

1 THE COURT: Good morning, ladies and gentlemen.

2 THE JURORS: Good morning.

3 THE COURT: (Inaudible). We were delayed because
4 the attorneys and I were in chambers trying to talk about
5 matters that will shorten things up, so thanks for waiting.
6 Also, I have to go to a lunch meeting about 20 to 12, so
7 we'll take a little bit earlier lunch break than normal.
8 Mr. Kotoske, you may continue, sir.

9 MR. KOTOSKE: The plaintiffs call as their next
10 witness Dr. Emmet Kelly.

11 R. EMMET KELLY, M.D.,
12 of lawful age, having been first duly sworn, testified as
13 follows:

14 THE COURT: Now, sir, try to speak into that
15 microphone, if you would (inaudible).

16 THE WITNESS: Yes, sir. Your Honor, let me ask
17 counsel to speak a little loudly because I have a--somewhat
18 of a hearing impediment.

19 MR. KOTOSKE: Yes, sir, I will. Are you
20 comfortable?

21 THE WITNESS: Fine.

22 MR. KOTOSKE: I'll try to speak loud.

23 DIRECT EXAMINATION

24 QUESTIONS BY MR. KOTOSKE:

25 Q. Would you state your name for the record.

1 A. R. Emmet--E-m-m-e-t--Kelly--K-e-l-l-y, M.D.

2 Q. Can you hear me all right?

3 A. Perfectly.

4 Q. You were a Monsanto employee for several
5 years?

6 A. Quite a few, yes, sir.

7 Q. All right. Tell me a little bit about your
8 educational background, and I'm only interested in your
9 college and medical degree and so forth.

10 A. I went to St. Louis University and received a
11 Bachelor of Science degree in 1930 and received the M.D.
12 degree in 1932. It was a combined course in which you spend
13 six years following secondary high school.

14 Q. When did you first go to work for Monsanto?

15 A. In January of 1936. I had spent three years
16 at City Hospital before that.

17 Q. And after that, you went into the Service
18 there, did you?

19 A. Well, no. I went to work at Monsanto in '36.
20 Went into the Service in '42.

21 Q. All right. And then you stayed in the Service
22 till the end of the war?

23 A. A little bit after it until--

24 Q. All right?

25 A. --1946. March of '46. Then I returned to

1 Monsanto.

2 Q. (Inaudible)--in 1946 you returned to Monsanto?

3 A. Yes.

4 Q. How long--did you work continuously for
5 Monsanto for some period of time until you retired?

6 A. December the 1st, 1974.

7 Q. You retired from Monsanto?

8 A. That's correct.

9 Q. All right. That's the time frame. Now we'll
10 get into what you did there. At least we have the time
11 frame.

12 A. Yes.

13 Q. But after you left Monsanto, did you still
14 continue to consult for Monsanto?

15 A. I was on a consulting basis for one year. Then
16 following that, I would be consultant on individual cases.

17 Q. And were those litigation cases?

18 A. That is correct.

19 Q. And did you testify for Monsanto?

20 A. Yes, I was asked to testify by Monsanto. Are
21 you talking about court testimony or in--or by deposition?

22 Q. Well, let's just--by deposition. Start with
23 that. Did you do that for them--testify by deposition?

24 A. Yes, I did.

25 Q. And you also later testified in court?

1 A. Yes, sir.

2 Q. They paid you for your services?

3 A. That's correct.

4 Q. Do you recall roughly what they paid you?

5 A. Between 100 and \$200 an hour, varying with the

6 year.

7 Q. And was it the same for testimony in

8 deposition and trial both?

9 A. It varied for an out-of-town trial. It would

10 be by the day.

11 Q. Did you charge a little bit more?

12 A. Well, it was \$1,500.

13 Q. All right. And that was back--and you stopped

14 being a witness for Monsanto in what year?

15 A. I still am.

16 Q. All right. And you also collect a pension

17 from Monsanto?

18 A. I beg your pardon?

19 Q. And you also collect a pension from Monsanto?

20 A. Yes, I do.

21 Q. And that's still as of today?

22 A. That is correct.

23 Q. All right. Now I want to change the subject

24 to your duties at Monsanto, and I'm only interested in after

25 you returned to Monsanto after your service in the Military,

1 and so that puts us at about 1947?

2 A. '46.

3 Q. '46. I'll try to remember that. In 1946 you
4 returned to Monsanto, and what were your duties?

5 A. They formed a new central medical department.
6 Monsanto at that time was devoted--was split into divisions
7 which carried out the research, marketing and manufacturing,
8 and the central departments were staff departments such as
9 legal, medical, purchasing. Well, they formed the medical
10 department. The duties there were to see that all of the
11 Monsanto workers were given a preventive--preventive type of
12 medical care as well as treatment for any occupational
13 injuries or occupational conditions. That was one part of
14 the--of my duties. The second was to obtain toxicological
15 information on Monsanto products so that we could be in a
16 position to give first--to give safe-handling precautions to
17 our workers as well as our customers. A third was to
18 disseminate to our customers any toxicological information or
19 safe-handling data that we knew that we could avoid--have the
20 customers avoid ill effects of their workers. The fourth was
21 the development of an industrial hygiene program. Industrial
22 hygiene is the type of paramedical work that affords a safe
23 environment for the workers.

24 Q. As--how did you go about collecting
25 toxicological data?

1 A. Well, depends on the product, obviously. If
2 the product had--we would take a new product from Mansanto.
3 If the product had been manufactured by another company, then
4 this was a (inaudible) product. We were making a product
5 that already was on the market. I would call our medical
6 department or medical director and say Dow or DuPont had
7 manufactured this and say, George, what do you know about
8 this; do you have the unpublished data as far as any work you
9 have done? And it was very--it was very good cooperation
10 between the medical department and the various chemical
11 companies. Then I would also look through the medical
12 literature. In the early days, say in 1946, there were not a
13 great number of medical journals devoted to toxicology--one
14 or two in the English language. If there were no information
15 there, then we would run--then we would check on what
16 experience our chemists, our research people, our people in
17 the pilot plant had with this product, because it takes about
18 a year or two years before a product leaves a laboratory
19 bench and is sold to the customers. Then if all of these
20 avenues were--didn't give us the information we needed, we
21 ran toxicological tests on animals.

22 Q. You know, that's interesting. I want to talk
23 to you a minute about the animal testing. That is an
24 important--very important way to determine the toxicological
25 status of chemicals--animal testing.

1 A. Is there a question there? I didn't hear one.

2 Q. Yeah, as a proposition as a medical man
3 yourself, animal testing is a valuable tool for determining
4 toxicological status of certain chemicals?

5 A. Well, it is a tool, and it depends on how the
6 animal reacts. You obviously cannot test humans, so animals
7 are the next best.

8 Q. And that's been true for a long time, has it
9 not, and it is also true today?

10 A. It is true today. I don't know how long it's
11 been true. It's been true since '46, I believe.

12 Q. And animal testing provides a valuable index
13 to the toxicity of certain chemicals?

14 A. It may or may not.

15 Q. All right. Now, while you were there,
16 Monsanto spent several hundreds of thousands of dollars on
17 animal testing on its products, did it not?

18 A. Yes, it did.

19 Q. Monsanto didn't think the animal testing was
20 irrelevant or worthless, did they?

21 A. No. I didn't say it was irrelevant. I said
22 it's a tool that we have.

23 Q. It's a valuable tool, isn't it?

24 A. In some cases extremely valuable.

25 Q. I'm interested now, Dr. Kelly, in who you

1 reported to. What I'm trying to determine is how high up in
2 the company did your reports get? For example, if you
3 had--if Monsanto made a chemical that had an unusual toxicity
4 that could harm people, how high up in the--and you knew
5 about it, how high up in the company would you report to,
6 say, to relate that type of thing? I'm trying to determine
7 the chain of command.

8 A. Well, yes, but you've gotta qualify that first
9 statement. Monsanto made insecticides. (Inaudible) they
10 were very harmful to people if you didn't observe safe
11 handling precautions. So the fact that you made a toxic
12 compound does not mean it's going to be toxic to the users if
13 they avoid contact.

14 Q. No, that's not what I asked you.

15 A. Well, I was trying to straighten out the
16 statement.

17 Q. Who listens to you in the company? Did the
18 president--did you report to the president of Monsanto?

19 A. I reported to the executive committee. I was
20 on a first-name basis with all of the executive committee.

21 Q. That's what I wanted to find out. You
22 reported your information to the executive committee?

23 A. Not--

24 Q. Who was on the executive committee?

25 A. Not at all times. In the years from 1946 to

1 1974, Monsanto went through a number of reorganizations. I
2 reported sometimes directly to the executive committee,
3 sometimes to a manufacture--the director or one of the
4 members of the board of the directors. I don't know what the
5 title he had. There might have been a member of the board of
6 directors between me and the executive committee. But I
7 could go to the executive committee any time, and I--

8 Q. You had--

9 A. Huh?

10 Q. You had full access to the executive
11 committee?

12 A. No question about it.

13 Q. All right. Now, we need to know who sits on
14 the executive committee.

15 A. The people who run the company. The
16 president, the chair--who was--the chairman of the board--one
17 of those; maybe the C.E.O. or the chief executive officer;
18 the--probably the director of research and probably the
19 director of marketing and maybe the director of
20 manufacturing. There were probably about five or six on the
21 executive committee.

22 Q. I understand. Is it a fair statement--pardon
23 me. Is it a fair statement that the executive committee sets
24 the policy for Monsanto, or did set the policy for Monsanto?

25 A. Yes.

1 Q. And did the executive committee listen to you
2 when you talked to 'em?

3 A. Yes, they did.

4 Q. Did they follow your advice?

5 A. Well, they--a number of things--if I said I
6 wanted two more doctors, they may or may not.

7 Q. How about with respect to the toxicity of
8 chemicals? Did you ever discuss that with the executive
9 committee?

10 A. You mean in a general manner or about what?

11 Q. I mean with respect to--

12 A. A single chemical?

13 Q. --a specific chemical. Did you ever say
14 things like, listen, executive committee, we better warn
15 people that come into contact with this stuff about its toxic
16 nature? Did you ever give that kind of information?

17 A. I didn't need to give 'em that because I did
18 the warning myself. That was my responsibility.

19 Q. You were the fellow that prepared the
20 warnings?

21 A. Yes.

22 Q. Did you write 'em?

23 A. Yes, I wrote 'em. They may have been
24 (inaudible) from a grammatical point of view or put in a
25 brochure, but a substance was written by me to members of the

1 medical department.

2 Q. All right. Now, what was your position in the
3 company? Were you at the executive level?

4 A. No, but I was probably in the top 30.

5 Q. Okay. Of a company that must have had
6 what--several hundred executives?

7 A. Not if that's what you mean by an executive.
8 I mean--I mean--I--no--

9 Q. I'm talking about policy matters. People that
10 establish policy.

11 A. Well, there again, you could say a policy
12 might be who parks in the parking lot. That's a policy. But
13 if you want what the company does as far as being a good
14 neighbor is concerned, that is the executive committee's
15 policy.

16 Q. Who established the policy--and you may have
17 answered this already--with respect to the warnings on
18 chemicals as to their toxicity? Did you do that?

19 A. I did that.

20 Q. And did you consult with the legal department
21 or did you just do it?

22 A. I did it because I--I knew what it was.

23

24

25

1 Q. And you did that from -- for what period of
2 time?

3 A. Sometime in '46. And in 1946 the executive
4 committee put out a directive saying that all matters
5 relating to warnings, safe handling would be handled by
6 the medical department.

7 Q. Now, I want to change the subject a little
8 bit, and I'm going to ask you certain names of people.
9 I'm going to give you some names. I want you to tell me
10 who those people were out at Monsanto, if you can, and
11 what they did at Monsanto, and I hope you can remember
12 them. I think you'll know most of them.

13 William Papageorge?

14 A. Yes, I know William Papageorge.

15 Q. Is he sitting here in court?

16 A. Yes, he is.

17 Q. And you've known him for many years?

18 A. Yes, I have.

19 Q. How many years?

20 A. Twenty.

21 Q. What was his job at Monsanto?

22 A. Well, it varied. When I knew him he was a
23 plant manager at the Anniston, Alabama, plant. And then
24 from 1970 till 1974 he was head of our environmental
25 problems or our environmental aspect of chemicals.

1 Q. And did that relate to PCBs?

2 A. Among other things, yes.

3 Q. All right. Mr. E. P. Wheeler, W-h-e-e-l-e-r.

4 A. Yes, sir. Mr. Wheeler was an industrial
5 hygienist that I hired for the medical department in 1947,
6 I believe. He remained there until after I retired. He
7 retired later and is now dead. He was promoted to the
8 director -- the manager of the para-medical part of the
9 medical department, toxicologist, industrial hygienist,
10 librarians, and Wheeler in charge of that.

11 Q. How about Mr. -- and I don't know exactly how
12 to say his name, so I will spell it, B-e-n-i-g-n-u-s.

13 A. Benignus.

14 Q. How did you say that?

15 A. Benignus.

16 Q. What's his first name?

17 A. Paul.

18 Q. Who was he? All these people that I
19 mentioned are Monsanto employees?

20 A. Yes, up to now.

21 Q. Up to now?

22 A. Paul Benignus was an employee who worked in
23 the organic division. As I said, Monsanto is divided in
24 various divisions, and they changed organizations. So in
25 general, he was a development man in the fluid department

1 of which PCBs were part.

2 Q. And do you know about roughly how long he
3 worked out at Monsanto? I know it is hard.

4 A. Twenty-five years.

5 Q. He was not a pass (inaudible)?

6 A. Beg pardon?

7 Q. He was not somebody that was just passing
8 through? He worked there for a long time?

9 A. Yes.

10 Q. How about a Dr. Barrett, B-a-r-r-e-t-t?

11 A. He was a scientist in our English company,
12 and I do not know the details of his -- all the details of
13 his job.

14 Q. All right. How about a Dr. Harvy, H-a-r-v-y?

15 A. He was also in our English company. And,
16 again, I do not know all the details of his position.

17 Q. When you say English company, what do you
18 mean?

19 A. Well, we had a plant in @Rowan, Wales. We
20 had a plant in Newport, England.

21 MR. CARNEY: Your Honor, I am going to object
22 to this. I don't see any relevance to that. It doesn't
23 involve any issues.

24 MR. KOTOSKE: It does involve the issues.

25 THE COURT: I'll bear with it. Go ahead,

1 sir.

2 Q. (By Mr. Kotoske) Did you also have a plant
3 in Japan?

4 A. I -- We had a textile plant -- We had a -- I
5 don't know a subsidiary or a joint venture. We had a
6 textile plant. And we may have had a functional fluid
7 plant for a year or so, but I never visited them, and I
8 don't know.

9 Q. Who's Dr. Levinskas, L-e-v-i-n-s-k-a-s?

10 A. Dr. Levinskas is a Ph.D. who was a
11 toxicologist at one of the other chemical companies, and
12 he came with Monsanto in roughly '72 to head up our
13 toxicological department, and he retired last week.

14 Q. He was a Ph.D.?

15 A. Correct.

16 Q. He was not a medical doctor?

17 A. He was not. Those two other doctors were
18 Ph.D.s also, Harvy and Barrett.

19 Q. Who was Dr. Noone?

20 A. He was a plant physician at one of our plants
21 in England, eventually became head of the chemical -- he
22 became medical director for our English plants.

23 Q. Paul Wright?

24 A. Paul Wright was a Ph.D. who was a
25 toxicologist for Monsanto.

1 Q. Did you know him to work at IBT? And for
2 your information, and the jury's information, Industrial
3 Bio-Test is what I'm using (inaudible) short, IBT. Are
4 you familiar with that?

5 A. Yes.

6 Q. Did he work at IBT at some time?

7 A. Yes, he worked there for two years.

8 Q. And he worked for Monsanto before he worked
9 at IBT?

10 A. Yes, he did.

11 Q. And then he went to IBT?

12 A. Yes, he did.

13 Q. And then he came back to Monsanto?

14 A. Yes, but to a different position. He worked
15 at Monsanto as a research chemist in the agricultural
16 department. That job was abolished. He went up to IBT as
17 a toxicologist, to learn toxicology. After two years at
18 IBT, two years give or take a few months, he came back to
19 Monsanto and worked at the medical department.

20 Q. So when he learned about toxicology, his
21 purpose was to learn to --

22 A. Presumably. He did not talk to me before he
23 went up there. In fact, I did not know Paul before he
24 went up there.

25 Q. Did you know him when he came back?

1 A. Sure. We hired him in the medical
2 department.

3 Q. Then what? And you hired him as what?

4 A. Toxicologist. We had four toxicologists.

5 Q. Pardon?

6 A. We had four. He'd be the fourth.

7 Q. Did you know Dr. Calandra at IBT?

8 A. Yes, I did.

9 Q. Was he a Ph.D.?

10 A. No. He was both a Ph.D. and an M.D.

11 Q. Did you know a Renate Kimbrough?

12 A. Yes, not close. But I've met her several
13 times.

14 Q. And was she one of the world's renowned
15 scientists in PCBs?

16 A. I think she was a -- She had done a great
17 deal of work on it. I respect her very much. She also
18 did work in epidemiology. And she worked for the
19 government in various positions.

20 Q. Did you regard her as the world's renowned
21 authority on PCBs?

22 A. I never really made that distinction. She
23 was a knowledgeable woman and an honest woman.

24 Q. But did you regard her as the world's
25 renowned authority on PCB?

1 MR. CARNEY: Your Honor, objection. It's
2 asked and answered twice already.

3 Q. (By Mr. Kotoske) Just yes or no.

4 A. No, I -- I don't know who is.

5 Q. I don't either. But there's a suggestion
6 that Renate Kimbrough was the most renowned scientist on
7 PCBs in the United States. Do you accept that as true?

8 A. May, may not. People may. Other people may.
9 I say she is renowned. I don't say she is the most
10 renowned. I don't know.

11 Q. That's a hard decision to make, isn't it?

12 A. Well, I think so.

13 Q. What's your opinion?

14 A. It's a hard decision to make.

15 Q. I'm going to ask you about one fellow from
16 Westinghouse, see if you know him. His name was Wilbur --
17 and I'm going to have to spell it because I can't say it.

18 A. Speicher.

19 Q. You're exactly right, but let's spell it for
20 the record.

21 A. S-p-e-i-c-h-e-r.

22 Q. And who was he?

23 A. He was a chief industrial hygienist. I don't
24 know if he was the chieft, but he was a senior chief
25 industrial hygienist for the Westinghouse Electric

1 Company. I'm not sure of the years, but certainly through
2 the '50s and on.

3 Q. Did you talk with him?

4 A. I've talked with him, yes. I've talked with
5 him at meetings. He had more contacts with Elmer Wheeler
6 because they were both in the same -- they were both
7 industrial hygienists, but I knew him. I talked with him.

8 Q. Let's see if we can agree on certain things.

9 A. I'll try.

10 Q. This is a general proposition. Let's see if
11 we can agree on some things, and this all has to do with
12 PCBs.

13 A. Yes, sir.

14 Q. This is a PCB case?

15 A. That's what I understand.

16 Q. All right. And these are general
17 propositions, not related to any specific plaintiff in
18 this case. What are the known health effects from
19 exposure to PCBs?

20 A. They can vary from none to rather serious
21 problems. You have to equate the toxicity of a product
22 with the exposure.

23 Q. Exactly. Let us assume for the purpose of
24 this question there is heavy, massive exposure. What then
25 are the known health effects?

1 MR. CARNEY: I'm going to object to the
2 question as being vague. I don't know what he means by
3 "heavy" or "massive." I think you have to define dose.

4 THE COURT: Let's do it this way, can you be
5 any more specific? And if not, I think I'm just going to
6 let the doctor deal with it as best he can.

7 MR. KOTOSKE: I can't.

8 MR. KOTOSKE: You cannot. Well --

9 Q. (By Mr. Kotoske) What are the situations
10 that you know of where people have been heavily exposed
11 where there are known examples of the adverse health
12 effects on (inaudible) way on the other end (inaudible) of
13 the compendium of exposure is from none to massive, tell
14 me about those people and the known medical conditions
15 from massive exposure.

16 THE COURT: Again, you're speaking generally
17 without any reference to the facts in this case?

18 MR. KOTOSKE: That's right.

19 THE COURT: You may answer, sir.

20 A. Well, let's take the manner of exposure. If
21 you eat it, as has been done in Japan, you will get very
22 serious problems with the skin. You will get bronchitis.
23 You will get deformation of the nails. You'll get
24 pigmentation. You will get various pains and various
25 other complaints. There have been no cases where there

1 have been massive exposures so bad, massive by eating that
2 you would die, but I would imagine if you had a massive
3 exposure of (inaudible) PCBs, you might very well have an
4 extremely serious effect. And in industrial (inaudible)
5 it's not expected to be taken by mouth. If you take a
6 material and have prolonged skin exposure in massive
7 amounts, I presume by that you mean drenched from the
8 waist up to your neck, you could develop either an acute
9 episode of liver problems or if it were not great enough
10 to give you liver problems, one could get chloracne.
11 Now, then, the third exposure, massive exposure is if you
12 heat the material in an open vessel and breathe it, in a
13 large enough vessel, breathe it in a large enough amount,
14 you could develop a chemical hepatitis.

15 Q. Pardon me?

16 A. You could develop a chemical hepatitis.
17 Hepatitis is a liver disease, sort of like jaundice, but I
18 must say that in 40 years with Monsanto I have never had
19 any (inaudible).

20 MR. KOTOSKE: I'll move to strike. Your
21 lawyer will (inaudible).

22 MR. CARNEY: Your Honor (inaudible).

23 THE COURT: (inaudible) It will be stricken.

24 Q. (By Mr. Kotoske) What are the known health
25 effects to the lungs when breathing the fumes of PCBs?

1 A. In what manner? A massive exposure?

2 Q. All these are massive exposures.

3 A. Chemical bronchitis.

4 Q. Have you heard of a disease called chronic
5 obstructive pulmonary disease?

6 A. Yes.

7 Q. Can you get that from massive exposure to
8 PCBs?

9 A. If it (inaudible) enough, yes.

10 Q. How about small airway disease? As a medical
11 doctor you know what I mean by small airway disease?

12 A. Yes, I know what you mean.

13 Q. Can you get that condition from massive
14 exposure of PCBs?

15 A. I don't know. It hasn't been reported.

16 Q. You know of no medical articles reporting
17 that condition?

18 A. No, I didn't say that. I mean it's -- it has
19 not been shown epidemiologically that people get small
20 airway disease from exposure to PCBs. Now, this is not
21 your -- I don't know what would happen in your supposition
22 of a massive exposure over a long period of time because
23 that work hasn't been available. That information has not
24 been available.

25 Q. You are aware -- At least when you left

1 Monsanto you were aware of no medical study that reported
2 on small airway disease from exposure to PCBs?

3 A. In industrial operations, no.

4 Q. Now, I want to change the subject to the
5 nervous system. Are you aware the medical literature
6 reporting on neuropathies, dystonia and tremors from
7 exposure to PCBs?

8 A. Yes. They do show in the Japanese
9 (inaudible)

10 MR. CARNEY: Let me object to the question.
11 He asked about three things. It's compound. He asked
12 about tremors, dystonia and neuropathies.

13 Q. (By Mr. Kotoske) I'll break it all down. No
14 problem here. I'll break it down. I'm going to talk
15 about the nervous system of people exposed to PCB in
16 massive amounts. And you can assume I'm always talking
17 about the massive exposure. It was reported in the '60s
18 and early '70s, and you're quite correct in the Yusho
19 there were certain neurological disorders from exposure to
20 PCBs that included neuropathies.

21 MR. CARNEY: I'll object. The question is
22 unclear. He's talking about Yusho. There were furans
23 that were causing (inaudible) and I think that (inaudible)

24 MR. KOTOSKE: Let me (inaudible) this, Judge.

25 THE COURT: Overruled. We'll proceed.

1 Finish your question.

2 Q. (By Mr. Kotoske) I'm sorry. Where
3 neuropathies reported with respect to the people
4 (inaudible) Yusho?

5 A. The people in the Yusho incident were exposed
6 by ingestion, by eating material. They ate a Japanese PCB
7 that was manufactured by a different method than the
8 Monsanto PCB. It had (inaudible).

9 MR. KOTOSKE: Move to strike. It's not
10 responsive.

11 THE COURT: I'm not going to do (inaudible)
12 at this point. If you think he's off the point.

13 Q. (By Mr. Kotoske) The question is why. This
14 is the question I'm asking.

15 MR. CARNEY: Your Honor, he was in the middle
16 of an answer. And I object to this interrupting.

17 THE COURT: It wasn't responsive, but I'm not
18 going to strike it. Ask your question, Mr. Kotoske.

19 MR. KOTOSKE: I will.

20 Q. (By Mr. Kotoske) A nervous condition was
21 reported in connection with the Yusho incident where
22 people ate PCBs. What was that nervous condition?

23 A. Well, Your Honor, he's using PCBs, that
24 widespread term. As I understand in this particular trial
25 we are not talking about Japanese PCBs.

1 MR. KOTOSKE: Well, let's move to strike all
2 of that.

3 THE COURT: Doctor, if you can't answer it
4 the way it's asked, just tell us, and then it will be
5 rephrased.

6 A. Yes. Please explain what PCBs you're talking
7 about.

8 Q. (By Mr. Kotoske) The Japanese PCBs that were
9 eaten by people in Japan.

10 A. Containing various contaminants.

11 Q. Fine.

12 A. Huh?

13 Q. Yes. Fine. Put that in your supposition.
14 What neurological conditions did they exhibit?

15 A. They had some numbness, some tingling, some
16 tremors, not all. May I finish?

17 Q. Yes.

18 A. Not in comparison to the amount ingested.
19 There were some studies that showed that people that had
20 ingested more PCBs didn't show the tremors or the symptoms
21 of pain or stiffness in the joint while others who had
22 less exposure did.

23 Q. Did they also exhibit -- You mentioned the
24 tremors. Did you mention dystonias? You know what
25 dystonia is, don't you?

1 A. I know what some people call dystonia.
2 Dystonia is a problem with muscle use.

3 Q. Was that exhibited in the Yusho studies?

4 A. I can't recall whether it was or not.

5 Q. All right. And the neuropathies. We're
6 talking about neuropathy. Was that exhibited in the Yusho
7 study?

8 A. Forty-three percent of one group showed some
9 changes in their EMG, which is an electrical test of
10 nerves.

11 Q. And you believe an EMG is proof positive of a
12 neuropathy?

13 A. Yes. It doesn't show the cause -- what other
14 causes there may be. There may be alcoholic neuritis or a
15 (inaudible). There may be a number of causes.

16 Q. What are the effects of massive exposure to
17 PCB on the heart?

18 A. Again --

19 MR. CARNEY: I object to the question again,
20 Judge. He's talking about massive exposure. And he is
21 not relating it to the amount. And he's referred to some
22 of these plaintiffs getting massive exposure and that's
23 (inaudible).

24 MR. KOTOSKE: Your Honor, we don't need this
25 kind of prompting of the witness.

1 THE COURT: I understand your objection, sir.
2 I'm going to make the same ruling. Overruled. If the
3 doctor wants to qualify anything, he can.

4 A. Now, what massive exposure, (inaudible)
5 unconscious?

6 Q. (By Mr. Kotoske) In some cases there have
7 been cases where people have passed out in this case,
8 having to be carried out of the plant.

9 MR. CARNEY: Objection. Your Honor, there is
10 no evidence that anybody passed out because of exposure to
11 PCBs in this case.

12 THE COURT: I'm going to sustain the
13 objection. I want you to define it if you can so we can
14 move this along, what you mean by massive exposure.

15 Q. (By Mr. Kotoske) I'm going to use this
16 situation, and tell me whether or not you think that is
17 massive exposure. Listen to these facts.

18 A. These facts or assumptions?

19 Q. Facts.

20 A. These are facts.

21 Q. Assume these facts are true. A man works as
22 a heater man. He floods an oven on a daily basis with
23 PCB. This oven is 40 feet long, 6 feet wide, 6 feet tall,
24 and he is making capacitors with PCB-1242. Do you
25 understand what PCB-1242 is?

1 A. Yes, I do.

2 Q. For a period of six years during this job he
3 is drenched, drenched. His clothes are drenched every day
4 in PCBs. When he opens this oven, the PCBs are heated,
5 and he breathes the fumes of heated PCBs and sees the
6 smoke and haze. He gets nauseous. He vomits. He gets
7 dizzy from this exposure on a daily basis for six years.
8 Do you call that massive?

9 MR. CARNEY: Let me object, Your Honor. I
10 think he's mischaracterized the testimony I heard. I
11 think he's talking about Mr. Fritch, who was the only
12 heater man. And he didn't say drenched every day. And I
13 think there were some other things that were an
14 over-statement.

15 MR. KOTOSKE: Your Honor, we don't need his
16 testimony.

17 THE COURT: Well, the jury will recall what
18 the evidence was. (inaudible)

19 Q. (By Mr. Kotoske) Would you call that a
20 massive exposure?

21 A. If the facts are as you state, and I have no
22 reason to believe that they are as you state because I
23 have never heard of any company with that type of
24 exposure.

25 Q. You would find that outrageous, wouldn't you?

1 A. I would find that unbelievable, yes.

2 Q. Good. Now --

3 A. All right. Assuming this man had this
4 massive exposure for six years, assuming that, I have to
5 ask you one question, did he have chloracne?

6 Q. Yes. He exhibited rashes.

7 MR. CARNEY: Your Honor, I object.

8 A. That's a different rash, not chloracne.

9 Q. Dr. --

10 MR. CARNEY: There is no evidence in this
11 case that Mr. Fritch had chloracne.

12 MR. KOTOSKE: Mr. Carney, your objection is
13 noted. I told him to rephrase it (inaudible)

14 Q. (By Mr. Kotoske) He exhibits rashes on his
15 body, in his groin, on his stomach, on his neck and his
16 hands and arms repeatedly. We don't know if it's
17 chloracne because we can't biopsy it 30 years later to
18 find out if it is or not, but he has these rashes. All
19 right. Now, would you call that a massive exposure?

20 A. First, we've got to define this rash. PCBs
21 act as a pigment remover. You can get a redness on your
22 body, on your groin from PCBs the same as you can get them
23 from turpentine. However, the systemic marker for PCB
24 intoxication or the benchmark for PCB over-exposure is
25 chloracne, and that's a different type of rash completely

1 from a turpentine rash or a PCB skin rash.

2 Q. Are you saying to this jury that you can't
3 have a PCB exposure unless and but for chloracne?

4 A. Of course you can get the exposure. Yes, you
5 can get exposure, but you won't get systemic illness.

6 Q. Tell the jury what chloracne is.

7 A. Chloracne is like teenage acne, only worse.
8 It is accompanied by pigmentation. That's darkness of the
9 skin. It's when it becomes infected you get infected
10 cysts and scarring. It's a result of not the PCBs getting
11 on your skin, but PCBs being absorbed into your system and
12 changing the fat metabolism of your sweat glands,
13 sebaceous glands.

14 Q. Let me just ask you point blank, are you
15 telling the jury that chloracne is like teenage acne?

16 A. Of course not. I didn't tell them that. I
17 said it's like teenage acne, only much worse. You didn't
18 hear all my answer, Mr. Klawans.

19 Q. Well, I'm not Klawans. I'm Kotoske.

20 A. Kotoske.

21 Q. Are you saying you cannot have a medical
22 condition -- adverse medical condition from exposure to
23 PCBs unless you first have chloracne?

24 A. That is my statement, and that is also the
25 statement of Renate Kimbrough.

1 Q. Well, I know. I know. By the way, Renate
2 Kimbrough is now a private consultant, is she not?

3 A. I don't know.

4 Q. She consults with General Electric, does she
5 not?

6 A. I don't know. The last time I saw her she
7 was (inaudible) with the government.

8 Q. The government was one of the biggest users
9 of PCBs.

10 A. Yes, they were. (inaudible) It was their
11 patent.

12 Q. Now, assuming there's a massive exposure,
13 what conditions have they documented with respect to the
14 heart? Does PCB cause any heart (inaudible)?

15 MR. CARNEY: Your Honor, let me object again.
16 He's using this word "massive" without any definition.

17 MR. KOTOSKE: There is a definition in the
18 record.

19 THE COURT: Well, I want you to define it a
20 little bit, so we can move this along. What do you mean
21 by "massive" in your question?

22 MR. KOTOSKE: No. When I use massive -- I've
23 defined it for you. And whenever I use massive, that's
24 the definition I am using.

25 THE COURT: State it again for my benefit.

1 What do you mean by that?

2 Q. (By Mr. Kotoske) A man is a heater man. He
3 works at a Westinghouse capacitor plant. He uses 1242,
4 among other things.

5 THE COURT: The facts that you stated
6 earlier?

7 MR. KOTOSKE: Right.

8 THE COURT: Proceed.

9 Q. (By Mr. Kotoske) Do you know of any
10 scientific literature that documents heart disease from
11 exposure to PCB? Just a simple yes or no will do. And if
12 there is, tell me the (inaudible).

13 A. Yes. There have been epidemiological
14 studies. The one that I know of that I've stated that
15 there has been an excess of non-arteriosclerotic, that's
16 the high blood pressure type of heart disease, due to
17 PCBs. However, when you analyze those particular cases,
18 you find you're talking about rheumatic fever, for one.
19 You're talking about diabetic gangrene. So that
20 particular epidemiological study, I don't know if you
21 consider that a scientific study, but I do not believe
22 it's accepted by scientific authorities that PCBs cause
23 heart disease.

24 Q. And you explain it away by what? These
25 people had other conditions?

1 A. Well, no, but they didn't -- if you think
2 that rheumatic fever, rheumatic heart disease is due to a
3 chemical, that certainly flies in the face of all
4 scientific information for the past 50 years.

5 Q. What scientific literature is there that
6 documents liver damage from exposure to PCB? That's a
7 well known consequence from exposure to PCB, isn't it?

8 A. It's well known in acute episodes, yes.

9 Q. And that's been known for what, 50 years?

10 A. Well, first of all -- No. The PCB exposure
11 that I know about with liver disease occurred in two
12 non-electrical applications. These are the two that have
13 been reported to me, two that I've seen in the literature,
14 that was an acute episode which you heated the material
15 up, breathe it in a confined space. There was a heat
16 exchange situation where it leaked, and the people were
17 exposed to that for three days, and it leaked, and they
18 developed hepatitis, which is jaundice, and they got over
19 it in a relatively short time.

20 Q. What other liver damage was done besides
21 hepatitis?

22 A. In humans?

23 Q. Yes.

24 A. I don't know of any.

25 Q. How about in rats?

1 MR. CARNEY: Your Honor --

2 Q. (By Mr. Kotoske) Animal studies?

3 MR. CARNEY: I think we need to approach the
4 bench on this. He's getting into an area.

5 THE COURT: All right.

6 (There was a conference at the bench.)

7 THE COURT: He's going to ask you another
8 question.

9 Q. (By Mr. Kotoske) Staying with the liver and
10 PCB exposure, has it been documented -- Do you know of
11 scientific literature that documents enzyme imbalance in
12 the liver due to exposure to PCB?

13 A. Yes.

14 Q. Do you know of situations where porphyrins
15 have been out of balance because of exposure to PCB,
16 either high or low?

17 MR. CARNEY: I'm going to object to the
18 relevance. There is no foundation.

19 MR. KOTOSKE: Can't hear.

20 MR. CARNEY: We have (inaudible.)

21 THE COURT: I'm going to overrule the
22 objection, as long as it will be stricken.

23 THE COURT: You may answer, doctor.

24 A. Would you repeat the question?

25 MR. KOTOSKE: Can we read this one back? I

1 want to be relatively sure, and I won't do this very
2 often.

3 (The reporter read back as requested.)

4 A. Yes, but --

5 Q. (By Mr. Kotoske) Thank you. That's the only
6 question. You have a lawyer here who can cross-examine
7 you.

8 THE COURT: I'm going to let him answer. You
9 may finish, sir.

10 A. There have been studies when they are high.
11 There have been studies when they are low. So I don't
12 think there's been a great deal of scientific validity put
13 on the porphyrin changes and exposures that these
14 individuals had.

15 Q. By the way, let me ask you something. Have
16 you ever published any articles on the adverse
17 consequences from exposure to PCB?

18 A. No, sir.

19 Q. Thank you. Now, I want to change the subject
20 a little bit. Tell the jury what furan is.

21 A. Can I go over to the --

22 Q. You want to write on the blackboard?

23 A. Yes, please. (Inaudible) chemistry, but --
24 We're talking about -- Let's start with polychlorinated
25 biphenyl, PCB. This is -- You've heard, I'm sure, benzene

1 (inaudible) and talk about that. Here's one. Here's
2 another. And these are various places where they have
3 been chlorinated. Well, we knock this one out here, and
4 we put the oxygen in here. And this goes over here. So
5 that's the furan, dibenzofuran. It has oxygen, and it's
6 chlorinated, of course, for various amounts. So it's a
7 completely different horse after (inaudible) and where the
8 benzene (inaudible) directly together. So this one is --
9 That's a different one, but I'll put this down here to
10 show you -- These are all carbon atoms here and a carbon
11 here, but over here you do not have that carbon to carbon.
12 You have an oxygen. And without elaborating the
13 chemistry, it only takes a small dip of change in the
14 molecular structure or the physical structure of a
15 compound. Diamond's carbon, and (inaudible) coal is
16 carbon. So they are a lot different. You can take
17 Haldol, which a lot of people used to take, and you change
18 the chlorine on it, and you get bichloro (inaudible)
19 chlorine, and you get another toxic compound. Haldol
20 works very close to (inaudible), one less chlorine. So
21 you cannot go by structure.

22 A. Yes, sir.

23 Q. Were you finished?

24 A. Yeah.

25 Q. What causes PCBs to produce furans? What do

1 you have to add?

2 A. You have to keep the PCBs in the presence of
3 oxygen to a temperature of 600 to 800 degrees centigrade
4 or Celsius.

5 Q. And what's that based on?

6 A. Beg pardon?

7 Q. What's that temperature based on?

8 A. I'm sorry. I can't hear you.

9 Q. What is that temperature based on? Where did
10 you get those numbers?

11 A. I got it from scientists, and I've read it in
12 the literature.

13 Q. What literature did you read that in?

14 A. Well, I don't remember it, but it's common
15 knowledge to scientists.

16 Q. Common knowledge that you have to heat it to
17 what?

18 A. 600 to 800.

19 Q. 600 to 800 Fahrenheit?

20 A. Centigrade.

21 Q. That's Fahrenheit.

22 MR. CARNEY: Objection. Centigrade. That's
23 what the --

24 A. Either one is pretty hot.

25 Q. (By Mr. Kotoske) You've got to add heat to

1 PCB, heat to produce furan?

2 A. No. You also have to have oxygen.

3 Q. Well, I understand that. But the pyro
4 (inaudible) can't exist to heat the fire -- The heat can't
5 exist without oxygen?

6 A. But you have PCB in a container, a closed
7 pipe, you don't have oxygen.

8 Q. All right. You have to have oxygen and heat
9 for this chemical to change into a furan?

10 A. But if you get too much heat, then it's
11 destroyed. After 800 degrees degrees the PCBs are
12 destroyed.

13 Q. How toxic are furans?

14 A. Quite toxic. Much more toxic than PCBs.

15 Q. A small amount could be very, very toxic,
16 could it not?

17 A. If you (inaudible) it, yes.

18 Q. As a matter of fact, over 100 days period of
19 time, just 100 days, .6 milligrams can kill you; isn't
20 that true?

21 A. I'm sorry. But you're talking about
22 something I didn't hear the first part of it.

23 Q. Why don't you assume an exposure to PCBs that
24 are heated, and let's use your numbers down here.
25 .6 milligrams of this furan will kill you, true?

1 A. Well, it certainly hasn't shown -- It's
2 possible if the human species responds like the mink does,
3 if it responds like the guinea pig, we don't know, but
4 it's a very toxic compound, probably 2,000 times more
5 toxic than PCBs.

6 Q. I want the jury to get the (inaudible) of
7 what we're talking about. If you take a regular aspirin,
8 just an aspirin size, how many milligrams does a normal
9 aspirin have in it?

10 A. Well, it's 5 grains, and that's 60
11 milligrams, it's about 300 milligrams.

12 Q. A normal aspirin, just a normal one has 350
13 milligrams. Less than half of 1 milligram of furans,
14 exposure to furans over 100 days can kill you, couldn't
15 it?

16 A. It's possible.

17 Q. It could cause very serious toxic effects?

18 A. Well, it hasn't been shown in humans because,
19 obviously, we can't test humans.

20 Q. It's been shown in animal studies, hasn't it?

21 A. I'm sorry. I couldn't hear.

22 Q. It's been shown in animal studies?

23 A. Yes, it has.

24 MR. CARNEY: Just a minute, Your Honor. He
25 was in the middle of a question -- or an answer.

1 THE COURT: Let him finish his sentence.

2 A. You're talking about furans. You haven't
3 mentioned amount. It's in parts per million in the
4 Japanese PCBs.

5 Q. I'm not talking about the Japanese PCBs
6 (inaudible).

7 A. I wanted to clarify.

8 Q. Thank you. I appreciate it. Let's stay on
9 the subject.

10 A. I thought I was staying on the subject.

11 Q. It was reported in animal studies the
12 toxicities of these furans that we are talking about.
13 They can cause heart disease in animals. It's been known.
14 Animal studies have shown they cause heart disease. Have
15 you read those studies?

16 A. No, I have not.

17 Q. Liver disease?

18 MR. CARNEY: Your Honor, I'll object to this
19 line of questioning. I don't think there is any evidence
20 that furans were in the PCBs at Monsanto in the
21 Bloomington plant.

22 MR. KOTOSKE: We understand that.

23 THE COURT: Did you make this up?

24 MR. KOTOSKE: PCBs cause furans which are
25 highly toxic, just like he said.

1 THE COURT: (inaudible) Subject to being
2 connected up.

3 MR. CARNEY: Well, (inaudible).

4 Q. (By Mr. Kotoske) Now, just stay with me now.
5 We are not talking about Japan, and we are not talking
6 about Japanese PCBs. I'm just talking about furans.
7 Furans are produced from heating PCB at a certain
8 temperature in the presence of oxygen. I want to ask you
9 whether you know of animal studies that show the toxicity,
10 adverse health consequences to animals with respect to
11 these diseases, heart conditions?

12 A. I do not know. They may exist. I do not
13 know.

14 Q. Liver conditions?

15 A. I'm sure there's been some work on that, yes,
16 sir.

17 Q. Nervous system?

18 A. In animals?

19 Q. Yes.

20 A. I don't know of any. They may. I don't know
21 of any.

22 Q. Now, I want to change the subject a little
23 bit, and I'm going to go to some exhibits, some documents.
24 And I want you to have before you Exhibit No. 11, and I'll
25 tell you that I'm going to refer to pages in that exhibit,

1 and I'm going to ask you some questions about that. Now,
2 you have before you Exhibit No. 11, and can you see that
3 they are paginated in the lower right-hand corner pages 1
4 through so forth, and I'll show you, help you. You see
5 that? This is the number, like 3, 5?

6 A. Uh-huh.

7 Q. That's the number I'm going to be referring
8 to. I am not going to be referring to this Bates number.
9 Now, look at page 1.

10 A. Yes, sir.

11 Q. Do you have that?

12 A. Yes, I do.

13 Q. Okay. You know what that is?

14 A. It's a material safety data sheet from the
15 U.S. Department of Labor.

16 Q. Was that prepared by Monsanto?

17 A. Very probably it was.

18 Q. I'm interested in that, doctor. Can you
19 explain to us because you're (inaudible) for a long time,
20 why are there no material safety data sheets prior to the
21 date of this one which was July 30, 1972?

22 A. Well, I do not believe that was -- The
23 material safety data sheets were mandated by the
24 Department of Labor, either that or by the Department of
25 Transportation. So all companies started them up about

1 that time.

2 Q. Oh, so that's the explanation?

3 A. Yes.

4 Q. Did you, nevertheless, have an internal
5 material safety data sheet?

6 A. Yes. We had some, yes.

7 Q. What's the purpose of these material safety
8 data sheets?

9 A. To educate the people in transportation and
10 to educate the workers in various plants that use the
11 material.

12 Q. All right. Did you give these' to
13 Westinghouse; do you know?

14 A. I don't know whether we did or not. I would
15 imagine we did because --

16 Q. You don't remember one way or the other?

17 A. No, I know we gave them -- we received
18 inquiries from all our companies asking for material data
19 safety sheets. I don't know whether we gave them to
20 Westinghouse.

21 Q. I want you to turn to page 16, which is
22 (inaudible) 1242 which we know for sure was out at
23 Westinghouse.

24 MR. CARNEY: Which page?

25 A. We know for sure what?

1 Q. (By Mr. Kotoske) Page 16. Are you on page
2 16?

3 A. Yes, I am.

4 Q. Now, these aren't the best copies, but it's
5 the best we can do. Do you see toward the bottom of the
6 page where it says "Special manufacturing of -- Pardon.
7 Pardon. "Special fire fighting procedures."

8 A. Yes, sir.

9 Q. And it suggests equipment somebody should
10 have when this stuff is on fire, and it says "Respiratory
11 protection when fighting fires or exposure to vapors or
12 gases is possible." Is that what it says?

13 A. Yes, sir.

14 Q. Okay. And then it says underneath that, and
15 it's hard to read, "Explosion Hazards." Do you see that
16 one?

17 A. Yes, I do.

18 Q. And it says with respect to explosions, "High
19 toxic gases, fluorides and chlorane can be involved in
20 fires of this product." Have I read that correctly?

21 A. Yes, you have.

22 Q. Turn to page 17 a minute where it talks about
23 "Effects of over-exposure." Do you see that, the second
24 line down from the top?

25 A. Yes, sir.

1 Q. And it says, "Skin irritation in the form of
2 acne, chloracne, systemic intoxication leads to nausea,
3 vomiting, loss of weight, edema and abdominal pain." Did
4 I read that correctly?

5 A. Yes, you did.

6 Q. And in order to correct this problem and
7 there has been this exposure, you are warned to remove the
8 person from exposure, remove contaminated clothing, wash
9 contents in area with amounts of water and soap and refer
10 the person to a physician?

11 A. Yes, sir.

12 Q. And that's what you do when you have this
13 kind of exposure?

14 A. Yes, sir.

15 Q. I want you to turn to page 22, if you will,
16 please. By the way, I forgot to ask you something. On
17 this material safety data sheet that I just went through,
18 that's Monsanto's own prepared document, is it not?

19 A. Yes. I mean we prepared it, yes.

20 Q. Did you prepare it?

21 A. No, I didn't prepare it. I prepared -- I
22 gave the information on the section on -- I'm trying to
23 read it. It says, "Signs of" -- Well, I gave them the
24 safe handling data, and I can't read where it said what
25 happens.

1 Q. (Inaudible) cut this short. What I'm trying
2 to establish, is this information well known to Monsanto
3 at least by the date of the document? What's the date?

4 A. 1970 -- '72.

5 Q. But you already knew all this information way
6 back in the '50s and '60s, didn't you?

7 A. Which all? We knew that skin irritation
8 could occur. We knew that chloracne could occur. We knew
9 if you caught on fire, you would have hydrochloric acid
10 and chlorine released. Yes, we knew that.

11 Q. And you knew exposure would cause nausea and
12 vomiting?

13 MR. CARNEY: I'm going to object. He has to
14 define what exposure is, whether it's long-term or acute.

15 THE COURT: Rephrase.

16 Q. (By Mr. Kotoske) You, yourself, have had a
17 hand in preparing this document. What did you mean by
18 "exposure" when you use that word?

19 A. It could be anything. It could be a truck
20 falling over, a truck catching on fire. It could be
21 exposure in the workplace, yes. It could be any -- You
22 have a certain amount of space on the safety data sheet.
23 You have a certain amount of information to put on. Now,
24 systemic intoxication leading to nausea and vomiting has
25 only been on acute episodes like the ones I said on the

1 heat transfer agency where they leaked, but I can't go
2 into all that on three lines. So we put everything in.

3 Q. What did you mean by exposure when you used
4 the term when you helped draft it? Just tell us what you
5 meant by that.

6 A. Exposure that could occur in a transportation
7 vehicle, that of a tank car or truck where you would
8 rupture the tank car, and you would get exposure there. I
9 couldn't quantify the amount of exposure, or a couple of
10 55-gallon drums would fall out of a truck and break open.
11 I include that type of exposure. And I have to put
12 exposure in a workplace, but, remember, this is not the
13 only thing that the worker got. This was started off by
14 the transportation people. So the worker had other
15 information sent to his company by Monsanto that detailed
16 what should be done.

17 Q. Let me give you a couple of examples of
18 exposure and tell me if they would be included in examples
19 that shows (inaudible). A guy is unloading a tanker truck
20 and the hose brakes or something goes wrong and he just
21 gets drenched. Would you include that as an exposure?

22 A. Certainly would.

23 Q. How about a situation where fellows are
24 taking hot (inaudible) full of 1242 and soldering on
25 (inaudible) and fill them up with fill holes, and it gets

1 all over them. Would you include that in exposure?

2 Q. First how hot is it? How hot is the
3 temperature?

4 Q. I'm just talking about exposure to PCBs, not
5 furans.

6 A. I know that, but you're not giving me enough
7 facts to go on. You're saying exposure.

8 THE COURT: You mean vapor exposure or
9 physical?

10 Q. (By Mr. Kotoske) No. I'm talking about
11 something inside the fill holes in a capacitor after they
12 are flooded with PCBs, dripping with PCB oil, and then
13 they work on them and get the stuff all over their
14 clothes. Would you call that exposure?

15 A. If they get the stuff all over their clothes,
16 yes, that is exposure.

17 Q. How about a situation where -- Let's see.
18 How about a situation where a fella is lugging damaged
19 capacitors full of PCB to the dump. He has to put them on
20 a (inaudible) truck, and they fall over and get all over
21 his pants and shoes. Would you call that exposure?

22 A. That's exposure. And we advise against it.
23 We say (inaudible) if the clothes are contaminated,
24 destroy them.

25 MR. KOTOSKE: Can I strike that? Move to

1 strike all that.

2 THE COURT: Just try to answer the question.

3 MR. KOTOSKE: Is it stricken, Your Honor?

4 THE COURT: It's stricken.

5 Q. (By Mr. Kotoske) How about a situation where
6 a woman --

7 MR. CARNEY: Your Honor, can we approach the
8 bench?

9 (There was a conference at the bench.)

10 THE COURT: Proceed.

11 Q. (By Mr. Kotoske) I will. I want you to
12 turn, Dr. Kelly, with that to page 21, and I'm going to
13 ask you a series of questions about animal studies. I can
14 help if you need --

15 A. I've got it here.

16 Q. Okay. The document that we're looking at is
17 dated September 15, 1938, and it's a report to Monsanto
18 Chemical Company by a Cecil K. Drinker, M.D.

19 A. I thought he is a Ph.D., but that's all
20 right.

21 Q. (inaudible) Now, if you'll page through all
22 the way back. You know, I don't want to read through all
23 this. I just want to ask you some questions generally
24 about studies that were done in the late '30s for
25 Monsanto. Have you ever had occasion to read these animal

1 studies?

2 A. Yes, quite often.

3 Q. The questions I want to ask you are these.

4 In part these animal studies relate to a form of PCB.

5 They also relate to other chemicals that were manufactured
6 by Monsanto.

7 A. Yes, sir.

8 Q. These are actually animal studies, are they
9 not?

10 A. Yes, they are.

11 Q. And they were hired to be done by Monsanto by
12 Dr. Drinker who was then dean and professor of physiology
13 at the Harvard School of Public Health, if you'll look at
14 page 22.

15 A. Yes. But this is going to take a little
16 explanation, Mr. Kotoske.

17 THE COURT: I'll let him explain at some
18 appropriate time.

19 A. Because you have stated there they are hired
20 by Monsanto to do some studies. This is the aftermath of
21 studies that were carried out by Professor Drinker in 1936
22 at the behest of the Halowax Corporation, and this is
23 going to take a little while. Bear with me.

24 Q. (By Mr. Kotoske) You know what, Mr. Kelly,
25 I'm going to try to (inaudible) a little bit. My

1 questions don't go so much to the substance of the report.
2 I'm trying to find out whether they were in Monsanto's
3 files and they were available to you back in the 1930's.
4 That's all I'm (inaudible)?

5 A. They were in Monsanto's files that were
6 available to me, yes.

7 Q. All right. And the other question is did you
8 have a chance to read them?

9 A. Yes.

10 Q. Okay. This is the type of research
11 information you were trying to collect on toxicity or
12 somebody was trying to collect on toxicity of Monsanto's
13 chemicals?

14 A. Yes.

15 Q. And frequently used animal studies?

16 A. Yes.

17 Q. That's all I want to ask you.

18 A. Fine.

19 Q. Will you turn to page 46?

20 A. Yes, sir.

21 Q. Do you know what page 46 entitled "Process
22 for the production of aroclors, pyranols," et cetera --
23 This is actually a Monsanto document, is it not?

24 A. Yes, it is.

25 Q. What was the purpose? What was its function?

1 What did Monsanto use it for?

2 A. I don't know. I mean, first of all, just
3 you're confusing me a little bit by jumping to this one
4 from the Drinker studies. Forget about Dr. Drinker?

5 Q. Right. If your lawyer wants to ask you about
6 Drinker, he will ask you. Moving right ahead now. I'm
7 trying to save time is all I'm trying to do.

8 A. I have to be clear to know what you're asking
9 so I can answer you correctly.

10 Q. Yes, sir.

11 (Ms. Carter was replaced by Ms. Pape)

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1 A. It appears that the English plant was going to
2 manufacture PCBs they called Arochlors and Pyranols. That's
3 a heat transfer unit. (Inaudible) Anniston plant in the
4 United States. Our (inaudible) plant, which was in
5 East St. Louis, really, but it's referring to it in this.
6 We'll keep talking about East St. Louis, if you don't mind.
7 I think everybody knows that more than they do Sauget. So it
8 came back and (inaudible) said, this is what they do at these
9 plants. And I think your basis of your question was what was
10 the purpose of 'em. I guess it was to tell people back in
11 England what they did--what he thought they did at Anniston
12 and (inaudible).

13 Q. By the way, in what towns did Monsanto
14 manufacture PCBs--East St. Louis, and where did you say the
15 other plant was?

16 A. Anniston, Alabama.

17 Q. Now, this document contains an entry that I
18 want to ask you about and it's on page 49. Did you have
19 occasion, Dr. Kelly--I guess I should ask you a foundation
20 question--ever to read this document?

21 A. Did I what?

22 Q. Did you ever read this document that we're
23 discussing here?

24 A. Yes, uh-huh.

25 Q. Okay. I'd like to read from page 49. I want

1 you to tell me if I'm reading correctly. This document is
2 entitled hazards, and the specific section I'm going to read
3 from this document is toxicity. And it says, there are many
4 literature references to harmful effects of the type of
5 chloracne resulting from exposure to chlorinated diphenyls,
6 especially in cases where people working with small
7 electrical components have been exposed to fumes of
8 hydrochlorinated Aroclors. Chloracne is sometimes
9 accompanied by gastric troubles and there are, in the
10 literature, the records, liver troubles. There are some
11 trouble of this kind among the production workers at Anniston
12 in the early days of the development of Aroclors. At that
13 time, hydrochlorinated Aroclors were being made from diphenyl
14 which had come from low grade benzene. (Inaudible) continue
15 reading. Now, I need to ask you a couple questions about
16 that. When a chemist uses diphenyl, it's the same as
17 biphenyl?

18 A. That's correct.

19 Q. So when it's hydrochlorinated diphenyl, we're
20 still talking about PCBs?

21 A. That's correct.

22 Q. Will you turn to page 51, please, in this
23 document.

24 MR. CARNEY: Your Honor, I think it's very
25 misleading to the jury to stop where he stopped, because the

1 next sentence makes--

2 MR. KOTOSKE: You know, cross examination
3 (inaudible).

4 THE COURT: I'm gonna overrule your objection.

5 MR. CARNEY: (Inaudible.) I think that makes
6 sense.

7 MR. KOTOSKE: You can (inaudible).

8 THE COURT: Overruled.

9 MR. KOTOSKE: I don't object to (inaudible).

10 THE COURT: I understand. Let's move it. Let's
11 move it.

12 BY MR. KOTOSKE:

13 Q. I want you to--pages 51. Would you please
14 read that second paragraph to yourself?

15 A. To myself?

16 MR. CARNEY: Your Honor--

17 Q. Yes, quietly.

18 A. I beg your pardon?

19 MR. CARNEY: Never mind.

20 A. I still don't know what--

21 Q. Read the second paragraph.

22 A. Out loud?

23 Q. To yourself.

24 A. Okay.

25 Q. By the way, in the sentence right before that,

1 it states this document called the Toxicity of Arochlors, and
2 it's by a Robert M. Brown. Did you know him?

3 A. Yes, I did.

4 Q. Was he Chief of Industrial Hygiene Division of
5 Health, Department of Public Welfare, City of St. Louis,
6 Missouri? Was he--did you know him professionally?

7 A. Yes, he was the chief of a one-man division.

8 Q. Here in St. Louis?

9 A. Yes, he was--he was it. He was the industrial
10 hygiene section.

11 Q. And he was--is he the one that has commented
12 on what is about to follow here in this report? That's how I
13 read it. Maybe you read it different.

14 A. Will you repeat that? You lost me on the
15 reading.

16 Q. Is he the fellow that is reporting in the
17 paragraphs right below his name? At least that's how I read
18 it.

19 A. Oh, yes. Yes, he wrote this.

20 Q. Okay. Now, here's what he says about PCBs as
21 stated in that article: Arochlors are a group of chlorinated
22 diphenyls produced by the Monsanto Chemical Company. There
23 is need, therefore, to give warning, for the toxicity of
24 these compounds has been repeatedly demonstrated both from
25 the standpoints of their absorption from the 'higher air' as

1 well as from their effects in producing a serious and
2 disfiguring dermatitis when allowed to remain in contact with
3 the skin. Since these effects have been repeatedly observed,
4 industrial hygienists have taken care to see that the proper
5 controls have been established whenever these products are
6 used. Have I read that correctly?

7 A. You read it correctly.

8 Q. Now, just keep your finger there and I want
9 you to turn back to page 46. Now, keep your finger there.
10 What's the date of this document? I see April, '55.

11 A. Which one?

12 Q. The cover page for this report that we're
13 reading.

14 THE COURT: On page 46?

15 Q. Oh, page 46. The date is April, '55?

16 THE COURT: Is that what you're asking?

17 MR. KOTOSKE: Yeah.

18 A. Okay. April, '55. Now, you want me on 46 or
19 47?

20 Q. That's all I want to know, Doctor. I just
21 wanted to know when this literature was (inaudible), when it
22 was out. Can you turn to page 52.

23 A. Yes.

24 Q. I think you may have answered this and so I
25 don't want to spend a lot of time. But do you see, sir, down

1 in the middle of the page--are you on 52?

2 A. Yes, I am.

3 Q. There is a reference and I'll read it. The
4 St. Louis plant B Arochlors building was rated a toxic
5 department. Is that the East St. Louis PCB plant?

6 A. That's correct.

7 Q. And it was rated toxic?

8 A. Well, you have to--to understand what rating
9 toxic means. If you--I mean I can't--I think--

10 THE COURT: We'll let him explain.

11 A. I think the jury would like to know what we
12 mean when we say this. At the East St. Louis plant at that
13 time they had probably 20 different compounds being
14 manufactured, that they allowed people to have--take a shower
15 on company time and be furnished clean clothes every day.
16 That was in the union contract. So if they were off fifteen
17 minutes early or they didn't have a 'police' there to see
18 that they took showers, but it was a well--they (inaudible).
19 So I have never--I had been in the plant--I never saw them
20 wear hats, coat, trousers, rubber shoes. They used their own
21 shoes. They did--they got a change of clothes, but most of
22 the people in the whole plant--now, the plant employed 1,000
23 people, 1,200 people, and there were 15 in the PCB
24 department. So these people got the same underwear, showers,
25 as half the plant did--probably all the plant. Later on--I

1 don't know what time--but all of the people in the plant got
2 company clothing.

3 Q. And it says down here further down in the last
4 sentence, employees in the toxic department are given an
5 annual medical examination and a lung x-ray every three
6 years; is that true?

7 A. That's what it says, but here is our policy.
8 I might--I started it, so let's--I don't know whether--where
9 he got his information, but we gave people examinations on a
10 voluntary basis to all wage (inaudible) employees. We did it
11 by ages. If a man didn't--personally (inaudible) but if an
12 employee was under, I think it was 35 years, he was examined
13 every three years. If he was 45, every two years; and over
14 55 or 50, every year. X-rays depended on whether they were
15 exposed to any dust, but it was a minimum of every three
16 years to find out cancer, find out lung troubles from
17 smoking, bronchitis from smoking, find out any number of
18 conditions. Perhaps that we didn't (inaudible) chemicals
19 unless it were with a dusty situation.

20 MR. KOTOSKE: Your Honor, this would be a
21 convenient place for us to stop the examination.

22 THE COURT: That's fine. Doctor, we're gonna take
23 a lunch break. You can step down momentarily.

24 THE WITNESS: Your Honor, when do you want me to
25 come back?

1 THE COURT: Let's say about 1:20.

2 THE WITNESS: I'll be here.

3 THE COURT: Thank you. Ladies and gentlemen, we
4 will take our--you can step down, sir. Thank you. We will
5 take our lunch break at this time. 1:20 we'll reconvene, and
6 see you at that time. Do not discuss the case among
7 yourselves or with others.

8 (Ms. Pape was replaced by Ms. Olliges.)

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