is the
9 testimony of Mr. Shroy and particularly in connection with
10 the Eglund Air Force Base matter and his view based upon what
11 Mr. Shroy said is that clearly if it took in 12 years it
12 hasn't passed through four or five inches of sand, I think he
13 can in his own mind make a pretty simple calculation of what
14 eight to ten inches would do in terms of the time that it
15 would take to get up through that and that's all he's talking
16 about. He's not basing it upon his own work. He's basing it
17 upon what Shroy had to say.

18 MR. CARR: You're asking him for an expert opinion
19 that would counter or support either way what Shroy has said,
20 and he has no absolutely no information, no expertise to base
21 it upon.

22 THE COURT: I agree. I think it does call for that
23 kind of opinion. I agree that you accurately described what
24 he's doing, but I think he does not have sufficient expertise

1 as demonstrated in this case to render that kind of opinion
2 in this trial, so taking your description as to what he did,
3 the objection is sustained.

4 (The following proceedings were had in open Court.)

5 Q. Doctor, I'd like you to assume that Mr. Kopis of O.
6 H. Materials testified in this case several weeks ago that O.
7 H. Materials poured a bentonite sealer on top of the passing
8 track in the spill area. Will you assume that, sir?

9 A. Yes.

10 Q. Now, now, do you further recall in your examination
11 by Mr. Carr his discussing with you that if a material were
12 present in the ballast occupying the air spaces below the
13 surface, and using OCP and phenol as an example, that it
14 would be more difficult for TCDD to volatilize based on what
15 Mr. Shroy had said?

16 A. Yes.

17 Q. Now, sir, what is a bentonite sealer?

18 A. Bentonite is, I believe, it's a diatomaceous earth,
19 which is a substance that is a residue of the skeletons of
20 ancient one-celled animals that lived in the sea in places
21 where the seabed, where the sea has receded from the land and
22 left the old seabed you find deposits of this material. Its
23 value is that it is a very fine and has an enormous surface
24 area and will adsorb, ad, a-d-, adsorb to its surface

1 enormous amounts of organic materials.

2 Q. Now, what would the -- do you have an opinion, sir,
3 as to what would the addition of a bentonite sealer to the
4 ballast have --

5 MR. CARR: Objection, Your Honor, inadequate
6 foundation.

7 THE COURT: Objection sustained.

8 Q. Would a -- would bentonite tend to fill spaces,
9 sir?

10 MR. CARR: Objection, Your Honor, leading and
11 suggestive.

12 Q. What would bentonite tend to do, sir, if you poured
13 it on top of rock?

14 MR. CARR: Objection, Your Honor, inadequate
15 foundation for knowledge.

16 THE COURT: Objection sustained.

17 Q. Have you ever seen bentonite, sir?

18 A. Yes, I have.

19 Q. How have you seen it, in what manner have you seen
20 it?

21 A. I used to keep it in my laboratory, as a matter of
22 fact, as a substance to use if -- if we spilled solvents in
23 the laboratory.

24 Q. How would you use it?

1 A. Well, it's -- in many respects it's like kitty
2 litter, but kitty litter is heavy grains. This material is
3 very fine, and if you have a spill, you can cover it with
4 material, and it'll absorb a substantial amount of organic
5 material and keep it from -- it makes it easier to pick it
6 up, keeps it from spreading around the laboratory.

7 Q. Now, sir, you have been to Sturgeon, have you not,
8 sir?

9 A. Yes, I have.

10 Q. Have you seen the ballast on the railroad track out
11 there?

12 A. Yes.

13 Q. Have you seen the ballast on the passing track?

14 A. Yes.

15 Q. And in the main right-of-way?

16 A. Yes.

17 Q. And have you seen the ballast in the passing track
18 -- what area have you looked at?

19 A. Well, I walked the whole length of both tracks from
20 the -- I don't remember what the name of the street is, the
21 first street that the tracks cross in the town out to the--
22 some distance past the site where I was told the car came to
23 rest, past -- there is a construction company out there,
24 walked past, well past that. There is a crossroad where

1 there is a road goes across the track at beyond the place
2 where the car came to rest. Come to think of it, I walked
3 all the way to that crossroad.

4 Q. Now, would you -- what does the ballast look like
5 out there that's in the passing track and in the main line
6 track?

7 A. Well, it's a mixture of a whole variety of sizes of
8 stone and smaller particles. The -- it's not a -- it's just
9 not an accumulation of all one-inch rock or something like
10 that. It seems to be a unscreened aggregate, I suppose you
11 could call it, crushed rock primarily, in which all particle
12 sizes.

13 Q. Are there any particle sizes that you saw in the
14 ballast that are the same as the particle sizes for the
15 bentonite that you use in your laboratory?

16 A. Well, that would be very hard to say, because
17 there's been several years have elapsed and the immediate top
18 surface has been rained on and lots of weather, and those
19 very fine particles that are right at the -- pretty close to
20 the surface will have -- will have washed away, blown away.

21 Q. Now, compare the size though, sir, of what you've
22 observed at Sturgeon of the material in the passing track and
23 in the main line track to the particle size of the bentonite
24 that you used in your laboratory?

1 A. The particle size of the bentonite in the
2 laboratory is very, very small, it's very fine.

3 Q. Is it finer than sand?

4 A. Oh, yes, yes, much finer than sand.

5 Q. Sir, would the bentonite tend to fill in air
6 spaces?

7 A. Well, the way bentonite would be used in a
8 situation like that in my laboratory I would use it as the
9 dry material, because I want to pour it out of a cannister
10 right onto the spill. If one is using it for packing, and it
11 is -- then it would be made into a slurry, probably with
12 water, I assume with water, so that it could be poured and
13 the water tends to carry it down into the interstices,
14 crevices, and so forth among -- so that it would tend to fill
15 the spaces, and if you want it to go a long ways through the
16 rock, you'd use a fairly large amount of water. If you just
17 wanted to make a coating, you'd use a fairly thick slurry,
18 and so I would assume-- I have no way of knowing just what
19 mix they used, but for a purpose like that, I would assume
20 that it was a rather thin--

21 MR. CARR: Objection to assumption, your Honor.

22 THE COURT: Objection sustained.

23 Q. Now, would a bentonite sealer in your opinion, sir,
24 tend to fill those --

1 MR. CARR: Objection, leading question, Your Honor.

2 THE COURT: Would you rephrase it. It is leading.

3 Q. What would a bentonite sealer tend to do in terms
4 of the ballast?

5 A. I just pointed out that it would fill all the
6 crevices in the ballast, all of the spaces in between the
7 larger particles of the ballast.

8 Q. Now, what, sir, would that tend to do in terms of
9 the movement of anything up through that ballast?

10 A. Well, because of the very, very large surface area
11 of those very small particles, it would tend to slow, I would
12 expect that it would tend to slow any movement through that
13 space.

14 MR. HEINEMAN: One moment, Your Honor, please.

15 THE COURT: Sure.

16 Q. Now, Dr. Dost, I'd like you to assume that the
17 following testimony was given in this case by Dr. Wilson.
18 First of all, on May 16th, Page 174. Question: And you also
19 know that the -- over the years if there's a half life of
20 several years, I think you pointed out in another document
21 that it's -- yes, you did, three to five years is the half
22 life? Answer: Well, here I use 6 months to 3 years. I see
23 in these calculations I used 3 months to 3 years.

24 And further that he testified on May 17th, Page 4.

1 Question: Now the suggestion or the calculation there that a
2 half life is three to five years again, that is similar to
3 what you found yesterday in another exhibit that we
4 discussed. I don't have the number right now in front of me,
5 but it was the same calculation, was it not? Answer: I
6 think the one we discussed yesterday I assumed it was a
7 little bit lower than that with an upper limit of about three
8 years, but I think I used the range of about 3 months to 3
9 years in those other calculations.

10 Now, sir, based upon that testimony, do you recall
11 Mr. Carr discussing this subject with you when you were on
12 cross-examination?

13 A. Yes, I remember that.

14 Q. And do you recall him discussing with you that
15 Monsanto themselves said that the half life was three to five
16 years?

17 A. I remember something of that sort, yes.

18 Q. Now, if you're to assume that what I've read you is
19 what Monsanto's testimony has been on that subject, does that
20 testimony indicate to you, sir, that Monsanto's position is
21 that the half life is three to five years?

22 A. No, sir.

23 Q. Is three months a shorter time than three years?

24 A. Yes.

1 Q. Now, how does a three month half life relate to the
2 information that you have with respect to data from animal
3 experiments?

4 A. Well, the data from animal experiments in most
5 cases runs 30 days between -- either way from 30 days.

6 Q. I'm not sure I understand what you mean by either
7 way from 30 days.

8 A. I'm sorry, that's a very imprecise answer. In some
9 cases half times of less than 30 days have been found. There
10 have been a few instances where it seems to be in excess of
11 30 days.

12 Q. Now, do you recall being asked about the McNulty
13 study, sir?

14 A. Yes, I do.

15 Q. By Mr. Carr in his cross-examination?

16 A. Yes.

17 Q. Do you have it there, sir?

18 A. Yes, I do.

19 Q. Now, do you recall Mr. Carr cross-examining you
20 with respect to your suggestion or your citation of that
21 study as reflecting a half time for TCDD in animals shorter
22 than a year and a study actually stating that it's a one year
23 half life?

24 A. Yes, I remember that.

1 Q. You remember that, sir?

2 A. Yes.

3 Q. Now, does the -- does the document itself state a
4 one year half life?

5 A. The document makes that statement, yes.

6 Q. All right, sir. What does the data in the document
7 tell you?

8 A. Well, the data itself tells me that the half time
9 is in fact much shorter than that.

10 Q. Would you explain your position to the jury please?

11 A. Well, I -- when I was asked about that, I
12 remembered the paper, and I remembered what I had concluded
13 about it. I had not remembered that it was based on my own
14 calculations of his data, and I became a little confused at
15 about that point. My -- the process that I went through in
16 making a determination was to look at the amount of TCDD in
17 adipose tissue and in the liver, try to estimate the amount
18 that was actually absorbed from the original one microgram
19 per kilogram oral dose. I made assumptions of a ten percent
20 fat content in the monkey. Monkeys tend to be rather lean.

21 I also made an assumption based on a 20 percent fat
22 content, and I used a figure of two and a half percent of
23 body weight for the liver, for the liver weight, percent of
24 body weight. I also made the assumption that 60 percent of

1 the material that was taken in was actually absorbed. Now,
2 Dr. McNulty unfortunately measured the concentration of TCDD
3 in the feces. He didn't carry the-- go through the very
4 simple further step of determining actually how much of the
5 original TCDD emerged in the feces, and since he hasn't
6 described the body weight of this animal, and we don't know
7 how much of fecal material was actually obtained, I have no
8 way of obtaining direct information about the amount of TCDD
9 that did not get absorbed, so I made an assumption of 60
10 percent, which is quite conservative. I would expect that in
11 reality that figure should be closer to 80 percent.

12 Q. Sir, excuse me for interrupting you. I'm not sure
13 that I understand what you're talking about in terms of the
14 difference between the concentration and the amount. How is
15 a study like that done?

16 A. Dr. McNulty took a fat biopsy very early in the
17 time course of this experiment, and he compared the fat, the
18 TCDD content in that fat at that time, at the beginning early
19 in the experiment with the TCDD content at the end of the
20 experiment. Now, in my view that's not an appropriate
21 procedure, because early in the experiment the TCDD in the
22 body has not yet come to equilibrium. There will be -- if
23 the data from every other experiment can be used as an index
24 it will be very, very large amounts in the liver that will

1 have not yet equilibrated with the fat. There will be amounts
2 in other tissues that will have not yet equilibrated with
3 fat, so it's really not an appropriate -- it's not an
4 appropriate comparison.

5 What is necessary is to relate how much went into
6 the animal in the first place with how much is still in the
7 animal at the end of that two year time period.

8 Q. Now, is there any way to measure what has gone
9 through the animal and not been absorbed?

10 A. If he had -- he measured the concentration of TCDD
11 in the feces. If he had then taken the very simple next step
12 of determining the total amount of TCDD that emerged in the
13 feces, then we would have been able to use that information,
14 simply subtract it from the original dose. Unfortunately,
15 that information, he did not use that information, and there
16 isn't enough information in the paper to determine that,
17 because among other things, he hasn't told us what the weight
18 of the monkey is. It's an adult, female Rhesus and -- but we
19 don't really know how big it was, and it would be impossible
20 to estimate even on that basis without knowing how much fecal
21 material was passed, because the animal may have become ill
22 soon after the experiment began and eaten relatively little.
23 That would have an influence. We have no way of knowing
24 actually how much material was lost in the feces. I started

1 to make an estimate of this and realized there was simply
2 absolutely no information that would permit it.

3 Q. All right, sir. What -- based upon the information
4 that's in the paper, what sort of a calculation can you make?

5 A. Well, I have assumed that at the end of two years
6 that 70 percent of the TCDD in the body is in the fat and in
7 the liver. I would expect it to actually be higher than
8 that, but I prefer to be somewhat conservative. As I told
9 you, I made a calculation that the animal, ten percent of the
10 animal's body weight was fat in one case and in other case 20
11 percent of the body weight was fat.

12 The numbers that I arrived at were that there was
13 in the case of an animal if the liver was -- or the fat was
14 ten percent of body weight, the amount remaining would be on
15 the order of two and a half percent of the absorbed dose. If
16 it was 20 percent fat, that would approximately double it,
17 because the liver did not make an extensive contribution. The
18 figure would have been slightly less than five percent. And
19 in the case of two and a half percent, that would mean a half
20 time of something on the order of 130 days, slightly over
21 four months. If it was five percent, the half time would be
22 on the order of five months, a little over five, if I
23 remember correctly.

24 Q. So what is it that you're describing now, the half

1 time of what?

2 A. The half time of TCDD removal from the body, that
3 is, the amount of time that it takes for half of the material
4 that went into the body to emerge from the body, and that's
5 based on the amount remaining in the body, and that half
6 time, so that's a -- okay, the half time of residence.

7 Q. Now, does that --- is that including or apart from
8 the amount that went through the monkey in the food, emerged
9 in the feces and was never absorbed at all?

10 A. That's correct. I've taken that into account. If I
11 had included the total, the one microgram per kilogram dose,
12 then that half time would be quite a bit shorter. It would
13 be down on the order of one and a half percent or so, that
14 is, the total remaining would have been one and a half
15 percent and the half time would have been down on the order
16 of, if I remember, two and a half months, something like
17 that.

18 Q. Well, what -- based upon your calculations what is
19 the half time of dioxin in -- what do you figure, in the
20 adipose tissue?

21 A. Well, in adipose tissue, per se, if we're only
22 talking about adipose tissue, then Dr. McNulty's estimate is
23 as good as any other. The problem is, of course, that as
24 this animal became very ill after about the second month the

1 concentration of TCDD in the fat became very, very high,
2 which is not surprising, because the material would tend to
3 stay in the fat even when fat is being lost, and so it's hard
4 to tell whether that really has meaning.

5 If the dose had been much smaller and the animal
6 had not become ill, then maybe that would have some utility,
7 because I don't know how fat the animal was at the beginning
8 of the experiment and whether it gained less or more fat. The
9 paper states very clearly that the animal recovered
10 completely as far as they're able to tell. Let's see.
11 Because the monkey began to gain weight three months after
12 the dose and has been healthy since. Now, that's the
13 statement that he made. That's after two years, so I don't
14 really know what the respective fat contents at those
15 different times was, and that would have an impact, too.

16 So the only thing that I can really make a
17 reasonable estimate about is the amount that was actually
18 absorbed by the animal, and my estimate of the amount that
19 remained at the end of that two year period. So the adipose
20 tissue in the beginning doesn't have a bearing on my
21 calculation.

22 Q. All right. Now, based upon the result of that
23 calculation, what is the half time in the monkey on the data
24 that you can see in the paper?

1 A. I'd say 130 days, which is slightly over four
2 months in this monkey. Unfortunately, this is one animal.

3 Q. And what was it that Mr. Wilson calculated as the
4 lower end of a half life?

5 A. Three months.

6 Q. Can you account for a difference between the three
7 and the four?

8 A. Well, within these circumstances I don't know. Dr.
9 Wilson, I think, was basing his calculations just on existing
10 information in the literature and trying to reach some kind
11 of a rough estimate. As far as this particular animal is
12 concerned, given the variability among animals, there is no
13 difference between three and four months.

14 Q. All right, sir. Dr. Dost, do you have Plaintiff's
15 Exhibit 1646 in front of you there, sir?

16 A. Yes.

17 Q. Would you identify that for the jury again please?

18 A. This is an abstract of a report by Dr. Poiger and
19 Dr. Schlatter from Switzerland. I believe it is an abstract
20 of the report that was given at the dioxin conference in
21 Germany. Was that earlier this year?

22 Q. Now, do you recall Mr. Carr discussing this
23 document with you, sir, on your cross-examination?

24 A. Yes.

1 Q. And what was your reaction with respect to
2 accepting the results of this as set forth in this abstract?

3 A. I guess on the basis of what's in the abstract I
4 didn't think there was enough information to draw a
5 conclusion.

6 Q. Why did you feel that way, sir?

7 A. Well, I have no information about the body burden
8 of TCDD in this individual prior to the experiment, I have no
9 idea how much TCDD was already in his tissues, in his fat.
10 That would have that would have some impact on the rate at
11 which TCDD might emerge. I have -- what he has -- what he
12 has provided is good information on the amount that was
13 absorbed from the gut. In this case there is enough
14 information to tell that, but I'm very concerned about the
15 problem of isotope dilution in body fat knowing nothing about
16 about the concentration at the beginning, the concentration
17 of TCDD at the beginning prior to the ingestion of the TCDD.

18 Q. Now, sir, the -- I'm interested in this -- your
19 discussion of this background level. What do you mean by
20 that?

21 A. Well, TCDD has been found in the adipose tissue of
22 very large number of individuals who have no history of
23 exposure, and it would be fair to assume that there's a good
24 chance at least that Dr. Poiger even in Switzerland has TCDD

1 already in the -- in the fat, five parts per trillion,
2 whatever, we have no way of knowing. At the -- I think that
3 this would have a considerable effect on the rate at which
4 TCDD is incorporated.

5 We would like to assume in a rapidly mixing kind of
6 compartment that that labeled TCDD would essentially follow
7 the -- follow the TCDD that is already there, but this is not
8 necessarily a very rapid mixing compartment, and he -- he
9 took fat biopsies at ten days and 69 days after -- after the
10 -- after he ingested the material. I'm not really confident
11 that at ten days mixing was complete. In other words, the
12 material may not have all been incorporated in body fat by
13 that time to the extent that it is going to be. We've
14 discussed equilibrium in the past, which is the process by
15 which everything finally gets where it's going to end up, and
16 he also has based this on a determination of three parts per
17 trillion of the labeled material in his fat at ten days and
18 2.8 parts per trillion at the end of 69 days, and I really
19 have some question whether -- I have a lot of experience with
20 radioisotopes, and I don't think that I could tell really the
21 difference between three and 2.8 in an experiment of this
22 sort, so there needs to be a good deal of other information.
23 This experiment is not complete is what I guess I'm trying to
24 say.

1 Q. What -- does the amount of body fat have any
2 effect?

3 A. Well, it would have an effect because that makes a
4 larger -- if there's a lot of body fat and at 25 to 30
5 kilograms of body fat -- I don't know what Dr. Poiger
6 weighs. It was Dr. Poiger who ingested this material. I
7 don't know what his weight is, but that is -- it appears to
8 me that his -- he may be a fat man. I'm not sure. That's a
9 lot of fat for a normally-- for a normal sized individual.
10 And so there's a great deal of material for this to dilute
11 in, and that's going to perhaps make the measurements of
12 concentration in fat even less precise.

13 Q. Do you -- have you met Dr. Poiger?

14 A. No, I have never met Dr. Poiger.

15 Q. One of the things I notice is in the second line he
16 has a statement of the total dose, correct, sir?

17 A. Oh, yes.

18 Q. And that's how much?

19 A. Oh, well, that's one hundred -- that would tell me
20 his body weight, 105 nanograms he administered a single dose
21 of 1.14 nanograms per kilogram. It would seem to me that his
22 weight is slightly under a 100 kilograms, and if that's the
23 case, his body fat is -- is at least 25 percent, which is
24 substantial.

1 That's a very substantial dose as well. I'm a
2 little surprised, because that's in excess of what we
3 consider to be a no effect dose.

4 Q. The 105 is?

5 A. 1.14 nanograms per kilogram that's .00114
6 micrograms per kilogram. Our -- the no effect dose that we
7 generally settle upon is .001 micrograms, so it's slightly in
8 excess of the no effect dose. I question whether it will
9 cause Dr. Poiger any harm, but nonetheless it doesn't conform
10 with our convention as to a no effect dose.

11 Q. How long have you been seeing papers by Dr. Poiger
12 and Schlatter in the field of TCDD?

13 A. I think since the mid seventies. I would want to
14 go back and check, but they have been active in this field
15 for a long time.

16 Q. They being --

17 A. Dr. Poiger, Dr. Schlatter, there's -- there are two
18 or three others that are also in that group.

19 Q. What's the nature of the work that they've done,
20 sir?

21 A. Primarily on the pharmacokinetics, if you will,
22 that is what happens to TCDD when it -- when it --
23 pharmacokinetics and metabolism, what happens to TCDD and
24 what chemical reactions, what physical interactions befall

1 TCDD once it enters the body.

2 Q. And they've been conducting these experiments on
3 what, sir?

4 A. On rats, guinea pigs, dogs. I would not be at all
5 surprised other species. I don't remember at the moment.

6 Q. And would you say -- how long would you say he's
7 been doing this?

8 A. I'm sure for ten years.

9 Q. And when did Kociba publish the no observed effect
10 level in rats?

11 A. That paper that was a long-term study. It was
12 published in 1978.

13 Q. And that no observed effect level was what, sir?

14 A. .001 micrograms per kilogram per day.

15 Q. And did Dr. Poiger administer to himself a dose of
16 105 nanograms?

17 A. Yes, dissolved -- this is TCDD labeled with
18 radioactive hydrogen. I think I discussed the labeling with
19 radioactive hydrogen at one time during my direct testimony.
20 He ingested that dissolved in corn oil.

21 Q. Now --

22 MR. CARR: May I approach the bench, Your Honor.

23 THE COURT: Yes, you may.

24 (At this time a conference was had at the bench out

1 of the hearing of the jury.)

2 MR. CARR: I object to this testimony that's just
3 come out and ask the jury be instructed to disregard it.
4 There is nothing in the document 1646 that says Dr. Poiger
5 administered this to himself. This is obviously relating by
6 Mr. Heineman, two of them relating something that they have
7 been told. It is hearsay and it's not in that document.

8 MR. HEINEMAN: Your Honor, I think the document
9 demonstrates the dose that he's got.

10 THE COURT: Let me see it. I don't have it.

11 MR. CARR: It doesn't demonstrate that it was given
12 to Dr. Poiger.

13 THE COURT: Let me have the document. I don't have
14 it in front of me. You're objecting to the part about it
15 being him taking it?

16 MR. CARR: Yes.

17 THE COURT: It doesn't say he took it. It says a
18 male volunteer.

19 MR. HEINEMAN: It does say male volunteer, doesn't
20 it? He is the male volunteer.

21 THE COURT: Where is that, what's the basis for
22 that? I assumed it was in that document when I heard it.
23 That was the context in which it sounded to me. What is your
24 basis for that information?

1 MR. HEINEMAN: What is my basis for that?

2 THE COURT: What's his basis for saying it was in
3 fact Poiger himself.

4 MR. HEINEMAN: I think he knows that.

5 MR. CARR: He wasn't there. How could he know
6 except what he's been told?

7 MR. HEINEMAN: He has been told that, but I'm sure
8 he has and he knows it.

9 MR. CARR: He knows he's been told. He doesn't
10 know that. He wasn't there, I'm sure, when this male
11 volunteer took that TCDD, and I'd like to have the jury
12 instructed that there's no evidence in this case that Dr.
13 Poiger took this material.

14 MR. HEINEMAN: Before you do that, can I consult
15 with Mr. Nassif for a minute, because I think -- it strikes
16 me there's some evidence that this is so.

17 THE COURT: Sure. Go ahead.

18 MR. HEINEMAN: Your Honor, Joe's recollection is
19 that Mr. Carr asked George Roush something on this subject,
20 and Roush testified that there was somebody who had
21 administered it to himself, but Joe's recollection was that
22 he did not identify it as Poiger, that this experiment that's
23 being reported on here has been testified about, but he's not
24 at all clear that Poiger was the one as having been

1 identified.

2 THE COURT: Then your objection ought to be
3 sustained.

4 MR. CARR: Yes, Your Honor.

5 THE COURT: I will so admonish the jury. Why don't
6 we take a short break?

7 MR. CARR: With this regard, there's no evidence
8 that Dr. Poiger administered this to himself.

9 THE COURT: To disregard all those statements in
10 this regard.

11 MR. HEINEMAN: Your Honor, when you say disregard
12 all those statements what are you talking about?

13 THE COURT: All statements that -- it has been said
14 at least three times that Poiger administered it to himself
15 and the discussions about body weight, which were obtained
16 this, etc., in terms of Poiger himself is what I'm saying
17 should be disregarded.

18 MR. CARR: Yes.

19 THE COURT: Cause it's been mentioned about three
20 different times in different contexts, so I'm telling them to
21 disregard any of those references.

22 MR. HEINEMAN: Body weights calculation was not
23 based upon knowledge of Poiger himself.

24 THE COURT: But when he talked about the body weight

1 calculation he talked about it as being Poiger's calculation,
2 I mean Poiger's weight. He didn't know whether he was thin
3 or medium or whatever.

4 MR. CARR: All the Court is saying is that the jury
5 is instructed to disregard these statements that Dr. Poiger
6 administered this to himself.

7 THE COURT: Yes.

8 (The following proceedings were had in open Court.)

9 THE COURT: Ladies and gentlemen, you are ordered to
10 disregard any statements by the witness that Dr. Poiger
11 administered this to himself. You may proceed.

12 MR. HEINEMAN: Did you say you wanted --

13 THE COURT: Yes, I did, didn't I? We'll take a
14 short break at this time.

15 (At this time a short recess was taken.)

16

17 (The following proceedings were had in open Court.)

18 Q. Doctor, directing your attention again to
19 Plaintiff's Exhibit 1646, the -- how does the exhibit identify
20 the recipient of this 105 nanograms?

21 A. It said the material was ingested by a male
22 volunteer.

23 Q. Now, this male volunteer, sir, how does this 105
24 nanogram dose relate to the maximum possible dose which you

1 have calculated with respect to the Sturgeon population?

2 A. Okay. The dose that I calculated related to the
3 application of soil from the area under the tank car, as I
4 recall, ten grams of soil applied to the skin, and we did --
5 we related the difference between that and the no effect dose
6 that we use of .001 micrograms per kilogram as a difference
7 of 222 fold, that is, the no effect dose is 222 fold higher
8 than this dose that we would get by rubbing the material on
9 the skin. This dose was 1.14 nanograms per kilogram, so it's
10 14 percent higher than the no effect dose, so the difference
11 would be 14 percent higher than 222, let's say, something on
12 the order of 250 fold difference.

13 Q. Thank you, sir?

14 MR. HEINEMAN: That's all the questions I have, your
15 Honor.

16 THE COURT: All right, Mr. Carr, do you have any
17 recross?

18 MR. CARR: Yes.

19 RECROSS EXAMINATION

20 BY MR. CARR:

21 Q. Doctor, if you would refer to Plaintiff's Exhibit
22 908 if you still have it there, sir.

23 A. I have it now, yes, sir.

24 Q. Now, when you testified referrable to the

1 information on Page 173, -- 908, by the way, is the Moses
2 Selikoff study of the workers at Nitro, is it not, sir?

3 A. Yes, sir.

4 Q. And you misspoke when you said this contradicted
5 what Dr. Carnow testified to as to the symptoms shown by the
6 workers at Nitro upon his examination of those workers, did
7 you not so misspeak?

8 MR. HEINEMAN: Excuse me, counsel. May counsel
9 approach the bench, Your Honor?

10 THE COURT: Sure.

11 (At this time a conference was had at the bench out
12 of the hearing of the jury.)

13 MR. HEINEMAN: As I recall, Your Honor, at Mr.
14 Carr's request this matter was -- at his objection it was
15 ordered stricken, and I may be thinking about the wrong
16 thing.

17 MR. CARR: You're thinking about something else.

18 MR. HEINEMAN: Was the jury instructed to disregard
19 this subject?

20 THE COURT: I don't think so.

21 MR. CARR: Not at all. It would clear it up.

22 MR. HEINEMAN: That's right.

23 MR. CARR: I want it cleared up more. He went into
24 it, and he cleared up what he said, and I want to go into it

1 more and clear it up more.

2 MR. HEINEMAN: Your Honor, my objection would be
3 that what was done on that subject with this witness at that
4 time was done at the request of Mr. Carr and upon the order
5 of the Court.

6 THE COURT: Well, it was done because of his
7 precipitation.

8 MR. HEINEMAN: Mr. Carr agreed with what should be
9 done with the witness at that time, and the Court ordered it
10 done, and it was done.

11 THE COURT: Okay.

12 MR. HEINEMAN: I object to his going into it any
13 further at this time.

14 THE COURT: I don't think that of itself precludes
15 him from going into it. I don't think that -- just as having
16 parts of a deposition read, I don't think that precludes him
17 from consideration of it on recross. I would not agree with
18 you. Objection is overruled.

19 (The following proceedings were had in open Court.)

20 Q. Now, could you answer my question, Dr. Dost?

21 A. No, sir, I misspoke with reference to the way I
22 described this information.

23 Q. And you don't agree that you misspoke in saying
24 that this study contradicts Dr. Carnow's findings?

1 A. No, sir.

2 Q. In point of this fact, this study in no way
3 contradicts what Dr. Carnow said about their symptoms and
4 complaints, does it, sir?

5 A. I think it does, sir.

6 Q. Dr. Dost, you were advised that Dr. Carnow
7 testified that the people that he examined had various
8 symptoms and problems. Do you recall that, sir?

9 A. Yes.

10 Q. He examined people both with and without
11 chloracne. Do you know that, sir?

12 A. Yes.

13 Q. And he testified as to the symptoms that all of the
14 Nitro workers had without respect to whether they had
15 chloracne or not, did he not, sir?

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

18 THE COURT: Sure.

19 (At this time a conference was had at the bench out
20 of the hearing of the jury.)

21 MR. HEINEMAN: I object to that question as
22 certainly mischaracterizing what Dr. Carnow testified to. He
23 didn't testify with respect to all the Nitro workers. He
24 testified to --

1 MR. CARR: All the Nitro workers that he examined.

2 MR. HEINEMAN: 125 plaintiffs on whose behalf he
3 made examinations, and so I object to the form of the
4 question.

5 THE COURT: Could you rephrase that.

6 MR. CARR: I will.

7 (The following proceedings were had in open Court.)

8 Q. Dr. Dost, you do understand that Dr. Carnow's
9 testimony in this case as to the Nitro workers was with
10 respect to the 125 workers at Nitro that he examined and that
11 he testified as to their complaints without regard to whether
12 they did or did not have chloracne. You understand that,
13 sir?

14 A. I see what you're asking me. I understand that,
15 yes.

16 Q. You didn't understand that earlier then, is that
17 correct, Dr. Dost?

18 A. I did not know the differentiation with respect to
19 chloracne in those patients.

20 Q. Mr. Heineman didn't advise you that Dr. Carnow
21 testimony that he related to you did not purport to make a
22 differentiation between the complaints of the chloracne
23 workers and the no chloracne workers, did he, sir?

24 A. No, I think that was an assumption that I made.

1 Q. Now, Dr. Dost, you discussed this testimony or this
2 line of testimony with Mr. Heineman before you took the
3 witness stand on -- well, not only before you took the stand,
4 but before you took the witness stand again here on redirect,
5 did you not, sir?

6 A. We discussed it, yes.

7 Q. And you knew he was going to ask you, he advised
8 you, and you discussed with him what he was going to ask you
9 about, did you not, sir?

10 A. Yes.

11 Q. Every single point that you have testified here
12 today and last week has been on points that you have
13 discussed with Mr. Heineman prior to your testimony, isn't
14 that correct, sir?

15 A. Yes.

16 Q. And did you -- he did not advise you, did he, sir
17 that the Dr. Carnow testimony was that the large number of
18 complaints that these people had at Nitro they had whether
19 they were exposed to -- whether -- they had whether they did
20 or did not have chloracne. He didn't advise you of that, did
21 he, sir?

22 A. No, I don't believe so.

23 Q. No. Now, Doctor, if all of the workers have or a
24 large percentage of the workers have the same symptoms or the

1 same complaint or the same finding, isn't that an indication
2 that all of those workers have been affected by whatever
3 substance they may have been exposed to in the same fashion?

4 A. On the basis of this paper, I would say no.

5 Q. Now, Doctor, I didn't ask you on the basis of this
6 paper. I asked you a question as you know from a
7 toxicological viewpoint, you know the answer to. Isn't it a
8 fact that you find a large group of people having the same
9 abnormality, having the same symptom or having the same
10 complaint or having the same finding, that you as a
11 toxicologist can deduce that a chemical substance that they
12 have been exposed to in common could be causing that same
13 complaint, finding, or abnormality?

14 MR. HEINEMAN: Objection, your Honor. May counsel
15 approach the bench?

16 THE COURT: Sure.

17 (At this time a conference was had at the bench out
18 of the hearing of the jury.)

19 MR. HEINEMAN Your Honor, that is -- I object to
20 the question as being misleading and as not properly
21 representing the evidence that Dr. Carnow has testified to.
22 What Mr. Carr is suggesting is that when you're talking about
23 percentages of the people with the same complaint, you're
24 talking about the same people, and that's not accurate. In

1 other words, the people that have Complaint A may only then
2 also have D, and the people that have Complaint B may have
3 Complaint G as well. In other words, you don't have the same
4 people having all of the same complaints and that's what he's
5 suggesting that Carnow's frequency distribution shows.

6 MR. CARR: I didn't say anything about Carnow's
7 frequency distribution. I'm asking him as a toxicologist
8 that he doesn't know that what I said is correct. I'll get to
9 Carnow's in a moment.

10 MR. HEINEMAN: I object to it, because it is
11 misleading because it comes right on the heels of talking
12 about what Carnow is saying about these people. He is
13 implying to this witness that that's what Carnow's frequency
14 distribution shows, and I object to it, because it doesn't
15 show that.

16 THE COURT: I don't think it does so imply.
17 Objection is overruled.

18 (The following proceedings were had in open Court.)

19 Q. Would you answer my question please, Dr. Dost?

20 A. I don't know whether those effects differ from
21 those in the general population.

22 Q. Would you read my question to him again. Would you
23 answer that question, Dr. Dost.

24 (Court reporter read back the last question.)

1 A. I would say that it is possible.

2 Q. Doctor, as a toxicologist that goes in to find out
3 what poisons are doing and the effects of it, you as a matter
4 of fact, look at that as one criteria, do you not, sir?

5 A. As one criteria, yes.

6 Q. And if you find that a group of people have an
7 abnormality, for instance, on a laboratory test, that a large
8 percentage of the group of people that have been exposed to a
9 have an abnormality, you can deduce from that that the
10 chemical may have caused that abnormality, can you not,
11 Doctor?

12 A. If I can assume that they have been exposed, it is
13 possible, yes.

14 Q. No, if you know they have been exposed, you been
15 told they been exposed to the chemical, the evidence is that
16 they been exposed to the chemical, and they have in common an
17 abnormality that the population, that same percentage of the
18 population in general do not have, you can deduce from that
19 the chemical that you been told they were exposed to has
20 caused that abnormality, can you not, sir?

21 A. It would cause me to investigate whether that
22 chemical is responsible, yes.

23 Q. And after you've investigated and what you have
24 found, Doctor, is as I've told you, that the people have all

1 been exposed to the chemical in question, and they all have
2 the abnormality that is not found in those percentages in the
3 general population, can you not or would you not as a
4 toxicologist conclude that that chemical exposure may well be
5 causing the abnormality?

6 A. Well, you use the term may, and I would use the
7 term it may, yes.

8 Q. Doctor, the Moses Selikoff study deals only with
9 what is the difference between the complaints of those
10 workers at Nitro who have chloracne and those workers at
11 Nitro who have no chloracne, isn't that correct, sir?

12 A. That's correct.

13 Q. It has nothing to do at all with whether or not the
14 workers have a complaint or a finding or a symptom without
15 respect to chloracne, does it, sir?

16 A. No.

17 Q. What it tells you and what it tells everybody that
18 except for chloracne all of these workers have the same
19 complaints, the same complaints of muscle pain, insomnia --
20 strike that. There is a difference between the workers with
21 and without chloracne insofar as muscle pain, insomnia,
22 decreased libido, sexual dysfunction, that is difficulty with
23 erection or ejaculation and eyelid cyst, there is indeed a
24 difference, a statistical difference between those with and

1 without chloracne, correct, sir?

2 A. Yes.

3 Q. But for the people having complaints, and of course
4 -- strike that for a moment. That would suggest, would it
5 not, sir that those with chloracne have been exposed to
6 something that's causing them more problems of muscle pain,
7 insomnia, decreased libido, sexual dysfunction, and eyelid
8 cysts than as being caused to those people who have no
9 chloracne?

10 A. It would suggest that they have a higher dose of
11 whatever substance is responsible.

12 Q. Could you answer any question please, sir?

13 A. You said something else.

14 Q. They are having these problems in addition to and
15 over above the chloracne, aren't they, sir?

16 A. That's what this paper states, yes.

17 Q. Doctor, insofar as the problems that the Nitro
18 workers are having with joint pain, abdominal pain, nausea,
19 vomiting, diarrhea, constipation, weakness, fatigue,
20 irritability, nervousness, depression, numbness, vertigo,
21 lightheadedness, or personality change, there is no
22 difference between those having chloracne and not having
23 chloracne, isn't that correct, sir?

24 A. That's correct.

1 Q. And, Doctor, if there were large numbers -- were
2 you told by Mr. Heineman that large numbers of these workers
3 at Nitro, of the 125 he examined, large percentages had such
4 complaints? Were you told by Mr. Heineman that --

5 A. Yes.

6 Q. Sir?

7 A. Yes.

8 Q. And if those complaints are greater than as has
9 been testified to by Dr. Kilgore in this case, if those --
10 and I won't go through the same percentages as I did with Dr.
11 Kilgore -- if those percentages are greater than in some
12 instances, greater than what the general population would
13 have, that would be significant, wouldn't it, Dr. Dost?

14 A. Yes.

15 Q. It would indicate that those people at Nitro, that
16 125 people or the percentage of those people having these
17 complaints may indeed be having these complaints because of
18 the chemicals to which they're exposed, isn't that correct,
19 sir?

20 A. That is a possibility.

21 Q. Doctor, that is more than a possibility. It is a
22 probabilities, is it not, sir?

23 A. Well, you use the term may, and I would use that
24 term.

1 Q. Yes, and you said possibility, but I'm saying now
2 it's more a possibilities, it's a probability, isn't it, sir?

3 A. It may be the case.

4 Q. Doctor, not just may be. It is a probability,
5 isn't it, sir?

6 A. It depends on the dose response.

7 Q. Doctor, the response you have heard, you know
8 they're exposed, you know they been working in this plant,
9 you know the levels while you testified incorrectly as to the
10 levels, and I'll get to that in moment, you know the levels
11 to which they've been exposed, you know the chemicals
12 involved, you know that indeed these complaints, if the Nitro
13 workers are not lying, if they're not putting on, if the
14 chemical workers are telling the truth as to what's bothering
15 them in those percentage levels, you know that it is very
16 probable that it's the chemicals that they been working with
17 and to which they been exposed that have caused these
18 complaints, isn't that correct, sir?

19 A. Yes, if those differences exist.

20 Q. Yes. And the Moses Selikoff study in no way
21 contradicts what Dr. Carnow testified to, does it, sir?

22 A. Well, since I do not what the distribution in his
23 people between chloracne and non-chloracne, I can't then say.

24 Q. So when you testified here at the behest of Mr.

1 Heineman that it did contradict Dr. Carnow's findings and
2 testimony, you misspoke and were in error, weren't you, sir?

3 A. On the basis that I didn't know the chloracne
4 incidence, that would be true.

5 Q. Not the basis, you didn't know the chloracne
6 incidence, Dr. Dost, simply upon what Mr. Heineman told you
7 when you said Dr. Carnow that this Moses study contradicts
8 what Dr. Carnow said, you misspoke, did you not, sir?

9 If you don't know what Dr. Carnow reported with
10 relation to the percentages and all this, you obviously
11 misspoke, didn't you, sir? You did not have enough
12 information to come to a conclusion whether this study
13 supported him or contradicted him, did you, sir?

14 A. On that basis, no.

15 Q. But yet you told the jury that you did have such
16 information, didn't you, sir?

17 A. Yes, I was depending on the dose response.

18 Q. You got that information from Mr. Heineman, didn't
19 you, sir? All the information you got about what Dr. Carnow
20 found or did not find, you got from Mr. Heineman, didn't you,
21 sir?

22 A. And from Dr. Carnow's testimony.

23 Q. Well, did you read anything in Dr. Carnow's
24 testimony, sir, that was in any way contradicted by what Mr.

1 Moses said?

2 A. I don't recall.

3 Q. Well, you sure as heck testified here that you --
4 last week that it contradicted it, didn't it, sir? Now you
5 don't recall it. Have you had another conference with Mr.
6 Heineman?

7 A. No.

8 Q. You've just plain forgotten then, is that right?

9 A. No; I was basing this on the dose response that
10 this paper shows.

11 Q. Doctor, this paper shows that there with regard to
12 certain complaints there is no relationship to the dose,
13 isn't that correct, sir, the dose is not material, it's not
14 connected, it doesn't affect the complaints of joint pain,
15 abdominal pain, nausea, vomiting, diarrhea, constipation,
16 weakness, fatigue, irritability, nervousness, depression,
17 numbness, vertigo, lightheadedness, or personality change,
18 isn't that correct, sir?

19 A. Well, since Moses did not relate it to the general
20 population, I suppose --

21 Q. Could you answer that question, Dr. Dost?

22 A. Yes.

23 Q. This makes -- it states for sure that there is no
24 connection with dose response in regard to those complaints,

1 doesn't it, sir?

2 A. No, sir, it doesn't say it for sure.

3 Q. Doctor, doesn't it say no differences were found in
4 those with and without chloracne?

5 A. In that -- in this category there, yes, was no
6 difference found between the people that had sufficient dose
7 to cause chloracne.

8 Q. Doctor, that's the dose response you're talking
9 about, isn't it, sir?

10 A. Yes.

11 MR. HEINEMAN: Objection, Your Honor, he's
12 interrupting the witness.

13 THE COURT: Objection sustained?

14 A. I was taking the section as a whole. There are
15 other parts where there is clearly a dose response and the
16 rest of it where there was not.

17 Q. Now, Doctor, what you're -- what this shows is is
18 that there is a dose response for certain symptoms such as
19 muscle pain, insomnia, decreased libido, sexual dysfunction,
20 eyelid cysts, correct, sir?

21 A. A dose response in terms of the individuals in this
22 study, the dose response --

23 Q. That's what we're talking about is the individuals
24 in this study, the Nitro workers, Dr. Dost, the same workers

1 that Dr. Carnow -- part of the same workers that Dr. Carnow
2 examined.

3 A. Well, the dose response relates to the others, too,
4 it's just that they didn't reach a point where there would be
5 a difference.

6 Q. Doctor, where is there anything in this study that
7 suggests to you that there is a dose response for those
8 having joint pain? Point it out to me, Doctor.

9 A. There is a dose response. None of these
10 individuals reached the point where there is a difference
11 demonstrated.

12 Q. Excuse me, Doctor. Point out where this article
13 shows there is a dose response for those people having joint
14 pain.

15 A. This article does not describe the dose response
16 except to say that the people with chloracne, who obviously
17 had a higher dose --

18 Q. Doctor, that isn't what I asked you. Point out for
19 me in this article where it says there is a dose response for
20 those workers having joint pain.

21 A. It does not say that.

22 Q. There is nothing in this article that states
23 insofar as the problem of joint pain is concerned that there
24 is a dose response related to dioxin exposure, isn't that

1 correct, sir?

2 A. There is no data in this paper that shows that.

3 Q. Is the answer to my question yes, that's correct,
4 Mr. Carr?

5 A. That's correct.

6 Q. Yes. And as a matter of fact, this document,
7 there's nothing in this document that shows there is any dose
8 response connected with those that have abdominal pain as
9 well, isn't that correct, sir?

10 A. No, they haven't reach a point where --

11 Q. Excuse me, could you answer that question, Dr.
12 Dost?

13 A. That's correct.

14 Q. The same thing is true for those having nausea.
15 There is no dose response for those people having nausea
16 that's been exposed to dioxin, isn't that correct, sir,
17 according to this document?

18 A. From the data in this document, that's correct.

19 Q. And from the data in this document there is no dose
20 response for people who have the affliction called vomiting
21 or diarrhea, isn't that correct, sir?

22 A. Not data in this paper.

23 Q. And again in this paper there is no dose response
24 for those people exposed to TCDD having weakness or fatigue,

1 isn't that correct, sir?

2 A. . Yes, neither group.

3 Q. Is the answer to my question, yes, that's correct,
4 Mr. Carr?

5 A. That's correct.

6 Q. As far as this document is concerned, there is no
7 dose response for exposure to TCDD for irritability, is
8 there, sir?

9 A. According to this document, no.

10 Q. Again is the answer to my question, yes, Mr. Carr,
11 that's correct?

12 A. That's correct.

13 Q. Doctor, insofar as this document is concerned and
14 this study is concerned, there is no dose response for people
15 who are caused to be nervous by TCDD, is there, sir?

16 A. No, sir.

17 Q. And the same thing is true for those people who
18 have numbness, there is no dose response shown for people
19 that have numbness being caused by TCDD, isn't that correct,
20 sir?

21 A. Yes, that's correct.

22 Q. For vertigo or lightheadedness or personality
23 change, again this document demonstrates there is no dose
24 response for those symptoms, doesn't it, sir?

1 A. No, sir, that's not correct.

2 Q. Doctor, do you not agree that the people with a
3 dose sufficient to cause chloracne had personality change?

4 A. That's not the question you asked me, sir.

5 Q. Excuse me, Doctor. I'm leading to that, sir, do you
6 not agree that this document shows that, sir?

7 A. That's correct.

8 Q. Do you not also agree that the people who did not
9 have chloracne also showed and complained of personality
10 change after being exposed to TCDD?

11 A. If they were exposed to TCDD in any case they did,
12 yes.

13 Q. Doctor, are you taking Dr. Moses' work as correct,
14 that all of these population, that nobody in this population
15 could be caused an unexposed population or unexposed
16 subject? You do recall she testified to that, don't you,
17 sir?

18 A. That's correct.

19 Q. Rather she found that, sir. And you also agree
20 that she said that no chloracne is not synonymous with no
21 exposure, don't you, sir?

22 A. That's correct.

23 Q. Doctor, you also agreed that there were people that
24 were heavily exposed to TCDD that never did get chloracne,

1 you also agree with that, don't you, sir?

2 A. Is that stated here?

3 Q. Doctor, you're the toxicologist. Don't you know
4 that it's shown here in this document?

5 A. How heavily?

6 Q. Doctor, do you know or not know that this document
7 shows that there were people who were heavily exposed to
8 dioxin that never did get chloracne?

9 A. Noone knows precisely how heavily --

10 Q. Excuse me, Doctor. Could you answer that question
11 please. I'm talking about this document, sir.

12 A. Well, perhaps you could show me where that
13 statement is made.

14 Q. No, Doctor, I will not show you. You're testifying
15 about this with regard to Mr. Heineman. Aren't you aware at
16 the time you testified, sir, that this document shows a
17 significant percentage of people who were heavily exposed to
18 dioxin never did get chloracne, aren't you aware of that?

19 A. I don't think that that shows that at all.

20 Q. Doctor, are you aware of that or not?

21 A. I'm not aware that this document shows that people
22 who were heavily exposed to TCDD did not get chloracne.

23 Q. Doctor, turn to Page 171, the table, if you recall,
24 I asked you about it on cross-examination. Perhaps you've

1 forgotten it. You see the table there at the bottom of the
2 page on 171 where they're talking about heavy exposure, sir?

3 You see the word heavy there?

4 A. It was heavy exposure to 2,4,5-T.

5 Q. You see that, sir, heavy exposure?

6 A. To 2,4,5-T, yes.

7 Q. And the 2,4,5-T has got the dioxin, isn't it, sir?

8 A. Yes.

9 Q. And, Doctor, do you see there 24 percent of the
10 people with a heavy exposure never did get chloracne?

11 A. That's--

12 Q. You see that, sir?

13 A. Yes, that's based on their--

14 Q. Doctor, whatever it's based upon what I'm asking
15 you--

16 MR. HEINEMAN: Objection, Your Honor, he
17 interrupted the answer again.

18 THE COURT: Objection is overruled.

19 Q. This document, this table shows that 24 percent of
20 the people who had a history of heavy exposure to 2,4,5-T and
21 to the dioxin contaminant therein did not get chloracne,
22 isn't that correct, sir?

23 A. If one uses the word in this document --

24 Q. Doctor, that's exactly what I've used all along,

1 that's what I been talking about is this document, sir.

2 Would you answer my question please, sir?

3 A. The amount of exposure is not known. This depends
4 on exposure.

5 MR. CARR: Your Honor, would you direct the witness
6 to answer my question.

7 THE COURT: Doctor Dost, you are so directed to
8 answer that question. That answer was not responsive.

9 A. Well, I'm trying to figure out how to answer your
10 question responsively Mr. Carr. Perhaps you could ask me
11 again and let's see if I--

12 MR. CARR: Would you read the question again.

13 (The Court Reporter read back the question at this
14 time.)

15 A. This diagram so states.

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

18 (At this time a conference was had at the bench out
19 of the hearing of the jury.)

20 THE COURT: Have you told him these guidelines that
21 I set down as far as what's to be done in this courtroom.

22 MR. HEINEMAN: Oh, sure that was before he --

23 THE COURT: No, those were set out during Kilgore.

24 MR. HEINEMAN: I have told him that--

1 THE COURT: Well, you better drive it home again.
2 He's interrogating counsel without responding to questions
3 and insisting upon not responding, and I won't tolerate it.
4 I'll give you an hour or two to drive the points home again.
5 I know this was settled during Dr. Kilgore's testimony, but I
6 think you better make him more familiar with it during the
7 lunch hour, and since it's noon we'll break at this time.

8 (The following proceedings were had in open Court.)

9 THE COURT: Ladies and gentlemen, we'll take our
10 lunch break at this time. We'll resume again at 1:15. I
11 would remind you that you're not to discuss this matter among
12 yourselves or with anyone outside the jury panel or as of yet
13 form any opinions or conclusions about the matters on trial.
14 Court's in recess until 1:15.

15 (At this time a short recess was taken.)

16
17 (The following proceedings were had in open Court.)

18 MR. CARR: Could you give Plaintiffs' 1665 to the
19 witness please.

20 Q. Now, Dr. Dost, are you familiar with this book put
21 out by the EPA?

22 A. I haven't had a chance to read all the way through
23 it. I know of its existence. I've seen a copy, but I haven't
24 studied it intensively.

1 Q. You haven't read it to see whether or not it --
2 health assessment document is consistent or inconsistent with
3 some of the things you've testified to in this case, Dr.
4 Dost?

5 A. I haven't had a chance to go all the way through
6 this. I don't know.

7 Q. Is the answer to my question that you have not had
8 the opportunity to compare what it says about the various
9 health effects with what you have said, cause I didn't get
10 that one way or the other.

11 A. I guess the answer would be, no, because I have not
12 finished inspecting it.

13 Q. Doctor, you do recall that you discussed whether or
14 not heme synthesis caused porphyria?

15 MR. HEINEMAN: Objection, Your Honor, may counsel
16 approach the bench?

17 THE COURT: Sure.

18 (At this time a conference was had at the bench out
19 of the hearing of the jury.)

20 MR. HEINEMAN: Mr. Carr has just opened this line
21 of questioning relating to something that the witness talked
22 about on direct examination that was not covered on redirect,
23 and I object to it. It's going beyond the scope of the
24 redirect examination.

1 MR. CARR: According to my notes not on this time,
2 but earlier when he testified, he testified about heme
3 synthesis and kidneys and porphyria. Well, he discussed
4 porphyria, as a matter of fact, just yesterday or last Friday
5 discussed porphyria with the witness.

6 MR. HEINEMAN: Well, Your Honor, my objection
7 stands. I don't recall to the best of my memory the last
8 time he testified before Dr. Kilgore came on the stand we
9 spent a lot of time, as I recall, on the Pitot article, Mr.
10 Carr had cross-examined the witness on.

11 THE COURT: Right.

12 MR. HEINEMAN: He testified, and we went on and
13 spent some time on that article, but I do not recall this
14 subject being gone into on redirect examination, and I object
15 to it as beyond the scope.

16 MR. CARR: You don't recall just last Friday
17 discussing porphyria with this witness?

18 MR. HEINEMAN: No, I don't recall discussing
19 porphyria.

20 MR. CARR: You went through articles to show whether
21 or not porphyria caused neuropathies, you don't recall that?

22 THE COURT: I'm pretty sure I have it in my notes.
23 Let me check.

24 MR. CARR: I have plenty of notes, Your Honor. I

1 can get my notepad here.

2 THE COURT: Yes, you did discuss it. Objection is
3 overruled.

4 (The following proceedings were had in open Court.)

5 Q. Doctor, you do recall discussing on -- counsel, if
6 you want to look for a November -- since you didn't remember
7 it, November 13, 1985 at Page 83 he discusses kidney damage.

8 MR. HEINEMAN: November what?

9 MR. CARR: November 13, '85, the day you conducted
10 your redirect examination just prior to putting on Dr.
11 Kilgore.

12 MR. HEINEMAN: On kidney damage?

13 MR. CARR: Yes.

14 MR. HEINEMAN: Well, your Honor, I thought the
15 question related to heme synthesis. At any rate, may my
16 objection be a continuing one?

17 THE COURT: Sure, I'll make it a continuing
18 objection.

19 Q. Doctor, you do recall we discussed the kidneys and
20 whether or not the heme synthesis can cause porphyria?

21 A. I recall only one -- I don't recall any reference
22 to kidney damage and porphyria except in my direct testimony
23 where I remarked that there was some evidence of, if I
24 recall, a very limited evidence of porphyria in the kidneys

1 of some intoxicated animals.

2 Q. Now, Doctor, turn to Page 8-48 of the document I
3 gave you, would you please, sir. It discusses there, does it
4 not, sir, the study by Goldstein on porphyria induced by
5 2,3,7,8-TCDD?

6 A. Yes.

7 Q. And, Doctor, are you familiar with this -- have you
8 read this page before that I referred you to?

9 A. Well, I read it in the original document. I don't
10 recall whether I've read it in this final report.

11 Q. Doctor, just a few points there relating to the
12 porphyrins. You see the statement there where after a six
13 month recovery period the porphyrin level in animals exposed
14 to one microgram per kilogram per week was still one hundred
15 fold higher than values in the control group?

16 A. Yes, sir.

17 Q. Do you also see the sentence, a similar pattern was
18 observed for urinary excretion of uroporphyrins?

19 A. Yes.

20 Q. You also see that they say the rate limiting enzyme
21 in heme synthesis?

22 A. Yes.

23 Q. Aminolevulinic acid synthetase was also elevated at
24 both the time of determination of treatment and at the end of

1 the recovery period?

2 A. Yes.

3 Q. All right. Now could you turn to Page 8-60
4 please. And 8 -- you see on 8-60 they're discussing humans
5 and the effect of acute exposure and chronic exposure?

6 A. Yes.

7 Q. And discusses the things that can be caused by
8 acute exposure on Page 8-60 and if you will turn over to Page
9 8-61 it says, does it not, sir, chloracne is generally the
10 first -- this is the paragraph beginning at the bottom of the
11 page or about midway in the middle of the page. Chloracne is
12 generally the first symptom noted in chronic exposure.
13 Systemic symptoms, including altered function of the
14 neuromuscular system, liver, kidneys, and pancreas, altered
15 blood chemistry, serum bilirubin, GOT, GBT, and cholesterol
16 levels, porphyria cutanea tarda, hyperpigmentation and
17 hyperkerotosis have also been reported in individuals that
18 have had chronic 2,3,7,8 exposure. You see that, sir?

19 A. Yes.

20 Q. All right. Now, Doctor, insofar as the Jirasek and
21 Pazderova articles that you testified before you left, Dr.
22 Kilgore has gone into these articles with us at some length,
23 but in order to touch base on what you testified for with Mr.
24 Heineman, the authors of these articles, that is Jirasek and

1 Pazderova, ascribe -- first of all, they knew about
2 hexachlorobenzene being in the chemical, did they not, sir?

3 A. Yes.

4 Q. And they knew that the hexachlorobenzene was one of
5 the chemicals to which these workers were exposed, did they
6 not?

7 A. Yes.

8 Q. But they ascribed, did they not, that the effects
9 suffered by these workers that they studied came from the
10 TCDD?

11 A. I believe that that was stated in the Pazderova
12 paper.

13 Q. Yes. Now, Doctor, with respect to the effect of
14 other chemicals mixed with TCDD, are you familiar with the
15 various studies by, for instance, by Goldstein in his
16 article, Plaintiff's Exhibit 1656, where he said the potency
17 of TCDD in producing hepatic porphyria suggests that even
18 slight contamination of environmental chemicals where TCDD or
19 chlorinated dibenzofurans may contribute substantially to the
20 porphyrinogenic effect of these chemicals.

21 MR. HEINEMAN: Excuse me just a moment, Doctor. May
22 counsel approach the bench, Your Honor.

23 THE COURT: Sure.

24 (At this time a conference was had at the bench out

1 of the hearing of the jury.)

2 MR. HEINEMAN: Now Mr. Carr has gone into
3 Plaintiffs' Exhibit 1673, the Goldstein article and --

4 THE COURT: I thought he said 1656.

5 MR. HEINEMAN: That's the first item on 1673 is the
6 article Plaintiffs' Exhibit 1656.

7 THE COURT: All right.

8 MR. HEINEMAN: This was not covered in the redirect
9 examination. Redirect examination had nothing to do with
10 this article, and I object to it as going beyond the scope.

11 MR. CARR: Your Honor, the redirect examination had
12 a great deal to do with porphyria and what causes porphyria,
13 and counsel went into it at considerable length.

14 MR. HEINEMAN: Well, I disagree, Your Honor, plus
15 the fact that he's talking--

16 MR. CARR: You disagree? You think you did not get
17 into porphyria?

18 THE COURT: My notes indicate that yesterday you did
19 go into porphyria, which is the basis of my ruling on the
20 last objection.

21 MR. HEINEMAN: Porphyria is one thing, Judge, but
22 now he's going into this business about whether or not dioxin
23 can cause in other environmental chemicals through the enzyme
24 induction business, the thing that he cross-examined Kilgore

1 on this subject after going first through that AMA statement
2 on enzyme induction and then down through into this thing, and
3 this was not covered with this witness at all.

4 MR. CARR: Your Honor, all kinds of health effects
5 were covered with this witness on redirect examination.
6 Simply because they chose not to ask a question about an
7 exhibit that we have that shows health effects surely doesn't
8 mean that I cannot cross-examine this witness on health
9 effects caused by dioxin.

10 THE COURT: I think the area was covered. I don't
11 think it's outside the scope. Again I'll -- I'm going to
12 overrule your objection. I'll make it a continuing objection
13 to this line of questioning.

14 MR. HEINEMAN: Thank you, sir.

15 Q. Doctor, to help you in this area when you testified
16 as to what chemicals may or may not do to workers, did you
17 have in mind the potentiating effect that these chemicals may
18 have one upon the other when they're mixed together?

19 A. Yes.

20 Q. All right. Then in that regard do you agree as --
21 with the statement that Goldstein has made here as I read it
22 to you? It's right at the very top of the exhibit that I've
23 given you, sir.

24 A. Well, no, sir, I don't.

1 MR. HEINEMAN: Excuse me, which exhibit has he been
2 handed.

3 MR. CARR: 1673, Counsel.

4 Q. You don't agree with what Goldstein says about the
5 potency of TCDD?

6 A. No, sir, you asked me a question relative to
7 potentiation by--

8 Q. My question, Dr. Dost. Do you or do you not agree
9 with the statement made there by Goldstein, the potency --
10 quote " the potency of TCDD in producing hepatic porphyria
11 suggests that even slight contamination of environment
12 chemicals with TCDD or chlorinated dibenzofurans may
13 contribute substantially to the porphyrinogenic effects of
14 these chemicals". Do you agree or disagree?

15 A. That's possible. I don't know what she means by
16 slight.

17 Q. Well, do you agree or disagree with this statement,
18 Dr. Dost?

19 A. I guess I would have to say that I would agree if
20 there's enough TCDD there.

21 Q. What it says, doesn't it say, Doctor, that even
22 slight contamination of these chemicals with TCDD may cause
23 these chemicals to be more porphyrinogenic than they would
24 have otherwise been? Isn't that exactly what it says? It

1 says may contribute substantially to the porphyrinogenic
2 effects of these chemicals?

3 A. It's not going to make those chemicals more
4 porphyrinogenic.

5 Q. Dr. Dost, that isn't what I asked you. I asked you
6 isn't that what this statement says?

7 A. No, sir it doesn't.

8 Q. The words may contribute substantially to the
9 porphyrinogenic effects of these chemicals, do you understand
10 what that phrase means, Dr. Dost?

11 A. Yes, I understand what that --

12 Q. It means that something put in there contributes to
13 the effects of the chemicals themselves, doesn't it, sir?

14 A. Perhaps we should clarify the definition.

15 Q. Excuse me, Doctor, could you--

16 A. No, sir, I don't-- no, sir it --

17 Q. The words may contribute substantially to the
18 porphyrinogenic effects of these chemicals doesn't mean that
19 that which precedes it causes these -- the porphyrinogenic
20 effects of these chemicals to be increased?

21 A. It may --

22 Q. Are you saying it doesn't say that, Dr. Dost?

23 A. No, sir, it doesn't.

24 Q. All right. That's the way you read this, sir?

1 A. May I explain how I read it?

2 Q. Sir, I'm asking you, Dr. Dost, that the way that
3 you have just stated is the way that is read, should be read
4 according to you?

5 A. There is a semantic problem there.

6 Q. Dr. Dost, there may be all kinds of problems there,
7 but if I argued semantics -- all I'm simply asking you, sir,
8 doesn't this sentence mean that the TCDD, when it's even
9 slightly contaminating these environmental chemicals, may
10 contribute substantially to the porphyrinogenic effects of
11 those chemicals that it is contaminated with?

12 A. No, sir.

13 Q. Doctor, how else can you interpret this sentence
14 except -- well, let's go one at a time. The potency of TCDD
15 in producing hepatic porphyria, you understand that, don't
16 you, sir?

17 A. Yes.

18 Q. Do you agree that TCDD is a potent cause of hepatic
19 porphyria?

20 A. In experimental animals it certainly is.

21 Q. No, Doctor, I didn't ask you that. My question is
22 do you agree that TCDD is a potent in producing hepatic
23 porphyria?

24 A. Yes.

1 Q. And the evidence of that, Dr. Dost, is that it does
2 it in experimental animals, isn't that correct, sir?

3 A. That's correct.

4 Q. But the conclusion that you reached from these
5 experiments is that TCDD is a potent producer of hepatic
6 porphyria, correct, sir?

7 A. Yes.

8 Q. And, Doctor, then we have no quarrel with the truth
9 or the falsity of that statement, do we, sir, TCDD is a
10 potent producer of hepatic porphyria?

11 A. That's correct.

12 Q. And the next statement. This fact suggests that
13 even slight contamination of environmental chemicals with
14 TCDD. Now we're in agreement on what that means, aren't we,
15 sir?

16 A. Yes.

17 Q. Slight contamination, a little bit of TCDD in these
18 environment chemicals, correct, sir?

19 A. Yeah.

20 Q. And then what does it say will happen or can happen
21 or may happen by this slight contamination?

22 A. What it says is that the TCDD by itself may add to
23 the effect that the other chemicals exert.

24 Q. Oh, Doctor, it says quote may contribute

1 substantially to the porphyrinogenic effects of these
2 chemicals. What chemicals are they talking about, Doctor, in
3 that phrase?

4 A. We're talking about the other chemicals that might
5 be in a mix.

6 Q. Yes, and it means it may contribute substantially
7 to the effects of these chemicals doesn't it, sir?

8 A. No, sir.

9 Q. Oh, isn't that exactly what it says, may contribute
10 substantially to the porphyrinogenic effects of these
11 chemicals?

12 A. It has no effect on the effects of these chemicals.

13 Q. Doctor, what I'm asking you, you say that it has no
14 effect upon these chemicals, that's what you're saying, but
15 isn't Dr. Goldstein saying that it does, that it may
16 contribute substantially not just to its own porphyrinogenic
17 effect, but it may contribute substantially to the
18 porphyrinogenic effects of these environmental chemicals?

19 A. No, sir, I don't believe that it does.

20 Q. All right. You have the right, Dr. Dost, to
21 disagree with that -- with this statement, have you not, sir?

22 A. That's correct.

23 Q. But you don't have the right, do you, sir, to say
24 that it's not talking about the porphyrinogenic effects of

1 these chemicals has contributed substantially to, do you,
2 sir?

3 A. I cannot argue with the words that are here.

4 Q. That's right.

5 A. But I do not agree with your definition, with your
6 interpretation of the words.

7 Q. Doctor, how else can you interpret the words that
8 even slight contamination may contribute to the effects of--
9 it doesn't say increase the porphyria, because of the TCDD
10 being added to it, that is, the porphyria caused by TCDD and
11 the porphyria caused by the chemicals. What it says is that
12 TCDD contributes to the effects of these chemicals in causing
13 porphyrinogenic effects, doesn't it, sir?

14 A. Those are the words that are were used. There are
15 no other chemicals in this experiment.

16 Q. Sir?

17 A. There were no other chemicals in this experiment.

18 Q. There were no other chemicals, sir? What you're
19 now quarreling with is the conclusion reached by the author,
20 aren't you, sir?

21 A. I do not believe that the author--

22 Q. Excuse me. What you're quarrelling with, Doctor, is
23 the conclusion reached by the author, aren't you, sir?

24 A. I'm quarrelling, I think, sir, with your

1 interpretation of author's conclusion.

2 Q. Doctor, didn't you just say that you did not
3 believe there were other chemicals involved and didn't you
4 mean by that to knock the conclusion reached by the author?

5 A. The author studied only TCDD in this experiment.

6 Q. Excuse me, Doctor, could you answer that question,
7 sir.

8 A. I am disagreeing with the conclusion as it is
9 worded in this statement.

10 Q. That's exactly what I asked you. You are
11 disagreeing with the words, with the conclusion reached by
12 that statement, aren't you, sir, in that statement; isn't
13 that what you just said?

14 A. It is an unclear statement.

15 Q. Didn't you just say you're disagreeing with that
16 conclusion, Dr. Dost?

17 A. That I am disagreeing with your contention that it
18 can -- that it causes other chemicals to be more
19 porphyrinogenic.

20 Q. Doctor, that isn't my contention. It is my
21 position as an advocate of my client, but I'm not a
22 toxicologist, and I'm not a scientist. My question is did
23 you not just a second ago agree that you disagreed with the
24 conclusion reached by the author of this article?

1 A. We have a problem. You read this sentence one way
2 and I read it another way.

3 Q. Dr. Dost, that isn't what I'm asking you. My
4 question now is just simply that did you just -- maybe you
5 didn't mean to say it, but didn't you just say a few seconds
6 ago that disagreed with the conclusion reached by this
7 author?

8 A. If this conclusion means that TCDD causes other
9 chemicals to be more porphyrinogenic, I certainly disagree.
10 I do not believe that that's what it means.

11 Q. All right. Well, what else does it mean, Doctor?

12 A. It means that TCDD as a porphyrinogenic agent may
13 very well add to the porphyrinogenic effect. In other words,
14 there are two sources of a porphyrinogenic effect and that
15 would be the way that this author, I'm sure, intended that
16 statement to mean.

17 Q. Doctor, you don't even have to be a scientist to
18 know that. What you're saying is one plus one, that is, the
19 porphyrinogenic effects of TCDD, being one, added to the
20 porphyrinogenic effects of another chemical, being one, that
21 equals two?

22 A. Exactly.

23 Q. Doctor, you don't need to have a scientific study
24 to determine that, do you, sir?

1 A. You certainly need a scientific study to determine
2 whether TCDD is porphyrinogenic.

3 Q. Doctor, that's a given in this situation. You're
4 not quarrelling with that. We have already agreed that
5 that's the case if it happens with experimental animals, so
6 we're not quarrelling with that point. I'm now asking you
7 what-- Isn't it a fact you don't need a study to deduce that
8 one plus one equals two?

9 A. That's correct.

10 Q. And this study, you know, doesn't say that, and you
11 don't need to have it to say that. Otherwise, what's the
12 significance of that statement at all, Doctor?

13 A. Because the author is trying to give some idea of
14 what the significance of TCDD as it exists as a contaminant
15 in any chemical, that author has done absolutely nothing in
16 that paper to even contemplate an interaction between TCDD
17 and some other chemical to cause an effect that neither by
18 itself is causing.

19 Q. Doctor, you may quarrel with what the author has
20 done, but he discusses ALA synthetase, does he not?

21 A. She does, yes.

22 Q. Discusses porphyrinuria?

23 A. Correct.

24 Q. And talks about the dose response for

1 porphyrinogenic action of TCDD should be determined after
2 longer exposure since effects may be seen at lower doses
3 after longer periods of exposure?

4 A. That's correct.

5 Q. And also discusses the fact that TCDD is the most
6 potent compound known to produce porphyria in mammals?

7 A. Yes.

8 Q. Doctor, there's no question in your mind but what
9 human beings are mammals, correct, sir?

10 A. That's correct.

11 Q. And human beings would be included in that
12 sentence, wouldn't it, sir?

13 A. Certainly.

14 Q. Yes. And, Doctor, the next sentences discuss
15 Orachlor and European PCB, does it not, sir?

16 A. I don't remember. I do not have that paper in
17 front of me, sir.

18 Q. You haven't been given that?

19 A. I have only have this.

20 Q. All right.

21 MR. CARR: Would you give 1656 to the witness.

22 Q. I thought you were reading along with me. I'm
23 sorry. Page 926 is where I'm reading. Now, Doctor, the
24 author does discuss Orachlor and pcb's from Europe?

1 A. Yes.

2 Q. And after making -- Doctor, there's no question
3 but what in this paragraph that you now see -- you see this
4 sentence that we're discussing that's the subject of our
5 topic so far?

6 A. That's correct.

7 Q. And there's no question but what she is discussing
8 TCDD Orachlor and other pcb's, correct, sir?

9 A. Yes.

10 Q. After making those discussions, she says the
11 potency of TCDD in producing hepatic porphyrias suggests that
12 even slight contamination of environmental chemicals with
13 TCDD may contribute substantially to the porphyrinogenic
14 effects of these chemicals, right, sir?

15 A. Yes.

16 Q. Doctor, the TCDD is contributing to the effect of
17 other chemicals, is it not, sir?

18 A. It is contributing to the total porphyrinogenic
19 effect.

20 Q. No, that would be the total porphyrinogenic effects
21 of the chemicals plus the TCDD.

22 A. No, sir. The chemicals -- she's not talking about
23 interaction of the chemicals. In fact, she's discussing, you
24 know, we do not know that, for example, pcb's, as I recall,

1 do not have a history of causing porphyria. They may, but
2 the effect of porphyria found in PCB's, for example, in Japan
3 that were contaminated with furans was ascribed to the
4 furans, not to the pcb's. The point is that --

5 Q. Now, when you say furans, you mean the dioxin
6 furans, don't you, sir?

7 A. The furans that are the dibenzofurans.

8 Q. Yes, that's the ones, the things that are created
9 at the same time the dioxins are created in these chlorinated
10 phenols, correct, sir?

11 A. They been identified in some, yes.

12 Q. Doctor, do you agree with the statement by Borman
13 and others in the paragraph there where it says, with the
14 plethora of environmental chemicals it seems possible that
15 exposure to one chemical may induce residual marrow damage
16 that would make an individual more susceptible to a second
17 chemical insult, although that hypothesis remains to be
18 tested? Do you agree with that statement?

19 A. That's not an unreasonable statement.

20 Q. Then I take it you do agree with it?

21 A. Yes.

22 Q. And, Doctor, do you agree with the statement
23 Cantoni and Salamony that the high potency underlines the
24 importance of considering the potential health hazards when

1 even slight contamination of the environment with this
2 compound, that is, TCDD occurs?

3 A. I don't know what they mean by slight, of course,
4 but I have to go by the -- Cantoni did work very similar to
5 that of Goldstein and worked out a dose response
6 relationship.

7 Q. Doctor, do you agree with the statement that even
8 slight contamination of the environment with TCDD should be
9 considered from the viewpoint of potential health hazards?

10 A. Yes, that's what we do all the time.

11 Q. Doctor, do you also agree that there are profound
12 long-term effects from exposure to dioxin molecules?

13 A. Well, that's a term that Oliver uses.

14 Q. Yes, my question is do you agree with what he says?

15 A. We know that it causes chloracne.

16 Q. Doctor, excuse me, could you answer that question
17 please, sir?

18 A. Yes.

19 Q. The answer is yes?

20 A. With respect to chloracne at least, yes.

21 Q. Doctor, there were a lot more effects discussed by
22 Oliver in his article than chloracne, was there not, sir?

23 A. There was discussion of cholesterol levels.

24 Q. Could you answer my question, Dr. Dost, there were

1 lot of other --

2 A. There were a few other.

3 Q. Health effects discussed in addition to just
4 chloracne, wasn't there, sir?

5 A. There were a few, not a lot, sir.

6 Q. Well, Doctor, there was discussed in the case --?

7 MR. CARR: Could you give him 1645 please.

8 MR. HEINEMAN: Excuse me, Your Honor, may counsel
9 approach the bench a minute.

10 THE COURT: Sure.

11 (At this time a conference was had at the bench out
12 of the hearing of the jury.)

13 MR. HEINEMAN: I just wanted to be sure for the
14 record that my continuing objection applies to everything on

15 --

16 THE COURT: It applies to -- your continuing
17 objection applies to everything out of 1673.

18 MR. HEINEMAN: Everything on 1673.

19 THE COURT: That's what I thought.

20 MR. HEINEMAN: That's the way I interpreted it, too.

21 THE COURT: That's the way I interpreted it, too.

22 MR. HEINEMAN: But I wanted to be sure. Okay.

23 THE COURT: Okay.

24 (The following proceedings were had in open Court.)

1 Q. Doctor, the first Patient A had problems of -- one
2 of which was a very high cholesterol in addition to the
3 chloracne, was it not, sir?

4 A. Yes, he had a very high normal cholesterol.

5 Q. He had a very high normal cholesterol? Where does
6 it say that, Doctor?

7 A. His cholesterol was in the range that is usually
8 found in medical texts as on the high side of normal.

9 Q. Doctor, where does this statement show that he had
10 a high normal cholesterol?

11 A. It states that his level was 302 milligrams per
12 hundred ml, which is in the terms of this paper surprisingly
13 high for his age.

14 Q. Yes, that's what Oliver says, isn't it, sir?

15 A. That's his statement, yes.

16 Q. Doctor, the next patient had collicy pains,
17 flatulence, loss of weight, excessive fatigue, oppressive
18 headaches, loss of vigor, blurring vision, neuropsychiatric
19 problems, correct, sir?

20 A. Yes, this is what the experienced-- yes.

21 Q. And high cholesterol as well?

22 A. Yes.

23 Q. Now, Doctor, that's considerably more than just
24 chloracne, is it not, sir?

1 A. Yes.

2 Q. The third one did not get chloracne, but had a
3 large number of symptoms, including loss of energy, loss of
4 concentration, indigestion, flatulence, intermittent
5 diarrhea, palpations, flickering vision from the nerve
6 peripheral visual fields, difficulty focusing his eyes,
7 difficulty in sleeping, paralytic pain, oily skin, longer
8 hairlines, correct, sir?

9 A. Yes.

10 Q. And again hypercholesterols, correct, sir?

11 A. Yes.

12 Q. Now, that is significantly more-- well, he didn't
13 even have chloracne there, did he, sir?

14 A. No, according to their description.

15 Q. Now, the author describes those effects after two
16 years as being profound long-term effects, doesn't he, sir?

17 A. Yes.

18 Q. And the author also says that this evidence
19 suggests that those accidentally exposed to dioxin may be
20 subject to long delayed toxic effects, does he not, sir?

21 A. Yes, he does that.

22 Q. Do you quarrel with that statement, Dr. Dost?

23 A. On the basis of his evidence here, that seems
24 possible.

1 Q. Well, my question is do you quarrel with it,
2 Doctor?

3 A. No.

4 Q. All right. Doctor, do you disagree with the AMA
5 statement that because TCDD is a very powerful enzyme inducer
6 that in addition to altering normal enzyme activity it may
7 potentiate the harmful action of other toxins or even render
8 an otherwise innocuous agent toxic? Do you disagree with that
9 statement, sir?

10 A. Yes, I do.

11 Q. Doctor, you're not a M.D., are you, sir?

12 A. No, I'm not.

13 Q. And you're aware of the fact that Dr. Kilgore --
14 you do know Dr. Kilgore, don't you, sir?

15 A. Yes, I'm acquainted with Dr. Kilgore.

16 Q. And he's not an M.D. either, but he served with a
17 lot of doctors, did he not, sir?

18 A. He served on the AMA panel, I believe.

19 Q. Yes. Doctor, you've worked with animals. Have you
20 not seen that the TCDD in animals potentiates the harmful
21 action of other toxins or renders an otherwise innocuous
22 agent toxic? Have you seen not seen that, sir?

23 A. I disagree with the last part of that question,
24 sir.

1 Q. Doctor, do you believe that these people that made
2 up the AMA panel just pulled that out of the air?

3 A. I know of no instance where it makes --

4 Q. Doctor, that isn't what I asked you. Do you believe
5 that they pulled this statement-- you are familiar with the
6 statement that I've read, aren't you, sir?

7 A. Yes.

8 Q. Have you ever -- have you ever told the AMA -- and
9 this was made by them was in 1984, wasn't it, sir?

10 A. I think so. I don't recall , '84, '83.

11 Q. Have you told them that you disagreed with their
12 statement that it may potentiate the harmful action of other
13 toxins?

14 A. I agree that it's possible that it can potentiate
15 the action of other toxic substances. It also can decrease
16 the action of other toxic substances. I disagree with the
17 statement that it will make innocuous materials harmful.

18 Q. Have you ever seen any studies that would suggest
19 that what they're saying is false?

20 A. I've never seen any study that suggests that it's
21 true.

22 MR. CARR: Your Honor, would you direct the witness
23 to answer my question.

24 THE COURT: The witness is so directed.

1 A. No, I have not seen specific studies that address
2 that question.

3 Q. Doctor, you made statements as to the content of
4 2,4,5-T in the world insofar as its levels are concerned. Do
5 you recall you said that it's one part per million?

6 A. I made that assumption.

7 Q. My question is do you recall you said that, sir?

8 A. Yes.

9 MR. CARR: Could you give Plaintiff's Exhibit 1486 to
10 the witness please.

11 Q. Doctor, for your information Plaintiff's Exhibit
12 1486 is an analysis by Monsanto of the TCDD content of the
13 2,4,5-T produced by Monsanto in the period of time from 1958
14 to 1965. Now, that exhibit shows in parts per million levels
15 many, many, many times higher than one part per million,
16 doesn't it, sir?

17 A. Yes.

18 Q. It shows the very lowest of TCDD content of
19 Monsanto produced 2,4,5-T is five parts per million, isn't
20 that correct, sir?

21 A. No, sir.

22 Q. Do you see any, sir, that's lower than five parts
23 per million in this document?

24 A. Yes, I see here in paragraph three, samples range

1 from 1966 to '69 -- excuse me before then Roush said samples
2 ranged from undetectable --

3 Q. Do you have 1486?

4 A. I have 1486.

5 Q. Apparently I don't.

6 A. The word undetectable is used here, the middle of
7 Paragraph 3, sir.

8 Q. I don't even know what that is.

9 MR. CARR: Look for this exhibit that's close to --
10 Mine is marked Plaintiff's Exhibit 1486. Mr. Nassif tells me
11 that the one he used is not an exhibit in the case. We could
12 never identify who prepared it. See if you got another 1486
13 in there. Look for 1487. That's the document that we got
14 identified by the CL number. You're in the 1600s.

15 THE CLERK: Here it is, Mr. Carr.

16 Q. 1487 instead of 1486. Now, let me start over
17 again, Dr. Dost. This Exhibit 1487 was represented to us at
18 least to be the analysis of dioxin in 2,4,5-T produced by
19 Monsanto in the period of time from 1958 to 1965. Now,
20 Doctor, this document shows, does it not, that the lowest
21 level of TCDD found in their 2,4,5-T was five parts per
22 million?

23 A. Excuse me. I don't know which of the dioxins they
24 refer to here. I don't think they had any way of knowing how

1 much of this was 2,3,7,8 and so on.

2 Q. Did I say 2,3,7,8 in my question?

3 A. I guess you didn't, sir, I'm sorry.

4 Q. I didn't, did I?

5 A. No.

6 Q. Because they report -- in back in this -- strike
7 that. In any event, the TCDD described there is five parts
8 per million, isn't it, sir, the lowest amount?

9 A. Lowest amount, yes, sir.

10 Q. And up until 1982, thereabouts, '81 when isomer
11 specificity was more widespread in the ability of chemical
12 companies and others to be isomer specific a finding of TCDD
13 in a chemical one had no way of knowing how much was 2,3,7,8
14 and how much might have been some other TCDD, isn't that
15 correct, sir?

16 A. Yes, sir, that's correct.

17 Q. So far as we know, the Agent Orange, except for
18 samples they've tested later than that, could have been
19 largely 2,4,5-T that contained very little of 2,3,7,8-TCDD,
20 isn't that correct, sir?

21 A. Possibly, yes.

22 Q. Because all we know here is that these were levels
23 of the tetras, and we have no way of being specific, isn't
24 that correct, sir?

1 A. Yes.

2 Q. Now in point of fact that actually was true as well
3 in the TCDD content found in various places around the world
4 including Spolana, Czechoslovakia and Seveso Italy at that
5 time, isn't that correct, sir?

6 A. Yes.

7 Q. So when these authors, Reggianni and others,
8 reported levels of 2,3,7,8-TCDD in the chemicals, actually
9 what they were reporting were levels of TCDD's without isomer
10 specificity, isn't that correct, sir?

11 A. Yes.

12 Q. As far as we know and as far as Reggianni and
13 others know the chemicals spilled in Seveso, Italy could have
14 contained very high levels of 1,3,6,8-TCDD and very low
15 levels of 2,3,7,8-TCDD, isn't that correct, sir?

16 MR. HEINEMAN: Excuse me, Doctor. May counsel
17 approach the bench, Your Honor.

18 THE COURT: Sure.

19 (At this time a conference was had at the bench out
20 of the hearing of the jury.)

21 MR. HEINEMAN: Again Mr. Carr goes totally beyond
22 the scope of the redirect examination. I object to it as
23 being beyond the scope. This was covered with Kilgore. It
24 was not covered with this witness.

1 MR. CARR: The level of 2,4-- of TCDD in 2,4,5-T
2 was gone into by Mr. Heineman, and this subject is certainly
3 -- this kind of testimony --

4 THE COURT: Well, it was in redirect.

5 MR. HEINEMAN: It had nothing to do with whether or
6 not the levels reported by Reggianni and others in these
7 other industrial accidents was 2,3,7,8 or was some other
8 isomer.. Those were gone into very specifically with Dr.
9 Kilgore and not with this witness.

10 MR. CARR: The subject is contamination of the
11 environment with TCDD. You brought up the subject that there
12 couldn't be very much 2,3,7,8-TCDD in the environment of
13 2,4,5-T has only got the one part per million. The entire
14 area was gone into.

15 THE COURT: Objection is overruled.

16 (The following proceedings were had in open Court.)

17 Q. Could you answer my question please, Dr. Dost?

18 A. I would appreciate if you could repeat it.

19 MR. CARR: Could you read it to him.

20 (Court reporter read back the last question.)

21 A. Yes, that's correct. It's possible.

22 Q. Or it could have been vice versa, it could have
23 been high levels of 2,3,7,8 TCDD and low levels of the other
24 tetras, correct, sir?

1 A. Yes.

2 Q. What they reported in these studies with which
3 you're familiar is simply levels of TCDD and not which -- how
4 much was 1,3,6,8 or 2,5,7,2 or any one of other 22 isomers,
5 isn't that correct, sir?

6 A. Yes.

7 Q. The same thing is true, is it not, Dr. Dost, about
8 the reports for the 2,3,7,8-TCDD level spilled in the Times
9 Beach or sprayed rather in the Times Beach area, what they
10 reported in those years again was total levels of TCDD,
11 correct, sir?

12 A. Yes.

13 Q. So it could have been, the TCDD content at Times
14 Beach could be largely 1,3,6,8-TCDD or some other isomer of
15 TCDD and very little 2,3,7,8-TCDD, isn't that correct, sir?

16 A. That's possible, yes.

17 Q. Or again vice versa, we simply have no way of
18 knowing, because they were not isomer specific at that period
19 of time. We simply have no way of knowing how much, for that
20 matter if any 2,3,7,8-TCDD was in Seveso or Times Beach or
21 Spolana, Czechoslovakia?

22 A. On the basis of those analyses back then, that's
23 correct, yes.

24 Q. Do you know whether or not anybody has re-analyzed

1 since they've got isomer specific the soil at Seveso?

2 A. I don't remember, sir.

3 Q. Do you know if anybody since they got isomer
4 specific anybody has ever re-analyzed the soil at Times
5 Beach?

6 A. I believe that's been done.

7 Q. And what levels were reported in that, sir?

8 A. I really don't --

9 Q. And who did it, sir?

10 A. I really don't remember the levels that were
11 found. I don't remember who did it. I'm aware of this
12 primarily through research that was done with Times Beach
13 soil, McConnell's work, for example, in which apparently the
14 isomer specificity had been determined, but I do not remember
15 any analytical work per se, on this.

16 Q. You actually know more than that, don't you, Dr.
17 Dost? You know that Shroy analyzed this soil -- well, he
18 wasn't completely isomer specific either, was he? You do
19 know that Shroy analyzed the Times Beach soil, don't you,
20 sir, through the Dayton Laboratories with Dr. Hileman?

21 A. I know that he analyzed soil or had soil analyzed
22 from Eglund. I don't remember the Times Beach, his work in
23 Times Beach.

24 Q. Doctor, you read his Exhibit 1148, the work that he

1 did dealing with the mobility of dioxins, didn't you, sir,
2 that he wrote in 1984?

3 A. Yes, I don't remember details of it though, I'm
4 afraid.

5 Q. Doctor, in any event, the levels of TCDD in the
6 tank car, you know, in this case there was isomer specificity
7 by Dr. Christopher Rappe, don't you, sir?

8 A. Yes, sir.

9 Q. So far as you know is it a fair statement that the
10 only specific content, 2,3,7,8-TCDD content of a chemical
11 contaminated by it is the chemical analyzed in this case by
12 Dr. Rappe?

13 A. I don't know whether that's the only such case, but
14 I know that it was done in this case.

15 Q. I'm sorry, Dr. Dost?

16 A. Like I say, I don't know whether it's the only such
17 case. I know that it was done in this case.

18 Q. All right. Do you know of any other case or any
19 other spill or any other occurrence where they analyzed
20 specifically for 2,3,7,8-TCDD after they had isomer
21 specificity ability?

22 A. I don't remember any others.

23 Q. And, Doctor, all the -- all these other studies, it
24 may be, all these other accidents it may be that the TCDD

1 isomer present in these other accidents was large -- other
2 accidents was largely something other than 2,3,7,8, isn't
3 that correct, sir?

4 A. That's possible, yes.

5 Q. But we know in this case -- by this case I mean the
6 Sturgeon case, we know that the TCDD isomer present here was
7 largely 2,3,7,8, don't we, sir?

8 A. That's my understanding.

9 Q. Now, Doctor, insofar as the volatility of -- strike
10 that. If the TCDD contaminant that was in 2,4,5-T that you
11 used as a standard was one part per million, the fact that
12 Monsanto's 2,4,5-T product had as high as 55 parts per
13 million that would make it difference in your calculations,
14 wouldn't it, sir?

15 A. I used one part per million as a long-term overall
16 average contamination level, because it was a very crude
17 relationship that I was drawing.

18 Q. Doctor, what you said was the calculation that you
19 made for this jury was based upon 2,4,5-T containing one part
20 per million of TCDD, did you not, sir?

21 A. Yes.

22 Q. In point of fact, you know from Plaintiff's Exhibit
23 1487 that the TCDD content of the 2,4,5-T produced by
24 Monsanto was ranging from five to 55 times greater than one

1 part per million, don't you, sir?

2 A. During this period, yes.

3 Q. And the calculations that you made would have to be
4 multiplied by five or 55, wouldn't they, sir?

5 A. Or divided by the levels later after 1970, let's
6 say.

7 Q. What levels later do you have of Monsanto's
8 2,4,5-T, sir, that would be other than these that I've given
9 you here?

10 A. Monsanto didn't make 2,4,5-T after sometime in the
11 late sixties, if I remember.

12 Q. They didn't make it after 1970. The level that you
13 know of for 2,4,5-T is as far as Monsanto is concerned their
14 contribution to the environment they're all at levels of --
15 well, there's just a couple levels at five, all the others
16 are -- go from, as I say, from ten, 16, 17, 44, 41, 22, 55
17 parts per million, don't they, sir?

18 A. According to this, yes, sir.

19 Q. Now, Doctor, insofar as the contribution of the
20 environment would you say that if Exhibit 1487 is typical of
21 Monsanto's production during the period of time it produced
22 2,4,5-T that it contributed substantially to the TCDD in the
23 environment through the 2,4,5-T production?

24 A. Well, I'm sure that it would have contributed to

1 what had been distributed with 2,4,5-T.

2 Q. My question was it would contribute substantially
3 to that, sir.

4 A. Well, I don't know what -- I don't know how much of
5 the 2,4,5-T that was used. There were many producers, and I
6 don't know how much this contributed to--

7 Q. Doctor, we have testimony in this case that in one
8 year they produced for sale in the United States nine million
9 pounds of 2,4,5-T.

10 MR. HEINEMAN: Objection, your Honor, could we have
11 a citation for that?

12 MR. CARR: Surely. Well, I can't put my hand on it
13 this minute, counsel, but it's in evidence. I'll have to
14 supply it later, because it's not immediately available to
15 me, Your Honor, but that is the evidence, and we have
16 documentation for it if counsel --

17 MR. HEINEMAN: May we go to the bench, Your Honor.

18 THE COURT: Sure.

19 (At this time a conference was had at the bench out
20 of the hearing of the jury.)

21 MR. HEINEMAN: Mr. Carr continues to apparently
22 flaunt the order of the Court and continue to make statements
23 in front of jury, speaking objections.

24 THE COURT: I think he was answering yours.

1 MR. HEINEMAN: What I'm saying is my understanding
2 of the evidence in this case is that 2,4,5-T that was
3 produced by Monsanto during the Vietnam war period was done
4 under government contract and almost every bit of it went to
5 Vietnam, and it wasn't used in United States. That's my
6 recollection of the testimony.

7 THE COURT: Well, first of all, the first part of
8 what you said, I thought that was a colloquy between the two
9 of you and not a speaking objection. I don't think either of
10 you went beyond my order, so I disagree that it's
11 characterized as a speaking objection. As to the other thing
12 we been up here long enough to take a short break. Why don't
13 we do that. You find this at this break.

14 MR. CARR: If I have it with me. I can go to the
15 office.

16 THE COURT: Fine, okay, we'll take a short recess.

17 (The following proceedings were had in open Court.)

18 THE COURT: Ladies and gentlemen, we'll take a short
19 recess at this time. I would remind you that the
20 admonishments that I gave you earlier will apply during this
21 break also. Court's in recess.

22 (At this time a short recess was taken.)

23

24 (The following proceedings were had in open Court.)

1 MR. CARR: Counsel, I'm ready to approach the bench
2 again if you are.

3 THE COURT: Okay. Gentlemen.

4 (At this time a conference was had at the bench out
5 of the hearing of the jury.)

6 MR. CARR: I have supplied the citation to Mr.
7 Heineman, and in fairness to him I just gave it to him right
8 when you came in. And it is not -- you can interpret Dr.
9 Wilson's testimony on May 16th any way that you would like.
10 He says at one place there's 36 thousand pounds, another
11 place is 60 percent, and it is not clear as to what domestic
12 production was nor is it clear what was sold, how many pounds
13 was sold in the United States in this period of time, and we
14 have some documents that would suggest it was much higher
15 than what other documents say, but what I'll do is rephrase
16 my question so to avoid trying to -- unless counsel has got
17 some better interpretation of that testimony than I have,
18 cause I read it.

19 THE COURT: Rephrase it in what respect?

20 MR. CARR: Just say as far as the -- whatever
21 2,4,5-T was sold in the United States if Monsanto's 2,4,5-T
22 had these levels of dioxin that it would be a substantial
23 contribution without specifying the amounts.

24 THE COURT: Any objection to that?

1 MR. HEINEMAN: Yes, because the statement's been
2 made by Mr. Carr in the record that Monsanto sold nine
3 million pounds of 2,4,5-T domestically.

4 THE COURT: That would have to be taken back.

5 MR. HEINEMAN: That's absolutely not true. When he
6 was looking at with Dr. Wilson is Plaintiff's Exhibit 1400 and
7 --

8 MR. CARR: 1402.

9 MR. HEINEMAN: Well, the record says 1400.

10 MR. CARR: 1400 was looked at and then we got to
11 1402. See, I told you you would be confused. This is 1402
12 that the witness had. We were past 1400 already, we're on
13 1401?

14 MR. HEINEMAN: Where's that nine million thing
15 again?

16 THE COURT: It doesn't say how much.

17 MR. CARR: It says -- one place it says I have put
18 the two documents together now, 1400 showing the amount that
19 was used domestically. One place here that's what I was
20 doing with Wilson. Here it says during '65 we supplied 619
21 gallons, which is 16 percent of this total. 619 gallons is
22 six million pounds of 2,4,5 -- of Agent Orange, 16 percent
23 of its total, which would indicate that the total supply
24 would indicate that the balance of it was sold domestically,

1 but that's the problem that we got into with Dr. Wilson. It
2 was never made clear.

3 THE COURT: This is 1400?

4 MR. HEINEMAN: You say six million? That says 619
5 gallons.

6 MR. CARR: Gallons, which is six million pounds.

7 MR. HEINEMAN: Well, it was this graph right here.

8 MR. CARR: This is the graph here. I used this in
9 combination with what was the total supply.

10 THE COURT: Okay. All right.

11 MR. HEINEMAN: And what -- what Wilson said here in
12 referring to this graph that Mr. Carr asked Dr. Wilson it's
13 that --

14 THE COURT: Show it to me, and I'll read it.

15 MR. HEINEMAN: Nine million pounds. This refers to
16 total for everybody in the country, not Monsanto. Figure one
17 on Page 274, which is the exhibit that Mr. Carr referred Dr.
18 Wilson to as the Court saw in the transcript, says production
19 and domestic disappearance includes military, the 2,4,5-T
20 acid in the U.S. 1960 to 1970. So there just isn't any way
21 in the world that --

22 MR. CARR: Counsel, I intend to take back the
23 statement of nine million pounds being produced in -- being
24 sold by Monsanto in the United States.

1 THE COURT: There doesn't seem to be much of
2 substance to tell you what the limit was. I think what you
3 intend to do with the objection is fine. There just isn't
4 much else to go on. We're still on for arguing that motion
5 tonight, right?

6 MR. HEINEMAN: Yes.

7

8 (The following proceedings were had in open Court.)

9 Q. Dr. Dost, when I suggested to you that Monsanto
10 sold nine million pounds of 2,4,5-T in the United States,
11 that was in error, and we don't know the amount. There was
12 nine million pounds sold in the United States in a given
13 year, 1964 -- strike that, that isn't even correct. In '64
14 there were nine million pounds used in the United States on
15 nearly eight million acres. Actually the total used in the
16 United States was 8,912,000 pounds. We don't know how much
17 of that was Monsanto's production. I suggested to you that
18 it was -- that Monsanto produced nine million pounds, and we
19 don't know, we have no evidence to support the statement that
20 I gave you. We have a lot of evidence about how much was
21 supplied, but we don't have it for a given year, all right.

22 So I would ask you whatever the amount of 2,4,5-T
23 was that Monsanto sold in the United States it would have in
24 it the same level of contaminant of TCDD's as its-- as the

1 material that was sold, as the material that's described in
2 Plaintiff's Exhibit 1487, that is, in 1964, it was 12 parts
3 per million, in 1965 it was as high as 55 parts per million.
4 Now, given that, sir, do you agree that that is a
5 substantially higher level of contamination than the one part
6 per million that you mentioned earlier?

7 A. Yes, that's higher.

8 Q. All right. And, Doctor, depending upon the various
9 exposures of the people to the 2,4,5-T, that would have a
10 great deal to do with how much TCDD in their fat came from
11 Monsanto's 2,4,5-T or from somebody else's, correct, sir?

12 A. Well, we have no idea who it comes from. The
13 exposure would relate to the amount of TCDD in the fat.

14 Q. You know that Monsanto was a major producer of
15 2,4,5-T up until 1970, you know that, don't you, sir?

16 A. I know that they -- I don't know whether they sold
17 it in agriculture or whether this was the period of --

18 Q. We have testimony that they did.

19 A. I see.

20 Q. They sold it to the government, and they sold it to
21 agriculture. Their capacity was at least according to the
22 testimony, at least double what was sold to the government.

23 MR. HEINEMAN: Citation, sir.

24 MR. CARR: Yes, what I gave you, counsel. I said 50

1 percent of their production.

2 MR. HEINEMAN: In 1964?

3 MR. CARR: Whatever year it referred to in those
4 pages I gave you.

5 MR. HEINEMAN: One year.

6 Q. In any event, if Monsanto was a major producer of
7 2,4,5-T, the TCDD in its 2,4,5-T would contribute
8 substantially to the TCDD found in people's fat tissues,
9 would it not, sir?

10 A. I don't really know. I would expect that's
11 possible.

12 Q. Doctor, you testified for -- you gave a hypothesis
13 or Mr. Heineman based upon one part per million of TCDD in
14 the 2,4,5-T, did you not, sir?

15 A. Yes.

16 Q. Do you recall just doing that just yesterday, sir?

17 A. Yes, yes.

18 Q. If in fact the Monsanto production was from five to
19 55 parts per million, that's a major contribution to the TCDD
20 in the environment from 2,4,5-T, isn't it, sir, if they're a
21 major producer of 2,4,5-T?

22 A. Well, if this is -- if this is the source of TCDD
23 in the fat, yes, that would have to follow.

24 Q. Doctor, that doesn't take into account the source

1 of TCDD in the fat that is a more common contaminant than
2 2,4,5-T, that is, Lysol, does it, sir?

3 A. I have no idea.

4 Q. Doctor, you do know that Lysol has been used by the
5 American housewife and other commercial cleaners and the
6 hospitals and every place else for many, many years, you know
7 that, don't you, sir?

8 A. Yes.

9 Q. It's much more widely used, more commonly used by
10 the American public, and it would be much more apt to be
11 exposure to Lysol than they would to 2,4,5-T, wouldn't there,
12 sir?

13 A. But the quantities are vastly lower.

14 Q. Doctor, did you hear the question that I asked
15 you? Could you answer my question please?

16 A. I thought I was, sir.

17 Q. Would you read the question to him again and ask
18 him--

19 (The court reporter read back the question.)

20 A. If we disregard amounts, yes.

21 Q. That's what I asked you, Doctor. The ordinary
22 urban dweller doesn't go out the range land like the cattle
23 or does he, sir?

24 A. 2,4,5-T and very close relatives have been used for

1 years in house and yard maintenance.

2 Q. What's the very close relative?

3 A. Silvex.

4 Q. Silvex is manufactured by Monsanto as well, is it
5 not, sir?

6 A. I don't believe so. I do not know.

7 Q. Well, it makes the 2,4,5-T from which the Silvex is
8 made, isn't it, sir?

9 A. No, they're made by two separate processes. They
10 are different chemicals. One is not a derivative of the
11 other, they're similar.

12 Q. Doctor, directing your attention to the Lysol, you
13 do know that practically all households use Lysol, you do
14 know that, don't you, sir?

15 A. Yes.

16 Q. And that is something that we are all exposed to,
17 aren't we, sir?

18 A. In the absolute sense I suppose, yes.

19 Q. Is there any question about it, sir? Aren't we all
20 daily exposed, every commercial building we go into, it's
21 been cleaned with Lysol, every household -- that's an
22 exaggeration, that's not true. It is a very commonly used
23 cleaner in hospitals, in commercial buildings and in homes,
24 is it not, sir?

1 A. Yes.

2 Q. And we are thereby exposed to that cleaner wherever
3 we go, aren't we, sir?

4 A. Well, I have a little trouble with the term
5 exposed. I'm not sure that we do.

6 Q. Doctor, does the -- is the Lysol used sometimes
7 without washing it off?

8 A. Oh, I suppose sometimes it is, yes.

9 Q. Well, you know that it's recommended, the
10 manufacturer recommends that it be used with the children's
11 nursery without washing it off, you know that, don't you,
12 sir?

13 A. I find that a little surprising in view of the
14 toxicity of the Lysol.

15 Q. Well, Doctor, maybe that's improperly surprising,
16 because maybe I have misstated just exactly what the
17 manufacturer has said. I don't have the label in front of
18 me. It's been sometime since we've gone into it. You do
19 know that it is used on occasion or more than on occasion
20 without washing it off, don't you, sir?

21 A. I suppose it is. It's not supposed to be.

22 Q. Well, and you do know on occasion that it's used in
23 much more strong solutions than recommended as well, don't
24 you, sir?

1 A. Well, I would suppose.

2 Q. Not suppose, you been around, you know that for a
3 fact, don't you, sir? Lot of people if it says dilute it two
4 to one, why, they want it to be real strong, and they won't
5 dilute it two to one or ten to one or whatever?

6 A. Oh, I'm sure that happens.

7 Q. Doctor, the Lysol, if it contains 2,3,7,8-TCDD, is
8 something that all of us, housewife to the child, may be
9 exposed to, not just in the surface that it's on, but when
10 it's being used, when it's being sprayed or washed on, isn't
11 that right, sir?

12 A. I really don't know. I don't think that the
13 exposure to it is all that easy. When you say it's being
14 sprayed or washed, excuse me, what do you mean?

15 Q. Well, you do know that Lysol comes in a spray can,
16 don't you, sir?

17 A. Yes.

18 Q. And when it's sprayed on, it's in the atmosphere,
19 isn't it, sir?

20 A. Well, there are a number of products. I don't know
21 whether the spray configuration, I don't know what chemical
22 is involved, I know that there are --

23 Q. Lysol is what I'm telling you.

24 A. There are -- that's not the only product that goes

1 under the Lysol name. I was little surprised to find that
2 there are other disinfectants used in products that are
3 called Lysol, and I don't quite know --

4 Q. Doctor, you do know that Lysol comes in spray a
5 can?

6 A. I have seen products labeled Lysol in a spray can.

7 Q. It comes in a spray can, and it's sprayed, isn't
8 it, sir?

9 A. Well, yes, but I'm not sure --

10 Q. If it comes in a spray can, it's sprayed, isn't it,
11 sir?

12 A. Yes.

13 Q. And if it's sprayed, you're capable of inhaling
14 that vapor in the air, aren't you, sir?

15 A. That aerosol, yes.

16 Q. Well, the aerosol and whatever is attached to the
17 aerosol?

18 A. Yes.

19 Q. And if it's on a table, you're exposed to that,
20 aren't you, sir?

21 A. I don't know how easy it would be to get it off the
22 table.

23 Q. Doctor, insofar as the volatility is concerned, you
24 do agree -- no, you don't agree, you said TCDD is not

1 volatile, haven't you, sir?

2 A. I've explained that in great detail.

3 Q. Doctor, have you seen Mr. Shroy's work, 1148, in
4 which he described the volatility?

5 A. I believe I have. I don't remember it.

6 Q. Do you agree with him when he says TCDD is
7 volatile?

8 A. I have told you this before, yes.

9 Q. Well, you said before it's volatile as a piece of
10 metal, haven't you, sir?

11 A. No, sir, I didn't.

12 Q. Oh, you didn't? Well, what did you tell us about
13 that?

14 A. I told you that it had very, very limited
15 volatility.

16 Q. And how long would it take for a given amount of
17 TCDD to evaporate then in view of that?

18 A. I really have no idea how long it would take for it
19 to do that. It would depend totally on the kind of
20 circumstances that it was in, whether it was in a closed
21 system or open system.

22 Q. Well, the circumstances where it's in soil.

23 A. I really don't know how long it would take for a
24 given amount of TCDD to evaporate away. It would be very

1 slow. If it were up on the surface and if it was possible
2 for it to do that without breaking down in the light.

3 Q. How slow would you say it would be, sir?

4 A. I really don't know.

5 Q. Your best judgments, Dr. Dost.

6 A. I have no way of making such a judgment.

7 Q. Doctor, you've given us a judgment that it's not
8 going to harm anybody, you have said it's--

9 A. That's right.

10 Q. You said it's not volatile, you said that it's
11 going to stay in the soil. Now, you've had to make some
12 assumptions as to how long it's going to disappear in the
13 air, and you've also told us that you have no idea what
14 happens to it when it's vapor form, whether it degrades or
15 what happens to it when it comes up to the surface and comes
16 in the vapor form, you've testified that you have not the
17 least idea what happens to it, have you not, sir?

18 A. That's right.

19 Q. And, Doctor, it then becomes important, if you
20 don't know what happens to it after it comes up out of the
21 soil, it then becomes important to know how rapidly it
22 volatilizes and comes up from that soil if you're going to
23 make any kind of health assessment, isn't it, sir?

24 A. I don't believe that it comes up out of the soil.

1. Q. You don't believe that it comes out of the soil?

2 A. I believe that it's degraded by light before it
3 ever gets into the atmosphere.

4 Q. Doctor, then what you said on November 8th -- on
5 November 8th you didn't mean, sir? Sir?

6 A. Well, I'm not sure what you're referring to, Mr.
7 Carr.

8 Q. You're not aware of the testimony that you gave
9 that when it's in gaseous form --

10 MR. HEINEMAN: Could we have a citation please.

11 MR. CARR: Yes, and I'll give to to you in a
12 moment.

13 Q. You're not aware of the testimony you gave that
14 when it's in gaseous form, you don't know what happens to
15 it?

16 MR. HEINEMAN: Object to it, your Honor, unless I
17 can have a citation to what he's referring to.

18 MR. CARR: Page 86 and 87 of November 8th.

19 A. What I said was if it were to get in the
20 atmosphere--

21 Q. Doctor, my question is are you aware of what you
22 testified in that respect? You told us, Dr. Dost, that when
23 it's in a gaseous form, you don't know what happens to it.
24 That's what you told us, sir.

1 A. That's right.

2 Q. And when it's coming up out of the ground, it's in
3 gaseous form, isn't it, sir?

4 A. It's not just coming bubbling up out of the soil.

5 Q. Excuse me, Doctor, my question is when it comes up,
6 when it comes from the soil, it is in gaseous form, isn't it,
7 sir?

8 A. It doesn't leave the soil.

9 Q. It doesn't leave the soil?

10 A. No, sir.

11 Q. Dr. Dost, when it's in the soil, it's in gaseous
12 form, isn't it, sir?

13 A. It's not as a free gas in the soil, no, sir.

14 Q. Doctor, then you -- you don't consider that it is a
15 free gas coming up, sir?

16 A. No, sir.

17 Q. What is a gas, Doctor?

18 A. A gas is a quantity of individual molecules of a
19 substance that are in the -- that are free in the atmosphere.

20 Q. And it rises, doesn't it, sir?

21 A. Not necessarily.

22 Q. Well, you know from Dr. Shroy's work that it does
23 rise, don't you, sir?

24 A. Doctor Shroy showed that it --

1 Q. Excuse me, could you answer that question, sir.

2 A. Which work are you referring to?

3 Q. All of his works, Doctor.

4 A. He showed that it very, very slowly migrates toward
5 the surface.

6 Q. My question is didn't Dr. Schroy show that it turns
7 into vapor, sir, and gaseous form and volatilizes? Didn't
8 Mr. Shroy show that, sir?

9 A. He was describing a process within the soil.

10 Q. Would you answer that question as I gave it to you,
11 Doctor.

12 A. Yes.

13 Q. Don't go down some other path.

14 A. No, it's the same path.

15 Q. Did his work show that or not, sir?

16 A. He showed that TCDD has capability to volatilize.

17 Q. And in gaseous form, is it not, sir?

18 A. As it migrates among particles of the soil, yes.

19 Q. And he showed that it rises up in the soil column,
20 didn't he, sir?

21 A. Very, very slowly, yes.

22 Q. Doctor, could you answer my question, because I'm
23 not ready to get into the very, very slowly part?

24 A. All right, yes.

1 Q. And you agree that when it rises up, the -- there's
2 no way the sun can get to it if it's covered with ballast,
3 correct, sir?

4 A. Until it gets close to the top of soil, yes.

5 Q. Well, now, Doctor, if it's covered with ballast,
6 it's shaded, isn't it, sir?

7 A. While it is shaded, that's correct.

8 Q. If it's covered with ballast, it is shaded, isn't
9 it, sir?

10 A. Yes.

11 Q. And it's going to come up through that ballast,
12 isn't it, sir?

13 A. Not very fast.

14 MR. CARR: Your Honor, would you direct the witness
15 to answer my question.

16 THE COURT: Gentlemen, could you approach the bench
17 please.

18 (At this time a conference was had at the bench out
19 of the hearing of the jury.)

20 THE COURT: Your witness is not listening to him. If
21 he's pulling these stunts, I'm going to have a discussion in
22 chambers about contempt. He has not been answering
23 questions. He has been going on his own as far as answers.
24 He has been trying to interrogate the interrogator, which

1 he's not allowed to do, and I'm just not going to stand for
2 it. A number of witnesses did that, and I instituted these
3 rules and admonitions for a reason, and I'm not going to --
4 I'm going to order him to answer the question, and I suggest
5 at the next break that you strongly admonish your witness or
6 he's going to have some problems.

7 (The following proceedings were had in open Court.)

8 THE COURT: Dr. Dost, you have to respond to the
9 question that is asked of you and only to that question, no
10 other. Your last answer was not responsive to the question.
11 I'm ordering you to answer the question.

12 THE WITNESS: I'm sorry, sir. I'm perhaps trying
13 too hard.

14 THE COURT: Well, listen closely to the question and
15 just confine your answer to that question, no more, no less.
16 Now would you read question to him please.

17 (The Court Reporter read back the last question.)

18 A. No, sir, I'll have to answer that no.

19 Q. Doctor, do you recall your testimony on November
20 8th, 1985? I've asked you these questions beginning at Line
21 3. So the photo degradation effect of sunlight --

22 MR. HEINEMAN: I'm sorry, which page?

23 MR. CARR: Page 85, counsel.

24 Q. The photodegradation effect of sunlight would have

1 no role to play when TCDD is filled -- is spilled in the
2 railroad right-of-way, would it, sir?

3 Your answer was, not when it's buried, no. Then
4 this question: It would only have a role to play when the
5 ballast is removed, wouldn't it, sir? Your answer was, I
6 would assume so.

7 Then I said, when the TCDD evaporates in the soil,
8 it's evaporating in a place where it is not hit by the
9 sunlight, isn't it, sir? Your answer was, yes.

10 Question: If it is as volatile as Dr. Shroy
11 suggested? Answer: It would initially separate from the
12 soil under the gravel under the ballast.

13 Do you recall that being your answer, sir?

14 A. Yes.

15 Q. And eventually it's going to get out in the
16 atmosphere, isn't it, sir, in gaseous form?

17 A. Yes.

18 Q. Then, Doctor, that's how you testified at that
19 time, eventually it's going to get out in the atmosphere,
20 right, sir?

21 A. Yes.

22 Q. And you also testified it would turn into gas at
23 that point at a place where it's shielded from sunlight,
24 didn't you, sir?

1 A. Yes.

2 Q. Now, Doctor, you at that time it's in --

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

5 THE COURT: Sure.

6 (At this time a conference was had at the bench out
7 of the hearing of the jury.)

8 MR. HEINEMAN: Mr. Carr is misrepresenting this
9 witness' testimony again. What the witness said was it may.

10 MR. CARR: Yes.

11 MR. HEINEMAN: He just asked him, does it. He just
12 asked him didn't you testify it does, and he didn't read him
13 what the answer the man gave was. The man doesn't have the
14 transcript there in front of him.

15 MR. CARR: Does he have trouble remembering what he
16 testified?

17 MR. HEINEMAN: A month and a half ago, I think
18 maybe he might. My point, Your Honor, is in both of those
19 questions the answer was it may, not that it does but if may.
20 I object to the question as misleading the witness with
21 respect to this prior testimony. He didn't agree to it.

22 MR. CARR: I think I read it exactly what he said,
23 Your Honor, and --

24 MR. HEINEMAN: Did you use the term may? No, you

1 didn't use the term may, so you obviously --

2 MR. CARR: He said it would initially separate soil
3 under the gravel and ballast only gas at that time, counsel.

4 MR. HEINEMAN: That part you read to him when you
5 got down here, and you skipped down to here, that's the part
6 that you didn't read to him.

7 MR. CARR: The conclusion is exactly the same.
8 I'll read him exactly what he said.

9 THE COURT: Okay. Why don't you do that.

10 (The following proceedings were had in open Court.)

11 Q. Doctor from the -- you answered in response to
12 these questions as follows, did you not, sir? And when the
13 TCDD evaporates in the soil, it's evaporating in a place
14 where it is not hit by sunlight, isn't it, sir? And your
15 answer was, yes. Question: If it is volatile as Dr. Shroy
16 suggested? Answer: It would initially separate from the
17 soil under the gravel under the ballast.

18 Question: And it would turn into gas at that point
19 at a place where it's shielded from sunlight, wouldn't it,
20 sir? Answer: Well, it would come in contact with other
21 particles, in all likelihood bind to them dust. Question:
22 Eventually it's going to get out into the atmosphere, isn't
23 it, sir? Answer: It may, yes. Question: In a gaseous
24 form? Answer: It may, yes.

1 Didn't you answer that way at those times, Doctor?

2 A. Yes, sir.

3 Q. Doctor, when it's in gaseous form, when it's rising
4 up like a gas into the place where the sunlight could get to
5 it, it is in gaseous form, isn't it, sir?

6 A. Yes, it's individual molecules, yes.

7 Q. And, Doctor, you agree, do you not, that when it's
8 in that gaseous form, there's absolutely no work suggesting
9 any place that sunlight will degrade TCDD when it is in vapor
10 form, isn't that correct, sir?

11 A. Yes, that's correct.

12 Q. Doctor --?

13 MR. CARR: Could you give him Defendant's Exhibit
14 1148 to him. I'll just hand him an excerpt from it that the
15 jury has.

16 Q. Doctor, handing you just a part now of Defendant's
17 Exhibit -- let me give you the whole 1148, and I'll refer you
18 to parts of it. Oh, you found it? Well, good, I'll take
19 mine back. Doctor, are you familiar with that work?

20 A. Yes, I've looked through it. I'm not a physical
21 chemist, so -- but I am somewhat familiar with it.

22 Q. Doctor, you've testified to certain things relating
23 to physical chemistry, haven't you, sir?

24 A. Yes, sir.

1 Q. Doctor, this talks about it being in a vapor phase
2 for transfer, doesn't it, sir?

3 A. Yes.

4 Q. Doctor, Page 22, if you would turn to it. It says
5 TCDD volatile, doesn't it, sir?

6 A. Yes.

7 Q. Very first point, number one?

8 A. Yes.

9 Q. Now, Doctor, over what period of time -- Doctor,
10 would you put that down for a moment so you could listen to
11 me. Over what period of time is it your judgment that TCDD
12 will evaporate when it's in vapor form and disappear from the
13 soil such at Times Beach or whatever? Doctor, you're not
14 reading that article again. I'd like for you to listen to me
15 and answer that question, your judgment independent of what
16 Mr. Shroy has said.

17 A. I would think it would be very slow.

18 Q. Yes, but what period of time, Doctor, a period of
19 years?

20 A. I would think so, yes.

21 Q. And you wouldn't expect it then the bulk of it to
22 volatilize and disappear in the first six months, would you,
23 sir?

24 A. No, sir.

1 Q. Doctor, then do you agree with Mr. Shroy, sir?

2 A. In what respect, sir?

3 Q. That it will volatilize 90 percent of it in the top
4 one centimeter will volatilize during the first summer. You
5 don't agree with that, do you, Doctor?

6 A. Well, my information is based on the Eglund work.

7 Q. Doctor, then you haven't read the Times Beach work,
8 have you, sir? Have you, sir?

9 A. Well, apparently not, if this relates to --

10 Q. Doctor, the Eglund Air Force Base dealt with sand,
11 it didn't deal with soil such as Times Beach. It dealt with
12 something that they buried in sand, and they measured the
13 movement. The article that you have in front of you deals
14 with Times Beach, material sprayed on top of the soil, on the
15 surface?

16 A. Yes.

17 Q. You see that, sir?

18 A. Yes.

19 Q. You weren't familiar with that?

20 A. Well, I had read it, but I had not assimilated the
21 details.

22 Q. Doctor, you see Mr. Shroy said that 90 percent of
23 the applied TCDD volatilized from the top one sonometer of
24 soil during the first summer. You see that, sir?

1 A. Yes, I see that.

2 Q. Do you agree with that, Doctor, or do you have any
3 basis to disagree?

4 A. I don't have a basis for disagreeing with his
5 findings.

6 Q. Then you do accept it as true then, sir, that the
7 TCDD in the top one sonometer would volatilize, 90 percent of
8 it would volatilize in the first summer?

9 A. Well, I have no basis for disagreeing with it, sir.

10 Q. Then I take it then you would agree with it?

11 A. I have no choice, I have to agree with it.

12 Q. Then your testimony earlier that it would not
13 volatilize rapidly would be erroneous, wouldn't it, sir?

14 A. On the basis of this finding perhaps so, yes.

15 Q. Not perhaps so. There is no question about it, Dr.
16 Dost. What you told us earlier about it not volatilizing
17 rapidly is erroneous, isn't it, sir?

18 A. Well, if we depend on this statement, yes.

19 Q. Now, when you came here to testify about the
20 volatility and you told this jury that it wasn't volatile,
21 you didn't even worry about it in a vapor form, did Mr.
22 Heineman tell you or did Mr. Musgrave or any of the other
23 attorneys for Monsanto, did they tell you what their own
24 scientists found and said on the point at issue?

1 A. I was given this paper.

2 Q. Now, that isn't what I asked you. I asked you did
3 they tell you what their own scientists found and said on the
4 issue?

5 A. Well, I don't really remember, sir. They may very
6 well have.

7 Q. Doctor, if you had known it, you sure wouldn't be
8 taking a position today and now having to say that your
9 position was erroneous, would you, sir?

10 A. Well, I was basing my -- my opinion on the behavior
11 of the material in the Eglund study.

12 Q. Yes, but that's just part of the picture, Dr. Dost,
13 isn't it, because Eglund Air Force Base was sand, wasn't it,
14 sir?

15 A. Yes.

16 Q. Doctor, you certainly wouldn't have given that
17 opinion that you gave us if you had had this study by
18 Monsanto, if you knew what this study said, would you, sir?

19 A. I don't really know. I don't know how to explain
20 this.

21 Q. It's easy to explain it, Dr. Dost. You weren't
22 given the information when you were called into this
23 courtroom to testify as an expert, the information that you
24 need to draw appropriate scientific conclusions.

1 A. I was given this paper.

2 Q. Well, Doctor, you said -- also you said that it's
3 never -- never been in the air, didn't you, sir, never found
4 as a gas in the air?

5 A. That's correct.

6 Q. Doctor, this table -- would you turn to Page 32.
7 This study shows you that they measured it in the air in an
8 area where it was non-shaded, in the sunshine, doesn't it,
9 sir?

10 A. Yes.

11 Q. You didn't have that information either, did you,
12 sir, when you said it's never been found in the air? Isn't
13 that correct, Dr. Dost?

14 A. Well, I was given the information. Apparently I
15 did not notice it.

16 Q. Apparently you didn't. Now, Dr. Dost, you were
17 also -- Mr. Heineman this morning told you about Dr. Wilson's
18 testimony on the TCDD being in the fat tissue having a life
19 of three months to three years, something like that. Do you
20 recall that, sir?

21 A. Yes.

22 Q. He suggested to you that Dr. Wilson did not testify
23 that it had a life of three to five years. Do you recall
24 that, sir?

1 A. Yes.

2 Q. Doctor, he didn't show you the testimony of Dr.
3 Wilson nor the exhibit that -- where Dr. Wilson calculated
4 the amount of TCDD in the fat tissue?

5 A. I have seen such an exhibit.

6 Q. Where it showed three to five years, sir?

7 A. I don't believe I've seen an exhibit that showed
8 three to five years.

9 Q. Well, if you had --?

10 MR. CARR: Would you pass Plaintiff's Exhibit 1404 to
11 the witness please. Your Honor, I'm passing 1404 to the jury
12 again, and I know you wouldn't have yours available, so I'll
13 pass you this one.

14 THE COURT: Thank you.

15 MR. CARR: I have one for you, too, counsel, if
16 you'd like to use it rather than dig through yours.

17 Q. Dr. Dost, do you see the calculations of Dr. Wilson
18 there where he says this suggests-- at the bottom of the
19 page there -- this suggests half life for clearance is three
20 to five years?

21 A. Yes.

22 Q. And, Doctor, were you aware of that the question
23 that Mr. Heineman asked you or what he told you that Dr.
24 Wilson testified to indeed took place on May 16th, 1985, but

1 that on May 17th, 1985, just two and three pages after what
2 he discussed with you this exhibit was discussed in detail by
3 Dr. Wilson in which he said that half life was three to five
4 years. Did Mr. Heineman tell you anything like that, Dr.
5 Dost?

6 MR. HEINEMAN: Page number, sir?

7 MR. CARR: As I said, counsel, from Page 4 onward,
8 Page 2, 3, and 4, 5, Page 6, Page 7, Page 9.

9 Q. Dr. Dost, did you hear my question, sir? Dr. Dost,
10 you want to come back to me here?

11 A. I'm with you.

12 Q. Did you hear my question?

13 A. You asked me whether I was aware of this
14 information.

15 Q. And that Dr. Wilson had so testified. He didn't
16 tell you that, did he, sir?

17 A. I did not recall getting that information.

18 Q. Doctor, since he didn't -- do you know any reason
19 why he wouldn't tell you that Dr. Wilson testified, why he
20 would suggest to you that I told you something that Dr.
21 Wilson didn't testify to in fact?

22 MR. HEINEMAN: Objection, Your Honor, may counsel
23 approach the bench.

24 THE COURT: Yes, you may.

1 MR. HEINEMAN: You want to bring Page 4 with you,
2 Mr. Carr.

3 (At this time a conference was had at the bench out
4 of the hearing of the jury.)

5 MR. HEINEMAN: Right here at the bottom.

6 THE COURT: On the bottom of --

7 MR. HEINEMAN: The witness tells him --

8 THE COURT: Wait a second. I'll read it. Okay,
9 I've read it.

10 MR. HEINEMAN: Your Honor, Mr. Carr is again
11 misleading this witness. The testimony that he said, oh,
12 from two, Pages 2 to 9, here on Page 4 it says, the question
13 is, now the suggestion of the calculation there that a half
14 life is three to five years, again that is similar to what
15 you found yesterday in another exhibit that we discussed. I
16 don't have the number.

17 THE COURT: You don't have to read it in the record.
18 That's fine.

19 MR. HEINEMAN: My objection, your Honor, is is the
20 witness came back and said in answer to that question, I
21 think I used the range of about three months to three years
22 in those other calculations. Mr. Carr acknowledges that the
23 witness has used different ranges at other places. The
24 cross-examination or the redirect of this witness was

1 directed to the fact that when Mr. Carr examined him he told
2 you him that the Monsanto testimony was that the half life
3 was from three to five years.

4 MR. CARR: Yeah.

5 MR. HEINEMAN: And the redirect was directed to the
6 fact. It's clearly not what the Monsanto testimony was, that
7 the testimony of this witness was that it's from three months
8 to three years, and he says it again right here in the very
9 place where he's representing to this witness that it didn't
10 occur. It's right here.

11 THE COURT: Mr. Carr.

12 MR. CARR: Your Honor, Mr. Heineman represented to
13 the witness that Monsanto's witness didn't testify that half
14 life in human tissue fat tissue was three to five years and
15 he found where the witness said in one calculation that it
16 was three months to three years. He didn't at all tell the
17 witness that Dr. Wilson testified in a number of places that
18 the half life was three to five years nor that there was an
19 exhibit. That's what I'm bringing out at this point.

20 MR. HEINEMAN: Well, I object to this last question
21 of the witness as being misleading in that he is suggesting
22 to the witness that this testimony demonstrates that the
23 position is three to five years, and that's what the Wilson
24 testified to.

1 THE COURT: Objection is overruled.

2 Q. Dr. Dost, did you assume when you answered
3 questions for Mr. Heineman that Monsanto had not found in its
4 calculations that -- and in this Exhibit 1404 that the half
5 life in fat tissue was three to five years?

6 A. That's correct.

7 Q. What you thought Monsanto had calculated and the
8 only thing it had calculated was that the half life in fat
9 tissue was from three months to three years, isn't that
10 correct, sir?

11 A. Yes.

12 Q. Now, do you know any reason why Mr. Heineman would
13 not have given you Exhibit 1404 or why he wouldn't tell you
14 that Monsanto had calculated the half life in fat to be three
15 to five years?

16 A. I do not know.

17 Q. Is it possible that he wanted to get certain
18 answers from you, sir, and that if you knew the full
19 testimony of evidence that Monsanto has put in here, that
20 your answer might be somewhat different than what you have
21 given here today?

22 A. No, sir, I don't think so.

23 Q. All right. Doctor, with regard to the half life of
24 three to five years that Monsanto has calculated in this

1 particular exhibit, that happens to be very close to the same
2 half life that Poiger and Schlatter related in Monsanto --- in
3 Plaintiff's Exhibit 1646, isn't that correct, sir?

4 A. Yes.

5 Q. Matter of fact, Poiger and Schlatter estimated a
6 half life of 4.95 years, didn't they, sir?

7 A. Yes.

8 Q. Now, does -- do you think that the Monsanto -- you
9 stated that you believe Poiger's calculations are in error.
10 Do you believe that Dr. Wilson's calculations are in error?

11 A. Yes, I do.

12 Q. Well now, Dr. Dost, Dr. Wilson used or calculated
13 this based upon the fact that there were five to 30 parts per
14 trillion of TCDD found in range cattle, didn't he, sir?

15 A. That's correct.

16 Q. And Dr. Poiger's calculation was actually based
17 upon a measured calculation, a measured finding of
18 radioactive TCDD, 2,3,7,8-TCDD, did he not, sir?

19 A. Yes.

20 Q. And according to Exhibit 1646 -- do you have 1646
21 in front of you?

22 A. Yes, I have.

23 Q. 1646, sir, shows that in a -- that the radioactive
24 material was ingested by a male volunteer, doesn't it, sir?

1 A. Yes.

2 Q. And, Doctor, the article also tells you -- you took
3 some criticism of this study; do you recall that, sir?

4 A. Yes.

5 Q. You think it's not valid, and you think Dr.
6 Wilson's calculation is not valid, correct, sir?

7 A. That's correct.

8 Q. All right. And, Doctor, this particular Plaintiffs'
9 Exhibit 1646 they took biopsies of fat tissue prior to
10 dosage, did they not, sir?

11 A. Yes.

12 Q. And you criticized earlier in direct examination,
13 redirect examination by Mr. Heineman that you didn't know or
14 they didn't know what TCDD was in the fat before the
15 ingestion of the sample; do you recall that, sir?

16 A. That's right.

17 Q. But in point of fact they tell you that they do
18 know, don't they, sir, they measured it?

19 A. I don't see any place where they measured the
20 baseline TCDD level in the fat.

21 Q. Doctor, don't you see that sentence, biopsies of
22 subcutaneous adipose tissue were taken prior to dosage?

23 A. That's correct.

24 Q. As well as ten and 69 days after dosage?

1 A. That's right, but they haven't --

2 Q. Doesn't that mean to you, Doctor, that they knew
3 what was in the fat tissue before he swallowed, before this
4 male volunteer swallowed the radioactive TCDD?

5 A. There is no evidence that they measured the TCDD
6 activity in that sample.

7 Q. Excuse me, Doctor, could you answer my question
8 please, sir?

9 A. You're asking me if they measured the TCDD level in
10 the fat prior to the --

11 Q. What I'm asking you, sir, doesn't it indicate, this
12 document indicate that they biopsied the fat tissue before
13 they ever administered the radioactive TCDD?

14 A. They certainly did.

15 Q. What would be the reason they took a biopsy before
16 they gave them the radioactive stuff?

17 A. They would do that for two purposes. One would be
18 to determine the total amount of TCDD in the tissues. The
19 other would be to determine the amount of radioactivity
20 background that might be in that sample.

21 Q. Doctors Poiger and Schlatter are competent
22 scientists, aren't they, sir?

23 A. Yes.

24 Q. They been head of the institute, working with the

1 Institute of Toxicology in Switzerland there for many, many
2 years, haven't they, sir?

3 A. Yes.

4 Q. They had been working with TCDD-- well, you never
5 worked with TCDD, have you, sir?

6 A. No.

7 Q. But they have worked with it for many, many years,
8 haven't they?

9 A. Yes.

10 Q. Do you reckon that they would know how to measure
11 or the significance of measuring TCDD in fat tissue before
12 the tests were undertaken?

13 A. I'm sure they do. They did not report it here.

14 Q. Doctor, this is a abstract. We don't have their
15 full study, do we, sir?

16 A. But that's an absolutely critical finding.

17 Q. Doctor, there's no question about that. It doesn't
18 say they didn't do it, does it, sir?

19 A. They have to have that information to make the
20 calculation.

21 Q. Excuse me, Doctor, it doesn't say they didn't do
22 it, does it, sir?

23 A. No, it does not say they didn't do it.

24 Q. And you know these men to be competent scientists,

1 don't you, sir?

2 A. Yes.

3 Q. And a competent scientist would do that, wouldn't
4 they, sir?

5 A. Yes.

6 Q. So can't you assume that these competent scientists
7 did that which you said competent scientists would do?
8 There's no mention in the abstract -- it's a very short
9 abstract, there's no mention in the abstract that they did
10 anything to the contrary, isn't that correct, sir?

11 A. That's correct.

12 Q. Then won't you assume that these gentlemen did
13 which competent scientists should do?

14 A. No, sir, I cannot assume that.

15 Q. Doctor, if you know they're competent scientists,
16 why can't you assume that they would do what competent
17 scientists would do under such circumstances when you have
18 nothing in this document to the contrary?

19 A. It would take about five words to provide that
20 answer, and I'm sure they would have provided it.

21 Q. Doctor, this is an abstract.

22 A. An abstract even so, sir, would provide that
23 information.

24 Q. Doctor, an abstract is not supposed to give all of

1 the supporting data all, of the supporting work, the methods
2 and methodology and all that to support a conclusion, is it,
3 sir? If they did, it would soon not be an abstract, would
4 it, sir?

5 A. That's critical data, and I would assume--

6 Q. No question about it, Doctor, it is critical data,
7 but that's not what I'm asking you. If they put all the data
8 in the abstract, it would soon not be an abstract, would it,
9 sir?

10 A. That's correct.

11 Q. Now, in an abstract don't -- wouldn't you give
12 these competent scientists the benefit of the doubt and
13 assume that they did which you said every competent scientist
14 would do?

15 A. No, sir.

16 Q. Doctor, then you're saying that these men are not
17 competent scientists?

18 A. No, sir, I'm not.

19 Q. You have no data in this abstract to the contrary,
20 isn't that right?

21 A. No, sir.

22 Q. Doctor, if they are competent scientists, they
23 would do that, wouldn't they, sir?

24 A. If they had done it, they would report it.

1 Q. Doctor, that's not what I asked you. They did --
2 we don't know whether they reported it, because we don't have
3 the study. You haven't seen the original document, have you,
4 sir?

5 A. No, sir.

6 Q. Then you don't know whether they reported it or not
7 in that original document, do you, sir?

8 A. I've asked people who heard the paper.

9 Q. Doctor, my question is you don't know whether they
10 reported it or not, do you, sir?

11 A. I do not know directly.

12 Q. Doctor, there would be -- would they -- you
13 contemplate they would take a biopsy before they did the
14 study just because they want to inflict pain on the person
15 that's having the fat taken from his body?

16 A. No, sir.

17 Q. Or wanted to give him an extra scar?

18 A. No, sir.

19 Q. They would take that fat tissue for a scientific
20 purpose, wouldn't they, sir?

21 A. Yes.

22 Q. The only scientific purpose they would take that
23 fat tissue for is to see how much TCDD is in it, isn't that
24 correct, sir?

1 A. Yes.

2 Q. No other reason to take it, right, sir?

3 A. That's correct.

4 Q. So the only reason to take it is to see what TCDD
5 is in it, they took it, you know they're competent scientists
6 and yet you're still not willing to say that they did a
7 competent job in testing the -- in making their full report
8 or in their scientific study, is that right, sir?

9 A. That is correct, and I'll explain if you wish.

10 Q. No, Doctor, I don't want an explanation, Doctor,
11 because I want it to rest right there, sir. What you're
12 saying is that they did this in an incompetent manner for no
13 particular purpose, they would not do that which competent
14 scientists would do, is what you're saying, sir, that's the
15 only conclusion that can be reached from that, Doctor.

16 A. No, sir, that's not the only conclusion, sir.

17 Q. Do you reckon they didn't do anything with that
18 adipose tissue that they took prior to dosage?

19 A. They undoubtedly sent it for analysis. This is an
20 experiment in progress. This is an experiment in progress,
21 it has not run long enough, as I explained earlier to get --

22 Q. Doctor, they sent it for analysis, right, sir?

23 A. I'm sure they did.

24 Q. Okay. And then later on they took more samples,

1. didn't they, sir?

2. A. Yes.

3. Q. Ten days later they took some?

4. A. Yes.

5. Q. And 69 days later they took --

6. A. That's correct.

7. Q. They report the ten day adipose tissue level, don't
8. they, sir?

9. A. They report the radio isotope concentration in the
10. fat. That has nothing to do with the TCDD content of the
11. fat.

12. Q. Doctor, all they want to do is report the half life
13. of the TCDD in the fat, isn't that right, sir?

14. A. Yes.

15. Q. The significant part of this study is the half
16. life, right, sir?

17. A. Yes.

18. Q. And since you don't know how long the TCDD is in
19. the fat tissue to start with, you can't give a half life of
20. that, can you, sir?

21. A. No.

22. Q. The only way you can give a half life is to put a
23. known quantity in there at a specified period of time and
24. measure what happens to that known quantity, isn't that

1 correct, sir?

2 A. You must do it in a satisfactory time base.

3 Q. Could you answer my question, sir?

4 A. That's correct.

5 Q. And what they did here was put a known quantity of
6 radioactive TCDD in this volunteer's body, correct, sir?

7 A. Yes.

8 Q. And they measured that, didn't they, sir?

9 A. Yes.

10 Q. And they also measured the feces, didn't they, sir?

11 A. To determine how much was absorbed, yes.

12 Q. And doing those things, measuring the elimination
13 of the radioactivity on the feces, measuring in the urine and
14 in the adipose tissue, they concluded that there was a half
15 life of elimination of 4.95 years, didn't they, sir?

16 A. That was their conclusion.

17 Q. Yes.

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

20 (At this time a conference was had at the bench out
21 of the hearing of the jury.)

22 THE COURT: I'm going to take a ten minute break
23 now. I want you to admonish this witness again. As I told
24 you before, I'm advising you this would --

1 MR. CARR: I'm done with that particular part of it,
2 but not with the document.

3 THE COURT: With that particular page? We'll take a
4 ten minute break at this time.

5 (The following proceedings were had in open Court.)

6 THE COURT: Okay. Ladies and gentlemen, we're going
7 to take a ten minute recess at this time. The admonishments
8 that I have given you earlier will apply during this break
9 also. Court's in a short recess.

10 (The following proceedings were had in open Court.)

11 MR. CARR: Could I have a Plaintiffs' Exhibit.

12 (Plaintiffs' Exhibit 1646A was marked for
13 identification.)

14 Q. Doctor, I have labeled a piece of paper here 1646A
15 and put at the top of it Poiger and Schlatter, that's the
16 authors of the article that we're discussing, right, sir?

17 A. Yes.

18 Q. The second line is 3H TCDD equals 105 nanograms.
19 That's the --

20 A. Nanograms, that's a tenth of a microgram, a little
21 over a tenth of a microgram.

22 Q. Yes, and that's the dose described by Dr. Poiger?

23 A. The total dose yes.

24 Q. By the male volunteer. Doctor, then I -- isn't

1 that correct, sir?

2 A. Yes.

3 Q. And I put underneath that the words elimination
4 feces first three days, feces thereafter, urine, half life of
5 TCDD. I didn't spell elimination very good, did I? And
6 elimination from the body, correct, sir?

7 A. Yes.

8 Q. Now, Doctor, in the -- what -- the way they
9 determined the half life of 4.95 years was not by measuring
10 the TCDD in the body fat, was it, sir?

11 A. Based on a fecal excretion data.

12 Q. Did you understand my question, Dr. Dost?

13 A. Yes.

14 Q. It was not based on measurement of the body fat,
15 was it, sir?

16 A. No, that's correct.

17 Q. It was based upon -- and by the way, you criticized
18 the McNulty study because they didn't make their decision
19 based upon feces elimination, correct, sir, do you recall
20 that?

21 A. Yes, they didn't correct the initial dose on the
22 basis of that.

23 Q. But here Poiger and Schlatter, they're measuring,
24 they're determining how much TCDD is leaving, what its half

1 life is by actually measuring the radioactive TCDD that's
2 eliminated from body -- in the body, doesn't it, sir?

3 A. Yes.

4 Q. Now, and in the first three days they measured how
5 much was excreted in the feces during the first three days of
6 their radioactive TCDD?

7 A. Yes.

8 Q. How much was that sir?

9 A. 11 and a half percent.

10 Q. And thereafter the fecal elimination radioactivity
11 decreased to an average of .031 percent per day of the body
12 burden, correct, sir?

13 A. Yes.

14 Q. And they also -- now that average would be over
15 what period of time, Dr. Dost? It tells you in the first
16 paragraph.

17 A. They followed for 125 days in the feces and 35 days
18 in urine.

19 Q. So what they did for 125 days, a little better than
20 a third of a year, they actually measured the radioactivity
21 of the TCDD that was being eliminated in the feces, did they
22 not, sir?

23 A. Yes.

24 Q. And then they also for 35 days they measured in the

1 same way the TCDD being eliminated in the urine, correct,
2 sir?

3 A. Yes.

4 Q. Now, is there any -- what they found that after the
5 first with the exception of initial samples containing low
6 amounts, no TCDD activity, no radioactivity could be measured
7 at a detection limit of .01 percent of the dose per day,
8 correct, sir?

9 A. That's correct.

10 Q. But they nevertheless made an assumption that there
11 was TCDD being eliminated at the limit of detection, didn't
12 they, sir?

13 A. Yes.

14 Q. That's erring on the safe side, correct, sir?

15 A. That's correct.

16 Q. So actually they assumed, while they didn't find
17 it, they assumed that .01 percent was being eliminated daily,
18 did they not, sir?

19 A. Yes.

20 Q. For the period of time in question?

21 A. Yes.

22 Q. So now -- and they concluded based upon these
23 measurements, did they not, sir, that the -- based on the
24 actual data from the fecal elimination and the urine being

1 eliminated at the level of detection, they concluded that it
2 has a half life of elimination of 4.95 years, didn't they,
3 sir?

4 A. That was -- yes.

5 Q. So they did their calculations of a half life in
6 the body based upon actual measurements of the -- of those --
7 of that TCDD that was being eliminated from the body, didn't
8 they, sir?

9 A. Yes.

10 Q. Doctor is that a valid scientific method of doing
11 it?

12 A. It is in part.

13 Q. Doctor, you can either measure what's left in the
14 body measuring the fat tissue or you can measure what you
15 know is being eliminated from the body to arrive at a
16 conclusion of half life, isn't that correct, sir?

17 A. Yes.

18 Q. There is no other way of doing it. It has to be
19 one of those two measurements bases, correct, sir?

20 A. There is one other thing that's necessary.

21 Q. That is what, sir?

22 A. I would want to know the specific activity of the
23 TCDD that is in the fat. In other words, we have to know
24 that the fat, that the TCDD that was administered has

1 distributed adequately throughout the body, and I presume
2 that they will determine that as their experiment goes on.

3 Q. Yes, that's what competent scientists would do,
4 would they not, sir?

5 A. Yes.

6 Q. And these are competent scientists, aren't they,
7 sir?

8 A. Yes, sir.

9 Q. And, Doctor, what they have done here is actually
10 given a half life of elimination that is the earliest half
11 life that they could determine. If in fact their calculation
12 as to the urine, if their assumption as to the elimination
13 through the urine is wrong, that is, at detection level, then
14 the half life could be considerably higher than 4.95 years
15 couldn't it, sir?

16 A. It could.

17 Q. So what they did if in fact instead of the urine
18 being eliminated at the level of .01 percent per day, because
19 the only standard they used was their detection limit, if in
20 fact they had more sophisticated or if it was possible, if
21 there was a better method of detection, and they found out
22 that instead of being .01 percent, it was .001 percent, or
23 .005 percent, the rate, the half life of TCDD in the body
24 would be substantially greater than five years, wouldn't it,

1 sir?

2 A. That would increase the period, yes.

3 Q. Is the answer to my question yes--

4 A. Yes.

5 Q. It would be substantially increased? So what
6 they've given us then, sir, is the conservative scientific
7 opinion as to the half life in human beings, haven't they,
8 sir?

9 A. Yes based on the -- yes.

10 Q. They've done it based upon actual measurement of
11 the TCDD that they put in, the radioactive TCDD that's put
12 in, and the actual measurement of the radioactive TCDD coming
13 out, did they not, sir?

14 A. Yes.

15 Q. All right. And, Doctor, if what you've said is
16 correct, if there was radioactive TCDD in the body to start
17 with --

18 A. Excuse me, sir, I didn't say radioactive TCDD. A
19 background of TCDD.

20 Q. If there was background of TCDD in there to start
21 with, sir, all they're measuring is the radioactive TCDD
22 that's coming out, aren't they, sir?

23 A. Yes.

24 Q. They're not measuring this background TCDD coming

1 out, are they, sir?

2 A. They hope they are, that's their intention.

3 Q. No, they hope to measure that which they put in,
4 Dr. Dost. They're not trying to measure something other than
5 what put in, are they, sir?

6 A. Yes, sir, they are.

7 Q. Well, Doctor, if they measured -- if these are
8 their measurements then, actually then the half life -- if
9 they're measuring more than what they put in, if they erred
10 that way then in fact this half life could be as much as
11 double, couldn't it, sir?

12 A. No, sir.

13 Q. Doctor, they measured actually what's coming out,
14 didn't they, sir?

15 A. Yes.

16 Q. And only that which is coming out. They can not
17 measure more than coming out, can they, sir?

18 A. I don't understand you, sir.

19 Q. They can only measure the amount coming out, can't
20 they, sir?

21 A. That's correct.

22 Q. And what they have measured coming out, whatever
23 the source may be, if half of that which is coming out is
24 TCDD that they did not put in there, then the half life of

1 the TCDD that they put in there would be double 4.95 years,
2 wouldn't it, sir?

3 A. No, sir.

4 Q. Doctor, you know that -- well, what would it be if
5 it wouldn't be double?

6 A. The idea of the experiment is to introduce labeled
7 TCDD, have that labeled TCDD distribute with the TCDD that is
8 already in the body if it is there, it may or may not be.
9 Presumably the labeled TCDD labels the total body pool of
10 TCDD, and that pool is then represented by the label, and
11 that's the reason why I'm concerned that we do not know the
12 concentration of label that is actually in the TCDD of the
13 fat.

14 Q. Well, Doctor, all that would do would be to make
15 the half life longer. They're measuring -- if part of this
16 TCDD that was eliminated here was TCDD that they did not put
17 in, sir, that if it's mixed and taking some other TCDD out,
18 then they haven't measured just the TCDD, they've measured
19 more than the TCDD they put in, have they not, sir?

20 A. Not necessarily, sir.

21 Q. Doctor, is there any other explanation for it? Is
22 there, sir?

23 A. Yes.

24 Q. What is the other explanation, Doctor?

1 A. If the TCDD has not mixed with the TCDD -- if the
2 labeled TCDD--

3 Q. Let's stop on that for a moment. If it has not
4 mixed, then what they're measuring is the radioactive TCDD
5 put in, correct, sir, because they're measuring the
6 radioactivity, sir, are they not?

7 A. They're measuring the radioactivity.

8 Q. So if it did not mix, then the half life of the
9 TCDD, the radioactive TCDD that they put is 4.95 years if it
10 did not mix, correct, sir?

11 A. Not necessarily.

12 Q. Tell me why not, sir. I thought that's what you
13 just got through saying.

14 A. I did.

15 Q. Well then, Doctor, if that's what you just got
16 through saying, then let's pass to the next point, because I
17 don't want to go down another trail?

18 A. I'm sorry, sir.

19 Q. Once you tell me something is so, Dr. Dost, I have
20 got to act upon that.

21 A. All right, excuse me. I thought that what I had
22 told you was that depending on the way the labeled TCDD that
23 was introduced, the way it distributed in the body would have
24 an influence on the rate at which it comes out. If it were

1 to go to a site where removal is slow, and if it doesn't mix,
2 we would get a change in one direction. If on the other hand,
3 it were as you are suggesting, separating, remaining separate
4 and coming out by itself, without respect to the TCDD that
5 was already in the animal, then that might imply a longer
6 half time.

7 Q. Doctor, that's not what I suggested to you at all.
8 What I asked you, sir, if it did not mix with the other TCDD
9 in the body as you've suggested what they wanted to do was to
10 get it mixed with the other TCDD, if that didn't occur, then
11 what they have measured here is just the radioactive TCDD
12 coming out, correct, sir?

13 A. That is correct.

14 Q. And the radioactivity of that TCDD they put in is
15 -- has a half life of 4.95 years under that assumption, isn't
16 that correct, sir?

17 A. Yes.

18 Q. And so at the very minimum the TCDD that they put
19 in has a half life of 4.95 years, correct, sir?

20 A. Again it depends on the mixing, but for the actual
21 amount, for the actual amount of radioactivity that they put
22 into the body, yes, that's correct.

23 Q. Yes, it is correct. And, Doctor, if it mixed with
24 the other TCDD, and what they're measuring here and adding up

1 is the other TCDD as well, then the half life of TCDD in the
2 body is more than 4.95 years, isn't it, sir?

3 A. I don't know, sir, it depends entirely on how it is
4 mixed.

5 Q. Doctor, on the assumption that I gave you, if it's
6 mixed in any extent, if what they're measuring is something
7 in addition to what they put in, then the half life of TCDD
8 in the body is more than 4.95 years, isn't it, sir?

9 A. No, sir.

10 Q. Doctor, they can only measure the radioactivity --
11 the radioactivity that they're measuring here is what they
12 put in, right, sir?

13 A. That's correct.

14 Q. It has a minimum life of 4.95 years, doesn't it,
15 sir?

16 A. According to their calculation, correct.

17 Q. And any other TCDD more than that that's coming out
18 takes away from the radioactive TCDD coming out and supplants
19 it with some other TCDD, doesn't it, sir; therefore, there is
20 more radioactive TCDD in the body not being eliminated than
21 this chart would show, isn't that correct?

22 A. No, sir, if it's diluting, you're bringing out more
23 TCDD, other TCDD along with it.

24 Q. At the very minimum, Doctor, the half life is 4.95

1 years, and if it's diluting it, could be more than 4.95
2 years, isn't that correct, sir?

3 A. If it's diluting, that's possible, but it could be
4 either way.

5 Q. Doctor, there is no way that the half life could be
6 less than 4.95 years, because they are actually measuring the
7 radioactive material that they put in.

8 A. They're measuring the radioactive material that
9 they put in.

10 Q. Isn't the answer to my question, yes, that's
11 correct, Mr. Carr?

12 A. For the labeled, yes.

13 Q. And the half life of the labeled TCDD could be more
14 than 4.95 years, couldn't it, sir?

15 A. It could be.

16 Q. So would it be fair to put at least 4.95 years
17 here, sir?

18 A. I believe that I described ways in which it could
19 be less.

20 Q. Well, I don't believe you have, Dr. Dost. I
21 misunderstood something. This is measuring only that which
22 was put in as far as radioactivity is concerned, isn't it,
23 sir?

24 A. Speaking about the radioactivity, per se, that's

1 correct.

2 Q. So it's at least 4.95 years, correct, sir?

3 A. For the radioactivity, yes.

4 MR. CARR: Now I'll offer Plaintiffs' Exhibit 1646A
5 into evidence.

6 THE COURT: Any objections?

7 MR. HEINEMAN: Well, sure. May we approach the
8 bench?

9 (At this time a conference was had at the bench out
10 of the hearing of the jury.)

11 MR. CARR: The court probably needs to see it.

12 THE COURT: Wait a minute until he gets up here.

13 MR. HEINEMAN: The witness is really carefully
14 restricting the basis upon which he agrees with that chart,
15 and the basis upon which he agrees with that chart is not on
16 the chart, and the 4.95 applies only to the radio labeled
17 part that we put in. That's what the witness agrees to.

18 THE COURT: That's all that's on the chart.
19 Objection is overruled.

20 MR. HEINEMAN: May I speak further on the point?

21 THE COURT: Oh, sure, I didn't know you had anything
22 further to say.

23 MR. HEINEMAN: The witness has talked about the fact
24 that TCDD may come out, which may itself be radio labeled,

1 because it has gone into a pool and the radio labeled has
2 itself labeled other TCDD.

3 MR. CARR: That's right.

4 MR. HEINEMAN: He's also said that there may be
5 TCDD that comes out.

6 MR. CARR: That's right.

7 MR. HEINEMAN: That is not radio labeled.

8 MR. HEINEMAN: What he's saying is the 4.95 years
9 is at least the half life only in the TCDD, the radio labeled
10 that was put in and brought back out, that's what the witness
11 said. That's not on the chart.

12 MR. CARR: That's what it is on the chart.

13 MR. HEINEMAN: That's not what's on the chart, and
14 the jury six months from now or whenever it is when this
15 thing is argued to them is not going to have that information
16 on the chart, and I object to it.

17 THE COURT: I think it accurately reflects what he
18 testified to. Objection is overruled. It's admitted over
19 objection.

20 (The following proceedings were had in open Court.)

21 Q. Now, Doctor, in the McNulty, the monkey study that
22 was referred to, do you have Plaintiffs' Exhibit 1647 in front
23 of you, sir?

24 A. Yes.

1 Q. And, Doctor, you also criticized this report, did
2 you not, sir?

3 A. I disagreed with the finding.

4 Q. Well, Doctor, McNulty again is a competent
5 scientist, and he's one of these scientists that's known
6 world wide, isn't he, sir?

7 A. Yes, he's a good scientist.

8 Q. And he knows how to test for adipose tissue for
9 TCDD contaminant?

10 A. Yes.

11 Q. And he has reported here that his half life,
12 apparent half life in fat for the animal is about a year,
13 correct, sir?

14 A. Yes.

15 Q. Now, Doctor, I think you criticized this study
16 because he didn't give the weight of the animal, didn't you,
17 sir?

18 A. That's a minor matter. That has nothing to do with
19 the calculation.

20 Q. Doctor, it may-- It indeed is a minor matter, but
21 that was one of the reasons you criticized it, wasn't it,
22 sir?

23 A. I just mentioned that I haven't seen --

24 Q. Doctor, can you answer my question. You said in

1 several places, you discussed and criticized the fact that he
2 didn't give the weight of the animal, didn't you, sir?

3 A. Yes.

4 Q. Now, after making that statement did you re-read
5 the article and find out that he told you that the -- after
6 two years the weight of the monkey was about the same as it
7 had been four days after the dose?

8 A. Yes.

9 Q. You did then learn that, didn't you, sir? So in
10 point of fact, sir, he has given you the relevant weight of
11 the monkey, hasn't he, sir?

12 A. As a matter of fact, sir, he listed the weights in
13 this table. I didn't see them.

14 Q. But more than that he gave you the relevant weight
15 of the monkey, didn't he, sir, it was same before and the
16 same two years later, right?

17 A. Yes, I believe I commented on that in my testimony.

18 Q. And, Doctor, he also said that the concentration of
19 the fat in that animal two years later was roughly 25 percent
20 of the TCDD content of the fat of that animal at the day four
21 level, didn't he, sir?

22 A. Yes.

23 Q. Doctor, that is about as precise as you can get in
24 a statement that -- where he's describing half life, isn't

1 that right, sir? You can't get more precise than that, can
2 you, sir?

3 A. Yes, sir, you can.

4 Q. Doctor, he measured the concentration of the fat of
5 the TCDD in the fat, didn't he, sir?

6 A. Yes.

7 Q. And he measured it, he said it's 25 percent of what
8 it was after four days, right, sir?

9 A. Yes.

10 Q. Doctor, doesn't that tell you, sir, then that the
11 half life of TCDD in fat in this animal was about a year?

12 A. No, sir, it does not.

13 Q. Well, is 25 percent of the TCDD still there, sir,
14 two years later? I'm sorry, yeah, two years after the TCDD
15 was given to the animal, wasn't 25 percent of it still there?

16 A. 25 percent of the original concentration, yes.

17 Q. And that would suggest, does it not, sir that the
18 half life of one year if a fourth of it is still there two
19 years later, the half life would be what, Doctor?

20 A. I have no idea what the half life really is in fat
21 in this animal on the basis of the data that's here.

22 Q. Doctor, you have added something. I asked you did
23 he not make a statement that the half life, that he measured
24 the concentration of TCDD in the fat as 25 percent of the day

1 four level?

2 A. That's correct.

3 Q. Doctor, that means that he actually measured it and
4 found 25 percent of it still there two years later, correct,
5 sir?

6 A. That's correct.

7 Q. And that that 25 percent, the other 75 percent
8 disappeared in that preceding two years, didn't it, sir?

9 A. I don't believe that this data tells us that.

10 Q. Doctor, now you're saying again that you don't
11 believe the data tells you that. Doctor, this is a letter to
12 the editor, it's a page and a quarter long, isn't it, sir?

13 A. Yes.

14 Q. It doesn't attempt to give you all the data that a
15 long article would give you, does it, sir?

16 A. I believe it's given us all of the data that he
17 took.

18 Q. Doctor, how can you possibly know that?

19 A. I don't --

20 Q. The man took levels over a period of two years and
21 you have one short measurement there after 215 days. He
22 doesn't give you the measurement after the two years at all.
23 He tells you what he found. There is no information there as
24 to the amount of TCDD in the fat two years later, is it, sir?

1 A. The time period here is two years later, 715 days,
2 and then there are a number of--

3 Q. I thought that was a two?

4 A. There are a number of measurements in between--

5 Q. Excuse me, Doctor, let me get that point straight.
6 Is that -- you read that as a 7?

7 A. That is 715.

8 Q. 715?

9 A. Yes, sir.

10 Q. Well, then he gives you the parts per trillion in
11 the fat tissue then 715 days later, doesn't he, sir?

12 A. Yes.

13 Q. That's a hundred parts per trillion, correct, sir?

14 A. Yes.

15 Q. Doctor, what more data could he possibly give you,
16 sir?

17 A. He has given us a great deal of data here.

18 Q. Indeed he has. My question is, sir, what more data
19 could he give you to support his statement that the half life
20 in this monkey was a year, because he found 25 percent of the
21 TCDD still there 715 days later?

22 A. Well, sir, he found at 64 days 2,000 parts per
23 trillion, and this is an animal that had lost most of its
24 fat. It concentrated it. I have no idea what was going on in

1 the whole animal during that period, and if we look at the
2 fat concentration, yes, in fact there is a difference, there
3 is only about a quarter of the amount at 715 days that there
4 was at four or eight days.

5 Q. Doctor, doesn't that tell you that in this animal
6 the half life of TCDD in fat is about a year?

7 A. If we ignore all the intervening information, I
8 suppose we could draw that conclusion.

9 Q. The intervening information does not take away from
10 that conclusion, does it, Dr. Dost? All it tells you there
11 are other things going on in this animal, this animal got
12 real bad sick, lost a lot of weight --

13 A. Yes.

14 Q. Made a comeback. Those things are being told to
15 you, but it doesn't take away from the fact that somehow or
16 other 25 percent, with all these things going on in this
17 animal, 25 percent of the TCDD it started out with is still
18 there in the fat, isn't that right, sir?

19 A. Yes.

20 Q. And, Doctor, insofar as the diatomaceous earth used
21 at Sturgeon, do you recall your testimony as to that?

22 A. Yes.

23 Q. This bentonite in point of fact is a very permeable
24 substance, isn't it, sir?

1 A. It has a very, very high surface area. I don't
2 know-- what do you mean by permeable?

3 Q. Water will flow right through it.

4 A. Yes, it serves as a filter.

5 Q. And it won't stop water at all, will it, sir?

6 A. No.

7 Q. It's a filter for particles, isn't it, sir?

8 A. It's a filter for molecules.

9 Q. Well, molecules or particles, it doesn't filter, it
10 doesn't stop the water molecules from going through, does it,
11 sir?

12 A. No, sir.

13 Q. Matter of fact, diatomaceous earth, that which they
14 put on this railroad track is used, is commonly used in
15 swimming pool filters, isn't it, sir?

16 A. Yes.

17 Q. And it would not prevent water from getting in to
18 the track in getting into the passing track, would it, sir?

19 A. I don't think it would, no.

20 Q. It wouldn't stop them one moment, would it, sir?

21 A. I have no idea. I don't think it would impede the
22 water.

23 Q. If they told us that the purpose of putting this
24 sealer on was to prevent the water from getting under the

1 passing track and causing the material under the passing
2 track to spread out with the water, they would have been
3 mistaken in telling us that, wouldn't they, sir?

4 A. I don't know how compact it was.

5 Q. Would you answer my question, Doctor?

6 A. Well, I would assume that water would go through
7 it. I don't know everything that they--

8 Q. Could you answer my question, Dr. Dost? If they
9 told us that they put this diatomaceous earth, this bentonite
10 sealer on the railroad track to prevent water from going down
11 in the passing track, they would have been mistaken, wouldn't
12 they, sir?

13 A. I guess if it was only bentonite, yes, sir, that's
14 correct.

15 Q. Well, that's all that Mr. Heineman told you they
16 put on it, didn't they, sir?

17 A. I don't remember any other components.

18 Q. Well, that's all he told you, wasn't it, sir?

19 A. Yes.

20 THE COURT: Mr. Carr, is this a good point to break
21 for the day?

22 MR. CARR: Yes, Your Honor.

23 THE COURT: We'll break at this time. We'll resume
24 again tomorrow morning at 9:30. I would remind you, as I do

1 on any overnight break that you're not to discuss this matter
2 among yourselves or with anyone outside the jury panel,
3 you're not to read, listen to, or watch anything about this
4 case in particular or subject matter in general in any of the
5 media. Thank you for your attention and cooperation.
6 Court's adjourned.

7 Gentlemen, could I see you in chambers in about
8 five minutes.

9 (At this time the following proceedings were had in
10 chambers out of the hearing of the jury.)

11 THE COURT: Let the record indicate that we're in
12 chambers outside the presence of the jury to argue
13 defendant's motion for leave to call Dr. Kimbrough. I've
14 read your motion and affidavit and memorandum. Without
15 repeating, anything that you want to say or add or bring up?

16 MR. NASSIF: Your Honor, I'm going to be at bat here
17 okay.

18 THE COURT: Okay, fine, sure.

19 MR. NASSIF: There are a couple things we do want to
20 add, Your Honor. First of all, plaintiffs have no objections
21 to several items if you read their brief, and I presume --

22 THE COURT: I did this afternoon.

23 MR. NASSIF: I presume that Dr. Kimbrough will be
24 able to testify in the areas that they have no objection.

1 And in addition to that, Your Honor, we think there are other
2 areas that fit these categories that plaintiffs have no
3 objection to which go beyond the items that they've listed,
4 and to give you an example, Your Honor, plaintiffs --
5 plaintiffs have objected to any information on any
6 conversations that Dr. Kimbrough had with either Harry Gilmer
7 and Dr. Kleopfer, and one of the bases that they have
8 objected to that is or one of bases for their argument is
9 that these conversations have already been established by
10 other witnesses and by Defendant's Exhibit 1193.

11 There are additional conversations that she has had
12 with people from OSHA, Dr. David Logan in particular, and
13 other individuals which are not in evidence in this case,
14 which go specifically to the Sturgeon incident, which we
15 believe are --

16 THE COURT: In what respect?

17 MR. NASSIF: They go specifically to the issues of
18 the levels that were found in the blood of railroad workers
19 at Sturgeon. They go to the issue of tests that she
20 performed or the Center for Disease Control performed to
21 determine whether or not the calculations by Wright State
22 University, which have been the subject of much discussion in
23 this case already, whether or not the calculations by Wright
24 State University were in fact correct when they reported

1 levels of 2,3,7,8-TCDD in the blood of railroad workers.

2 She was asked by OSHA to give some assistance in
3 determining whether or not those calculations were, in fact,
4 accurate, and those conversations, although these are issues
5 in the case, the levels in these workers' bodies, as well as
6 whether or not Wright State did accurate analytical work,
7 those are issues in this case, her conversations with OSHA
8 along in this area and the work that her agency performed
9 have not been brought out in this case at all to date.

10 There are additional areas which we consider to be
11 fact items all raised in the context of her review of the
12 Sturgeon situation, which we feel she should be able to
13 testify on having to do with analysis that was performed of a
14 child that was -- that suffered respiratory arrest nine days
15 after the spill. She was consulted and asked by a physician
16 to another conservation which has not been brought out, she
17 was consulted and asked by the child's physician to perform
18 some additional analytical work and to review some clinical
19 findings, which she did perform, which she did do, and those
20 results. We feel, are facts which are directly applicable to
21 this case, which she should be allowed to testify about.

22 In addition, under her direction samples of OCP
23 crude were analyzed from the Sturgeon site. I'm sorry, Your
24 Honor, serum samples from the Sturgeon -- from Sturgeon

1 people involved in either the cleanup at Sturgeon or living
2 in the town of Sturgeon, serum samples were analyzed for
3 OCP-crude at her direction or by her office.

4 In addition to what we still consider to be factual
5 information, that is, the fact that she conducted a test by
6 -- of material from the tank car, a rabbit ear test of the
7 material from the tank car. Plaintiffs have agreed that she
8 can testify about Plaintiffs' Exhibit 1665 and whether she
9 peer-reviewed that document, there's no issue there.

10 We believe, Your Honor, that she should be able to
11 testify on the issue of whether in the CDC calculation which
12 she was the principal author of the one part per billion
13 figure, whether that calculation, in fact, takes
14 volatilization into account. We believe that's a fact that
15 she is in a position to testify and does not require an
16 expert opinion. In addition --

17 THE COURT: You say that does not require an expert
18 opinion?

19 MR. NASSIF: No, it's only what the calculation that
20 CDC uses has or takes into account, what that calculation,
21 it's like a mathematical formula, and I'm asking her what one
22 part of that -- whether that mathematical formula includes a
23 factor for volatilization. I'm not asking for her for why it
24 includes.

1 THE COURT: I understand what you're saying. I
2 understand what you're saying.

3 MR. NASSIF: Do you want me to respond directly to
4 plaintiffs' reply brief in addition to the responses?

5 THE COURT: Whatever you want to do. If you want
6 to, fine.

7 MR. NASSIF: Let me just make some real quick run
8 through of plaintiffs' reply brief, Your Honor. Your Honor,
9 for the record I've already stated that 1193 does not contain
10 her conversations with OSHA. If you will recall 1193 --

11 THE COURT: That's what you said.

12 MR. NASSIF: 1193 is her discussions with the EPA,
13 contains some information regarding her discussions, but does
14 not, 1193 does not contain the full breadth of her
15 conversations with the EPA. Based -- the plaintiffs object
16 to the fact in paragraph five, Your Honor, that these -- they
17 object to the published statements.

18 THE COURT: Umhm.

19 MR. NASSIF:-- As opinions. Based on our research,
20 Your Honor, and based just upon our understanding of the law,
21 these opinions are in evidence they, have been interpreted by
22 experts in this case, they have been commented upon by
23 experts in this case and by lay witnesses as well,
24 nonexperts. Asking her to give the reasons, the basis for

1 those opinions once the opinions are in evidence, we do not
2 believe constitutes an expert opinion. So the fact that the
3 published statements or the opinions themselves may be expert
4 opinion, they are already in the case. Her basis for those
5 opinions we do not believe constitutes based upon the cases
6 we have cited to you, expert opinion.

7 THE COURT: I've read them.

8 MR. NASSIF: Okay. In addition, opinions that she
9 has given in the past, which she has, you know, she has
10 relayed to either other agency people, we have not been able
11 to get those opinions in. We still believe, Your Honor, that
12 these past opinions, although we can give the information
13 leading up to the request for her opinions, we don't believe
14 these past opinions are being introduced for the truth of --
15 for their truth as a typical expert opinion would be. We
16 believe that these -- evidence of her response, whether it
17 was in the form of an opinion or not, done in the past.
18 regarding the Sturgeon situation, we clearly believe we are
19 entitled to get into evidence her side of the conversation.

20 And on Paragraph 8, Your Honor, having to do with
21 -- Paragraphs 8 and 9 having to do with prejudice to the
22 plaintiffs. Experts from both side in this case, Dr. Carnow,
23 Dr. Silbergeld have testified regarding Dr. Kimbrough's
24 opinions and her studies. Our experts have testified about

1 them as well. It borders on surprise to me for the
2 plaintiffs to argue prejudice as a result of their inability
3 to know her position on dioxin. I mean, there are exhibits
4 in this case which reveal her position on dioxin. If they're
5 unfamiliar with her position on dioxin at Sturgeon, we have
6 produced documents to them, which disclose that position, and
7 there may be additional, a few additional documents, but it's
8 certainly not anything, we could not disclose in time for
9 them to prepare for her testimony.

10 Furthermore, there have been other experts in this
11 case where they have not taken a deposition prior to this
12 expert coming on to the stand. Dr. Wendell Kilgore, who Mr.
13 Carr describes as our chief expert on toxicology, was never
14 deposed by the plaintiffs in this case. There's testimony in
15 this case that Dr. Kimbrough and Dr. Silbergeld are not only
16 known to each other, they are acquaintances, perhaps even
17 beyond acquaintances by Mr. Shroy. Obviously Dr. Silbergeld
18 can provide the plaintiffs with any assistance they might
19 need in preparing for her testimony and in assessing her
20 position on various subjects.

21 Finally, if they want to take her deposition, as
22 far as we are concerned, that is something that's available.
23 We will arrange it at a time during a court break. She does
24 not -- we want her to testify before the medical case begins.

1 However, if she can testify as an expert witness, as we
2 believe she should be able to, then a deposition can be
3 arranged at some mutually convenient time.

4 Getting to the point, the final point, Your Honor,
5 and I think really if you've read this Curry decision--

6 THE COURT: I have read all cases cited.

7 MR. NASSIF: Okay. You read this Curry decision, we
8 believe that the reasons that the Appellate Court stressed in
9 Curry for saying that it was not an abuse for the Judge to
10 allow the expert witness to testify in that case despite the
11 fact he had not been disclosed are on all fours with Dr.
12 Kimbrough's position in this case.

13 The factors to be considered are outlined in the
14 case. I don't have to go over them, but we believe Dr.
15 Kimbrough is on all fours. We believe there's even a stronger
16 argument for her testimony in this case, because both sides
17 have engaged in interpretation of her opinions, both sides
18 have mentioned her repeatedly, she's become a very prominent
19 figure in this litigation, and yet there's been no direct
20 testimony as to her position on this incident, and for that
21 reason we think it's critical, and I'm going to have to ask
22 Bruce, my understanding, and maybe I'm wrong on the issue of
23 our opportunity to subpoena her in 1983, my understanding was
24 we were informed at some point that the Center for Disease

1 Control would not honor such a subpoena. Do you recall that,
2 Bruce?

3 MR. RYDER: That's correct, that's my recollection.

4 MR. NASSIF: We inquired-- this addresses
5 plaintiffs' motion -- we inquired as to whether or not --
6 and, Your Honor, I got this motion, plaintiffs' motion at
7 2:45, so I haven't been able -- 2:45 today--

8 THE COURT: That's when I got it, too.

9 MR. NASSIF: Okay, fine. I haven't been able to
10 confirm that we were denied or we were told they would deny
11 her -- access to her in the form of a deposition if we
12 subpoenaed them.

13 THE COURT: I got that impression from the original
14 memorandum or affidavit or something. That was the
15 impression I got when I read your originally submitted
16 materials.

17 MR. NASSIF: Yes, and that was confirmed by the
18 Center for Disease Control's attorney when they changed their
19 position.

20 THE COURT: I read that letter, the letter you
21 attached. That was the impression that I got.

22 MR. NASSIF: We inquired on that point, your Honor,
23 at that time, and we were told that they would not honor it.

24 THE COURT: Mr. Carr, do you have anything to you

1 want to say?

2 MR. CARR: Yes, Your Honor. The -- going a little
3 in reverse order. The letter they refer to an is a request
4 that she come -- it's an October 4th letter he refers to--
5 obviously the -- requesting that she appear in St. Clair
6 County in this case to testify. There is no way that any out
7 of state witness can be required to appear herein. Whether
8 there is or is not a policy on the part of the Department of
9 Health and Human Services to allow or not allow their
10 employees to testify in cases has got nothing to do with the
11 issues in this case. They are subject to the same rules as
12 every other person in this United States is.

13 Dr. Renate Kimbrough, if they wanted to take her
14 deposition, there are methods whereby that deposition can be
15 taken if they do not agree to it voluntarily. There have been
16 other federal witnesses in this case whose depositions have
17 been taken. They could not require them to come here, but we
18 went there, there's Kloepper, there's Gilmer, there's
19 Fairless, there's Straten, there's, oh, some others I can't
20 think of right now whose depositions, whose evidence
21 depositions were taken, and their policy is that these people
22 will not appear in court, although they modify that policy
23 apparently for Monsanto in the case of Dr. Kloepper, but that
24 was their policy then. They had a lawyer at the each of those

1 evidence depositions that were taken.

2 All people so far as I know from the president of
3 the United States down to the lowest level civil service
4 employee is subject to subpoena and their depositions may be
5 taken. I don't know of any act of Congress or anybody else
6 that exempts any federal employee, possibly the CIA, from
7 having a deposition taken. There's plenty of means to do it
8 if they felt it was important in their case to do it, and
9 there's nothing in either the letter or in anything else to
10 suggest that they even tried to take an evidence deposition.
11 I didn't get anything from the affidavit. The affidavit is
12 very careful of Mr. Ryder. What it says is, and we know Mr.
13 Ryder from way past, it says I was informed I contacted and
14 attempted to obtain permission for Dr. Renate Kimbrough to
15 testify at the trial of this matter. I interpret that to
16 mean what it -- exactly what it says, testify at this trial.
17 Nothing in anything they have filed to date suggests that
18 they even tried to get an evidence deposition and that they
19 were rejected after having exercised the care required by our
20 courts in getting such testimony.

21 There's nothing in their affidavit to suggest that
22 they exercised any such care other than ask if she would
23 appear at trial, and the suggestions of counsel on these
24 other points, everything that he has said that they want to

1 use her for is as an expert witness and to give expert
2 testimony relating to the issues in this case. The court's
3 requirement that we be told the names of the experts who are
4 going to testify in this case was not limited to the experts
5 who are going to give opinions. These gentlemen supplied us
6 a list of some 53 experts I believe that -- I think that's
7 the number that they identified as possibly being called in
8 this case. Kloepper was one of them and Gilmer was one of
9 them. All kinds of expert witnesses were identified.
10 Kimbrough was not among those expert witnesses identified.

11 Everything else that he talked about, the serum
12 levels from the Sturgeon people, the tests of material from
13 the tank car, whether the -- whether the CDC document takes
14 volatilization into account, whether a child suffered
15 respiratory arrest and the analytical findings dealing with
16 that respiratory arrest, the TCDD levels, whether or not they
17 were accurate, and the conversations she had with OSHA, all
18 of these things are relevant only if she is an expert. If
19 she were not an expert, any mention that she makes on any of
20 these things would have no weight whatsoever. They obviously
21 want to use her expertise here on issues that they believe
22 would favor their side. If she weren't an expert, they
23 wouldn't even come close to wanting her to come to trial.
24 Her testimony as to the criticism or calculations of the

1 Wright State University, correct or not, these are statements
2 as an expert and dealing with scientific theorums, theories
3 and facts which only an expert can testify to.

4 I think everything else has been said, Your Honor.
5 I have nothing further to say.

6 THE COURT: Do you want make any kind of short reply
7 or not.

8 MR. NASSIF: Well, Your Honor, I think the issue
9 that Mr. Carr has not addressed is the issue of the
10 compelling nature of her testimony in this case and the fact
11 that we feel it's so compelling that the court should allow
12 her to testify as an expert. He has not addressed the fact of
13 the reliance and statements made by other witnesses regarding
14 what her opinions are and what the basis of her opinions are,
15 including whether or not she concluded that the 6 year old
16 child in the horse arena case had chloracne. I think these
17 things are critical to this case.

18 It's a two year old case, it is not the typical
19 situation where one might expect to be on your guard on or
20 notice that if you don't list the five experts you plan to
21 call, you do so at your peril.

22 THE COURT: Wait a second. Why would length have
23 anything to do with compliance with a court order?

24 MR. NASSIF: Because, Your Honor, the length is the

1 reason why she's now available. I mine if we --

2 THE COURT: But that's -- no, no, no, wait a
3 second. Whoa, whoa, whoa, that's not what you said. That's
4 not what you said. You're referring to listing and something
5 like that, which is in compliance with a court order
6 concerning discovery. Why would length have anything to do
7 with compliance with a court order?

8 MR. NASSIF: Length-- well, length has --

9 THE COURT: Of the trial.

10 MR. NASSIF: Length of the trial is the reason why
11 we are in a position which is different from what we had been
12 in 1983.

13 THE COURT: I'll grant you that. They've changed
14 their policy for this individual circumstance since '83.

15 MR. NASSIF: Yes, Your Honor.

16 THE COURT: No question about that.

17 MR. NASSIF: That's what I meant by --

18 THE COURT: That's shown by the letter.

19 MR. NASSIF: In 1983 we were limited to listing, I
20 believe it was in December of '83 five experts on toxicology
21 we planned--

22 THE COURT: November or December.

23 MR. HEINEMAN: Five retained experts.

24 MR. NASSIF: Five retained experts. We did not want

1 to list someone who at the time we felt strongly because of
2 what we had been told not only regarding her testifying at
3 the trial but also regarding her deposition -- their-- what
4 their position would be if we attempted to depose her. At
5 that time we opted not to list her as one of our five
6 experts.

7 MR. CARR: They didn't list her on the other list
8 of experts either. You listed a lot of experts that you
9 didn't call, counsel.

10 MR. NASSIF: For the same reason, your Honor, other
11 experts have-- that we listed either were available or had
12 been taken by deposition testimony as I recollect at least.

13 THE COURT: Well, that's different. That's
14 different than what you said earlier. That's fine. I can
15 accept that. Okay. Anything else.

16 MR. CARR: If I can respond to what he says about
17 all the witnesses relying. The only people in this case that
18 have testified that they relied upon anything Dr. Kimbrough
19 has said has been the defendants, not the plaintiffs.
20 Plaintiffs haven't -- none of our experts have indicated they
21 rely upon anything. Matter of fact, all experts have had
22 things to the contrary to say about it.

23 MR. NASSIF: Your Honor, Dr. Carnow has testified,
24 and I don't know if we have the transcript with us, but has

1 testified that in his opinion Dr. Kimbrough does not support
2 the one part per billion limit in soil, and I may be
3 paraphrasing that. But, Your Honor, he has commented, and I
4 have the transcript here.

5 THE COURT: Can you give me the date. Could you
6 give me the date and line, page.

7 MR. NASSIF: June 11, 1984, Page 20, Line 12 through
8 17.

9 THE COURT: Let me see that.

10 MR. NASSIF: Here, Your Honor.

11 MR. CARR: There's no contest on anything like
12 that. She hasn't said, and I'm sure she wouldn't say if she
13 came here that CDC has found that one part per billion, below
14 one part per billion is safe. There's no issue on anything,
15 no witness here has -- except their toxicologist.

16 MR. NASSIF: We disagree with that, your Honor, with
17 due respect to Mr. Carr's opinion.

18 MR. CARR: But anyway, Your Honor, there's nothing
19 that they've related that I've heard that's not in evidence
20 by one witness or another in behalf of Monsanto. There's
21 nothing new dealing with any issues here that I know of that
22 they haven't already put in evidence.

23 MR. NASSIF: Your Honor, on the newness issue,
24 besides the OSHA information and the rabbit ear test and her

1 participation and what she concluded on the Sturgeon incident
2 is not in evidence. That is all very new, and the other
3 thing that would be very new to this case is to have the
4 person who wrote the article actually be the one interpreting
5 it. That would be very new to this case, Your Honor.

6 MR. CARR: That would be true with any expert
7 witness. It's always new to have the expert that wrote
8 interpret it. My point in saying there's nothing new here is
9 there are no new items of scientific importance that would
10 come in here that would change any of the relevant facts in
11 this case. She's not going to say that there was more TCDD
12 in the soil than your people have said. She's going to
13 obviously say that there was something below that or that was
14 in the tank car. What's new about that.

15 Conversations with OSHA are not relevant to
16 anything that I'm aware of. This child and the respiratory
17 arrest, what she might say about that, she's not a doctor.
18 It wouldn't be relevant to anything for her. Serum from
19 Sturgeon people unless you relate to the serum of the
20 plaintiffs in this case and their serum was tested, that's
21 got no relevance to anything.

22 I can't see anything on any issues that are of
23 concern in this case that she has any testimony to present
24 that has not already been presented in one or more forms by

1 other expert witnesses in behalf of Monsanto or that cannot
2 be presented in one or more forms by expert witnesses already
3 listed by Monsanto.

4 MR. NASSIF: Your Honor, she is an M.D., it's my
5 understanding that she is. In addition, I think the work
6 that she did pertaining to the Sturgeon situation has not
7 been adequately covered in the testimony of the other
8 parties. They been specifically excluded from testifying. I
9 think there are critical issues that have not been covered in
10 this case in terms of the CDC's position on the Sturgeon
11 incident, what the CDC did to assess the Sturgeon incident.
12 All of that information has not been presented, and I think
13 what the CDC -- their position on dioxin in general as they
14 see dioxin at less than one part per billion has not been
15 presented in this case.

16 THE COURT: Okay. I'll go over all this, and I'll
17 give you a decision first thing tomorrow morning, and then we
18 will, depending on my decision, go from there.

19 MR. CARR: All right, Judge, thank you.

20 THE COURT: Tomorrow night we're going to go over
21 evidence depositions?
22
23
24

1 STATE OF ILLINOIS)
2) SS.
3 COUNTY OF ST. CLAIR)
4

5 I, Richard P. Goldenhersh, one of the Judges in and
6 for the Twentieth Judicial Circuit, do hereby certify that
7 the foregoing transcript is a true and correct transcript of
8 the proceedings had in said cause.

9 Dated this ____ day of December, 1985.

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12 _____
13 RICHARD P. GOLDENHERSH, JUDGE
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1 STATE OF ILLINOIS)
2) SS.
3 COUNTY OF ST. CLAIR)

4 I, MARSHA SCHNIPPER, certify the foregoing to be a
5 true and accurate transcript of the testimony and proceedings
6 in the above-entitled cause.

7 Dated this 23rd day of December, 1985.

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13 Marsha Schnipper
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