

UNITED STATES DISTRICT COURT

DISTRICT OF NEVADA

NEVADA POWER COMPANY, a :
Nevada corporation, :
Plaintiff, :
V. : CV-S-89-555-LDG-LRL
MONSANTO COMPANY, a :
foreign corporation; :
GENERAL ELECTRIC COMPANY, :
a foreign corporation; :
WESTINGHOUSE ELECTRIC :
CORPORATION; and DOES I :
XXV, inclusive, :
Defendants. :

**READING
COPY**

DEPOSITION OF ROBERT EMMET KELLY, M.D.

VOLUME V

TAKEN ON APRIL 18, 1994

**MARTIN & ASSOCIATES
CERTIFIED COURT REPORTERS**

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I N D E X

THE WITNESS: ROBERT EMMET KELLY, M.D.
VOLUME V

<u>EXAMINATION:</u>	<u>PAGE</u>
By Mr. Kim	608
By Mr. Bauer	678
By Mr. Kim	686

<u>KELLY EXHIBITS:</u>	<u>PAGE MARKED</u>
Kelly No. 51	608
Document dated September 20, 1955 to Dr. J. W. Barrett from Dr. Kelly re: "Your memo September 8 to Mr. Nason" Aroclor Toxicity	
Kelly No. 52	608
Minutes of Meeting of the Corporate Development Committee; November 17, 1969	
Kelly No. 53	608
Letter dated February 4, 1972 from Howard Bergen, Director, Specialty Products Group, Monsanto Industrial Chemicals Company with attachment titled Special Undertaking by Purchasers of Polychlorinated Biphenyls	

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2

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1 The oral videotaped deposition of
2 **ROBERT EMMET KELLY, M.D., VOLUME V**, was taken
3 on April 18, 1994, beginning at 9:10 a.m., in
4 the offices of Husch & Eppenberger, 100 N.
5 Broadway, Suite 1300, St. Louis, Missouri,
6 before Jana L. Martin, a Certified Court
7 Reporter and Notary Public in and for the
8 State of Texas, pursuant to Notice, the
9 Federal Rules of Civil Procedure, and the
10 following stipulation and waiver of counsel:

11 IT WAS STIPULATED AND/OR AGREED
12 that the deposition is to be signed by the
13 witness before any Notary Public or officer
14 authorized to administer oaths.

15 IT WAS STIPULATED AND/OR AGREED
16 that the court reporter could administer the
17 oath to the witness with the same force and
18 effect as if she were a notary public in and
19 for the State of Missouri.

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1 (Instruments were marked Kelly
2 Exhibit Nos. 51 through 53 for
3 identification.)
4

5 ROBERT EMMET KELLY, M.D.
6 was called as a witness and, having been
7 previously sworn, testified as follows:
8

9 FURTHER EXAMINATION

10 BY MR. KIM:

11 Q. Good morning, Dr. Kelly.

12 A. Good morning, Mr. Kim.

13 Q. Thank you for spending what we hope is your
14 last day of this deposition.

15 A. You're certainly welcome.

16 Q. You understand that as we continue your
17 testimony today that you are still under
18 oath?

19 A. Yes, I do.

20 Q. The same type of oath that you would be in a
21 courtroom?

22 A. Just a little louder, remember.

23 Q. I forgot. The same type of oath as if you
24 were in a courtroom.

25 A. Yes, that's correct.

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1 Q. When we last took a break, I believe we were
2 talking a little bit about the composition of
3 PCBs or Aroclors at Monsanto; and to the
4 extent that you know from your experience as
5 the medical director from 1946 till 1974, do
6 you have knowledge of whether chlorinated
7 diphenylbenzene was ever used in the Monsanto
8 PCB Aroclor mix?

9 MR. BAUER: Object to the form.
10 One particular mix? There were many.

11 Q. (By Mr. Kim) In any PCB --

12 A. It was called an Aroclor. Chlorinated
13 diphenylbenzene was called an Aroclor in
14 5460; and it was also used in a mix, 4465, in
15 which 60 percent, I believe, was chlorinated
16 diphenylbenzene and 40 percent was a
17 chlorinated PCB.

18 Q. And that is the product that I believe you
19 identified that Dr. Drinker tested in his
20 original study for Halowax Corporation?

21 A. That's the assumption, yes.

22 Q. Was this 4465 Aroclor mix ever used as a
23 dielectric fluid?

24 A. I wouldn't know. My impression is it never
25 was, but I can't answer that. I don't know.

1 Q. Why would that be your impression?

2 A. Because I always thought that the dielectrics
3 were 1242, 1254 and 1260. I didn't know that
4 5460, the terphenyls, or the 4465, the
5 mixture, were used as dielectrics. I don't
6 know.

7 Q. Can we agree that the combination of the
8 terphenyls and, in particular, chlorinated
9 diphenylbenzene with PCBs posed more health
10 considerations to Monsanto than did the
11 Aroclor 12 series?

12 A. Well, they were more toxic in animals, yes.
13 Whether or not there was exposure that would
14 cause more health -- more health problems, I
15 don't know because I'm not sure exactly where
16 they were used. I had no record of any --
17 hearing about any illness of any of our
18 customers; but, frankly, I don't know where
19 they went.

20 Q. Were there any tests undertaken at your
21 direction as the medical director of Monsanto
22 Company between 1946 and 1974 that tested the
23 synergistic effect between PCBs and any other
24 chemical?

25 A. With the exception that we ran mixtures of

1 PCB and chlorinated diphenylbenzene, yes, but
2 not other chemicals. Except we did also test
3 in our acute package a mixture of chlorinated
4 PCBs -- PCBs and trichlorobenzene.

5 Q. And which acute studies are you talking about
6 that would have tested that synergistic
7 effect?

8 A. The last one? We did some at Scientific --
9 at Younger Laboratories.

10 Q. Was there any testing undertaken at your
11 direction or at Monsanto's direction during
12 the time period in which you were there that
13 tested the synergistic effect between PCB and
14 any chemical from a chronic standpoint?

15 A. No, sir.

16 Q. Were there any tests called for by you or
17 Monsanto Company while you were there as the
18 medical director that would have tested the
19 decomposition products of PCB?

20 A. Decomposition how?

21 Q. For instance, if it entered the human body,
22 whether intentionally or by accident, how it
23 may decompose upon the introduction of body
24 fluids or fatty tissues?

25 A. No, sir.

1 Q. By the same token, I take it that during the
2 time period you were the medical director at
3 Monsanto you never initiated any testing that
4 would have investigated the metabolism and
5 its effects of PCB compounds in the human
6 body.

7 A. No, sir. That really was not unique in the
8 chemical industry. In other words, I can
9 think of very, very few, if any, compounds
10 that were industrial chemicals that were
11 examined for that purpose during that time
12 frame you talked about.

13 MR. KIM: Object to nonresponsive
14 after "no, sir."

15 Q. (By Mr. Kim) And, again, those are just some
16 legal things we attorneys have to do. Don't
17 worry about it.

18 As I understood your testimony from
19 last time, you do not have any medical
20 compilations with respect to your
21 occupational workers for review today.

22 A. No, sir. I do not.

23 Q. And during the time period in which you were
24 the medical director at Monsanto, you never
25 asked for or initiated any epidemiological

1 studies with respect to PCB exposure?

2 A. No, sir. I did not.

3 Q. During this same time period, you were also

4 responsible for the communication of the

5 toxic and health effects of PCBs to your

6 customers, were you not?

7 A. Yes.

8 Q. You were in charge of the labeling?

9 A. No, I wasn't in charge of the labeling. I

10 was in charge of putting the cautionary

11 statement on the labels.

12 Q. You were in charge of the language?

13 A. For that purpose, yes, but not the entire

14 language of the label.

15 Q. The text of the warning part of it?

16 A. Yes, that's correct.

17 Q. And during this time period, did you ever

18 indicate to your customers that you had done

19 no testing with respect to decomposition,

20 metabolism, synergistic effects and had no

21 occupational compilations that could have

22 been the basis for any epidemiological tests?

23 A. Would you mind simplifying that question

24 because you've talked about four things that

25 are -- the end was these four items were

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1 not -- tell me how you tied in the
2 epidemiological tests again on that.

3 Q. Why don't I just break it down into a couple
4 of questions.

5 A. Fine.

6 Q. You have told us that Monsanto, under your
7 direction, never did any decomposition
8 testing or testing to see how it would
9 metabolize within the human body or any
10 synergistic effect type of testing and had no
11 compilation of the occupational -- occupants'
12 medical records. Is that correct?

13 A. Well, first of all, a few sentences ago I
14 said we did test the synergistic effects with
15 chlorinated terphenyls or diphenylbenzene.
16 We did also check the synergistic effect
17 of -- with trichlorobenzene. So with those
18 exceptions, we did not test the synergistic
19 effects.

20 And let me tell you that certainly
21 I don't see -- I don't recall any literature
22 about any industrial chemical in which
23 synergistic effects were a prominent part of
24 the toxicologic examination.

25 Now, as far as a compilation is

1 concerned, I did examine the records of the
2 people at Anniston. I did not compile an
3 epidemiological study, but I know from
4 looking at the records that we did not have
5 any illness that I can attribute to PCB.

6 Q. Of course, I believe that you told me in the
7 prior deposition that we have -- took that
8 the medical testing that you did was not
9 specifically geared towards PCB
10 identification.

11 A. Not specifically, but it was geared towards
12 any illness.

13 Q. They were generally geared toward the general
14 occupational health and welfare of your
15 workers?

16 A. Yes, but I don't know how you can distinguish
17 between gearing and examination towards a
18 person to see if he's ill from PCB or ill
19 from diabetes or ill from any of a number of
20 things, any other chemical exposures. You
21 want to see if he's apart from the normal.

22 Q. How do you know as a doctor what to ask for
23 and how to identify that type of
24 symptomatology that may give rise to an
25 indication that there is a possible systemic

1 poisoning as a result of your product?

2 A. You know by your clinical experience over the
3 years of examining people. You know what to
4 ask for. You know what constitutes a good
5 history and a good physical examination.

6 Q. And you also have to identify those symptoms
7 that would be identified with the type of
8 systemic poisoning associated with your
9 product?

10 A. No. I don't believe that because symptoms --
11 you could get the symptoms from any number --
12 the same symptoms from any number of
13 illnesses. You could get the same symptoms
14 from any number of illnesses, any number of
15 chemical absorption. Just the -- you cannot
16 trace back from a symptom to a single cause
17 because that symptom may be the result of any
18 number of causes.

19 Q. You would agree that those symptoms give rise
20 to a possibility of systemic poisoning?

21 MR. BAUER: Object to the form.
22 What symptoms?

23 A. Yes.

24 Q. (By Mr. Kim) You recall in your testimony
25 with Mr. Bauer, the very first exhibit he

1 used was a study by Jones and Alden?

2 A. Yes.

3 Q. And they noted in that study the loss of --
4 lassitude, loss of appetite, loss of libido?

5 A. Yes.

6 Q. And that result was associated with a
7 PCB-based product?

8 A. Yes. But it could be associated with
9 benzene. It could be associated with
10 anything that would give you anemia. It
11 could be associated with hypothyroidism. So
12 those symptoms are not the result -- not only
13 from PCB overexposure.

14 Q. The presence of those symptoms does not
15 eliminate PCBs as a causative agent?

16 A. No.

17 Q. It gives rise from a medical standpoint and
18 an occupational safety standpoint of the need
19 for further investigation, doesn't it?

20 A. Yes, it does.

21 Q. And my question to you, Doctor, is: Then how
22 could we rely upon the occupational medical
23 monitoring that you have talked about thus
24 far without any specific inquiry into the
25 causes of the systemic or systematic effects

1 complained of by workers?

2 A. Well, first of all, they weren't complaining
3 about any systemic effects.

4 Q. Did you ask them?

5 A. Certainly. I didn't ask them were you
6 complaining about systemic effects of
7 absorption from PCB because there weren't any
8 from their point of view.

9 Q. Did you --

10 A. I asked them if they had any symptoms,
11 period.

12 Q. Did you ask them specifically if they were
13 experiencing a loss of appetite?

14 A. I'm sure I obtained the same information,
15 whether I asked that specific question or
16 not. In the course of a history, you do not
17 ask questions specifically on all cases. You
18 ask how the man is feeling, how his weight is
19 doing. You could ask very easily, "Do you
20 have any problems with your appetite?"

21 Q. Did you ask him specifically whether he was
22 experiencing lassitude or lethargy?

23 MR. BAUER: Object to the form.
24 Who is "he"?

25 MR. KIM: His worker.

1 A. Will you repeat --

2 MR. BAUER: Objection. Lacks
3 foundation.

4 MR. KIM: Scott, I believe he's
5 already testified that he personally
6 interviewed occupational workers and he's
7 reviewed them over 40 years.

8 Q. (By Mr. Kim) I think that's foundation
9 enough for him to testify as to whether he
10 specifically, during the course of those
11 investigations, Doctor, ever asked whether
12 the occupational worker, your worker at
13 Monsanto, ever experienced lassitude.

14 A. Certainly I obtained that information.
15 Whether I was sitting next to him and said,
16 "Do you have lassitude," certainly not -- I
17 may not have done that; but I've said, "How
18 are you feeling? How is your work doing?
19 Are you able to work? Do you have any
20 problems with work? Do you get tired
21 easily?" I did not say, "Do you have
22 lassitude?"

23 Q. And you trusted that answer even though it
24 was part of a review in-house that would
25 affect his job performance and continuation?

1 A. Say that over again because I -- I get a
2 little confused with your question.

3 Q. Do you think that that worker may have been
4 hesitant to tell you, "Yeah, I'm not feeling
5 as spunky as I used to. I'm not able to work
6 as hard as I used to"?

7 MR. BAUER: Object to the form.

8 A. I certainly do because the workers knew that
9 we never discharged anybody on a basis of a
10 physical examination once he was working for
11 Monsanto.

12 Q. (By Mr. Kim) Never?

13 A. Never, unless he had tuberculosis or
14 something like that.

15 Q. Something communicative?

16 A. I beg your pardon?

17 Q. Something --

18 A. Communicable. Or if he objectively couldn't
19 do the work. If he couldn't bend, if he had
20 serious arthritis and he couldn't bend or go
21 up a ladder, then if there was no other job
22 for him, he may have gone on disability.

23 Q. Did you ever ask, during these medical
24 examinations, any worker whether they had
25 experienced a lessened sex drive?

1 A. Did I ever? I may have, but I don't --
2 didn't do it routinely because I believe that
3 from my experience with workers, they will
4 tell you if they have it. That's pretty
5 important to them.

6 Q. Why would they tell you that?

7 A. Because they were interested in it. They
8 wanted to know if you could do something
9 about it.

10 Q. And they would talk to the occupational
11 health director at Monsanto about that?
12 That's your testimony?

13 A. That they never talked to me or that they did
14 talk --

15 Q. No. That they would volunteer that
16 information.

17 A. During the course of examination, certainly.

18 Q. It was -- was this a part of an oral history
19 that you would take or was there some written
20 protocol?

21 A. There was no written protocol. It's an oral
22 history that a person develops during his
23 clinical experience over a lifetime as an
24 occupational physician.

25 Q. And as a result of these oral histories over

1 time, you formed the belief that your
2 occupant -- your occupational workers
3 experienced no negative findings associated
4 with PCBs?

5 A. That's correct.

6 Q. And I believe you told us in the last
7 depositions that to this date you feel that
8 PCBs hold no unreasonable toxic effects
9 towards humans.

10 A. That's correct, with the exception of
11 chloracne.

12 Q. I'm curious in that belief, Mr. Kelly,
13 because of what you wrote and what I've put
14 before you as your deposition Exhibit No. 51,
15 I believe. Could you take a look at that
16 real quickly?

17 A. Yes, sir. I sure can.

18 Q. And you've had an opportunity to review that
19 prior to starting today's session, have you
20 not?

21 A. Well, I've seen it before. Yes, sir.

22 Q. How have you seen it before?

23 A. I beg your pardon?

24 Q. How have you seen it before?

25 A. It was shown -- well, first of all, when I

- 1 wrote it I saw it.
- 2 Q. You wrote it back in September of 1955?
- 3 A. Yes. And it was shown to me in one of these
- 4 depositions. I don't know if it's this
- 5 particular case or other cases.
- 6 Q. And it was directed to a Dr. Barrett in
- 7 London. Is that correct?
- 8 A. That's correct.
- 9 Q. Who was Dr. Barrett?
- 10 A. He was a development -- he was a Ph.D. He
- 11 was not an M.D.
- 12 Q. Was he employed by Monsanto?
- 13 A. Yes, he was.
- 14 Q. Based in London?
- 15 A. That's correct.
- 16 Q. If you will turn your attention to the last
- 17 paragraph on the first page of your letter
- 18 where it states MCC -- and I assume that
- 19 stands for Monsanto Chemical Company?
- 20 A. That's correct.
- 21 Q. -- "MCC's position can be summarized in this
- 22 fashion." We knew Aroclors -- "We know
- 23 Aroclors are toxic but the actual limit has
- 24 not been precisely defined." And this is in
- 25 1955, correct?

- 1 A. Yes, sir.
- 2 Q. Do you think it's important from a
3 toxicological standpoint that the actual
4 limits of toxicity be defined?
- 5 A. Not necessarily. In an industrial situation,
6 you want to find out the safe limit. You
7 don't want to find out: If I expose this man
8 to this much, will I hurt him? What you want
9 to find out is: What is the limit I can --
10 that he can be exposed to without any harm?
- 11 Q. Did you know during the 1950s whether PCBs
12 persisted in fatty tissues or the
13 environment?
- 14 A. No, sir. I did not.
- 15 Q. Have you ever testified differently?
- 16 A. I don't know if I have.
- 17 Q. Do you recall giving a deposition with
18 Mr. Warshauer sometime earlier this year in a
19 case styled Fisher versus Monsanto?
- 20 A. I remember the deposition. Yes, sir.
- 21 Q. Do you recall telling him that you knew that
22 PCBs may persist sometimes -- sometime in the
23 1950s?
- 24 A. Well, they persist. Certainly I said that.
25 I said they could -- they were not -- we

1 thought they were nonbiodegradable. We
2 thought they were stable compounds, and we
3 thought they were nonsoluble in water.
4 Certainly I said that.

5 Q. Did you ever initiate any studies while the
6 medical director of Monsanto between 1946 and
7 1974 that tested the cumulative effect of
8 PCBs as it persisted within the human body?

9 MR. BAUER: Object to the form. He
10 never said persisted within the human body.

11 MR. KIM: He did in his prior depo,
12 Scott.

13 MR. BAUER: Well --

14 A. Will you repeat your question?

15 MR. BAUER: Objection. Lack of
16 foundation.

17 A. Will you repeat your question, then?

18 Q. (By Mr. Kim) You bet. Do you recall telling
19 me earlier in this deposition -- apparently
20 your lawyer doesn't, but do you recall
21 earlier in this deposition, prior days --

22 A. Yes.

23 Q. -- telling us that in the 1950s, you and
24 Monsanto were aware of the fact that PCBs may
25 persist within the human body and

1 environment?

2 MR. BAUER: Objection.

3 Mischaracterizes his prior testimony.

4 A. I do not recall saying within the human
5 body. I certainly knew they persisted in the
6 environment.

7 Q. (By Mr. Kim) Your testimony today is in the
8 1950s, you were unaware of the fact that PCBs
9 may persist in the fatty tissues of the human
10 body?

11 A. I think I would have to say that, and I did
12 not have any evidence to show that there was
13 an accumulation of PCB in the fatty tissues
14 of the body.

15 Q. How about in the blood?

16 A. I don't believe we had -- in fact, I'm quite
17 sure we had no methods to pick up PCB in the
18 blood in the 1950s.

19 Q. What is your understanding today as to the
20 normal background level of PCBs present in
21 humans' fatty tissue?

22 A. 1 to 3 to 5 parts per million.

23 Q. How about in the blood?

24 A. 1 to 3 parts per billion in the blood.

25 Q. And I think we can agree that polychlorinated

1 biphenyls are not a natural chemical compound
2 in the environment.

3 A. That's correct.

4 Q. They're man-made?

5 A. Yes.

6 Q. So the presence of any PCB background levels
7 in humans, whether it be in blood or fatty
8 tissue, is a result of the introduction of
9 this chemical compound by industrial
10 manufacturers?

11 A. Yes, sir.

12 Q. Monsanto, during the time period that you
13 were employed as the medical director from
14 1946 to 1974, was the sole supplier of PCBs
15 in the industrial setting, was it not?

16 MR. BAUER: Objection.

17 A. In the United States.

18 Q. (By Mr. Kim) In the United States.

19 A. Yes, sir.

20 Q. I'm curious, then, Doctor, when as the
21 medical director you first became aware of
22 the possibilities that PCBs may persist in
23 the environment.

24 A. First, I recognized the fact that they --
25 that they were in the environment; but I also

1 recognized the fact that they were stable
2 compounds, they were nonsoluble in water and
3 that, if they persisted in the environment,
4 they persisted as PCBs much as they would
5 have been if they were a lump of coal lying
6 in the bottom of a river. Yes, if that's
7 what you mean by persisting, they were there.

8 Q. When were you first aware of this?

9 A. I suppose the first time I recognized the
10 fact that they were nonsoluble, non -- we had
11 no idea that they were metabolized. So I
12 think I became aware of it sometime in the
13 forties.

14 Q. And when you indicated just now that you
15 became aware that they were nonmetabolized --

16 A. Yes, sir.

17 Q. -- to what are you referring with respect to
18 that metabolism? Within what organism or
19 what structure?

20 A. Any organism.

21 Q. The human?

22 A. Yes.

23 Q. And you knew that in the forties, as well?

24 MR. BAUER: Well --

25 A. I didn't say I knew it. I suspected.

1 Q. (By Mr. Kim) And based upon this suspicion,
2 did you ever initiate any test from 1946
3 forward that would have tested the effects of
4 the persistence of PCBs within the human?

5 MR. BAUER: Object to the form. He
6 didn't say they persisted. Lack of
7 metabolism is not the same thing.

8 A. The answer is no, but we had our clinical
9 opinion -- our clinical evidence that workers
10 who were exposed to this -- PCBs during the
11 manufacture of the material, if it was going
12 to persist anyplace, it was going to persist
13 in their bodies; and we medically monitored
14 them, and they were well.

15 Q. (By Mr. Kim) Of course, you have no
16 compilation of data?

17 A. Well, I don't need the compilation of data.
18 I have the information I gained from the
19 individual examinations.

20 Q. After your retirement in 1974, were you made
21 aware of the Zack and Musch study --

22 A. Yes.

23 Q. -- done on the Monsanto occupational
24 workers?

25 A. Yes.

1 Q. Do you dispute those results?

2 MR. BAUER: Object to the form.

3 A. Well, which results are we talking about
4 now?

5 Q. (By Mr. Kim) Specifically, the cancer
6 findings.

7 MR. BAUER: Object to the form.

8 A. What cancer findings? Cancer of what?

9 Q. (By Mr. Kim) Do you dispute the fact that
10 study indicated that based upon the cluster
11 groups in that community around them that --
12 and the representative sample of the Monsanto
13 workers that it was anticipated that they
14 would see 22 incidences of cancer? Do you
15 have a recollection of that?

16 A. I do not know the figures; but I do know that
17 when she published her first study, which --
18 not published -- when she wrote her first
19 study, she compared the cancer rate to the
20 people of the United States. When she
21 compared them to the county of -- St. Clair
22 County in which Monsanto's plant is, there
23 was no difference in the Monsanto employees
24 than the people not working for Monsanto who
25 lived in the same area.

1 Q. No difference?

2 A. No, sir.

3 Q. That's your understanding?

4 A. That's my understanding.

5 Q. And of course you will agree with me as you
6 earlier indicate that it was never published?

7 A. No. But it's been referred to so often that
8 the material certainly got around.

9 Q. Through litigation?

10 MR. BAUER: Object to the form.

11 A. Not only litigation. I've seen references to
12 her study in papers.

13 Q. (By Mr. Kim) Do you recall whether Monsanto
14 ever disseminated that type of information to
15 its customers?

16 A. Remember, the Zack study occurred after I
17 left there; so I do not know what Monsanto
18 did as far as disseminating that particular
19 study.

20 Q. Prior to your retirement in 1974 and during
21 the time period of PCB production between
22 1946 and 1974, you certainly never
23 disseminated any occupational studies or
24 occupational data to your customers?

25 A. Monsanto's occupational data? No. Should

1 I -- I had written many customers and said we
2 have had no illnesses in our workers, period.

3 Q. There was no doubt in your mind that PCBs as
4 used during the time period that you were the
5 medical director of Monsanto were safe?

6 A. Certainly they were safe.

7 Q. Posed no attendant liabilities to the
8 corporation, the company?

9 MR. BAUER: Object to the form.

10 A. Well, now we're getting into a legal
11 situation which I don't believe I should
12 comment on.

13 Q. (By Mr. Kim) Why not?

14 A. Because I'm not a lawyer.

15 Q. Well, I'm curious, if you will look at the
16 last paragraph then, in the last sentence
17 that first page, of what you meant then when
18 you said, "I am sure the juries would not pay
19 a great deal of attention to the MACs." And
20 by that I take it you meant maximum allowable
21 concentrations.

22 A. Yes.

23 Q. What was the thrust of that statement
24 intended for?

25 A. Because I believe the average juror does not

1 understand the relationship of MACs to a
2 lifetime of work to any one particular
3 episode.

4 Q. You feel that juries are too ignorant?

5 A. No, I didn't say that at all. It's outside
6 of their field. I resent that implication.

7 Q. Can they be educated?

8 A. Certainly they can be educated.

9 Q. Just as a customer could be educated?

10 A. Just as the customers were educated.

11 Q. And workers?

12 A. Workers were educated.

13 Q. And to educate them, there must be full
14 disclosure?

15 A. Full disclosure -- I don't know what you
16 mean. And what I mean -- I tell the workers
17 how to protect themselves against any harm
18 during their working experience. If they
19 follow those directions, which are relatively
20 simple, they will not get and have not gotten
21 any illnesses. And that's not only my
22 statement, but it's also the renowned
23 Dr. Kimbrough's statement who said as late as
24 1987, with the exception of chloracne, there
25 have been no cases of worker illness from

1 PCB.

2 Q. Well, you never tell the individuals, by
3 virtue of your labels or warnings, what the
4 actual impact of not following your
5 directions are.

6 MR. BAUER: Object to the form.
7 Vague as to what you mean by "warnings."

8 A. Well, to phrase your statement earlier, the
9 workers are not ignorant -- to paraphrase
10 it -- and they see if you put a warning on
11 that the warning means something. And if
12 they follow those warnings, they would get no
13 illness and did not get any illness.

14 Q. (By Mr. Kim) And it is your position as the
15 person in charge of the text of the labels
16 and warnings from 1946 to 1974 that it was
17 not necessary to tell your workers or
18 customers the impact or the potential effects
19 of not following those directions?

20 A. I do not believe that you need to put the
21 specific illness that overexposure may give
22 you. I don't believe you need to put on a
23 gas station: "Do not smoke while filling
24 your car or you're liable to be blown into
25 the next block." They certainly say: "Do

- 1 not smoke when filling your car."
- 2 Q. How about if you said: "Highly flammable.
- 3 Do not smoke. Could be possible ignition
- 4 source"?
- 5 A. I didn't hear the last phrase.
- 6 Q. "Could be a possible ignition source."
- 7 MR. BAUER: Object to the form.
- 8 A. Well, I don't know.
- 9 Q. (By Mr. Kim) Is that an inadequate warning?
- 10 MR. BAUER: Object to the form.
- 11 A. Is it inadequate or adequate? What did you
- 12 say?
- 13 Q. (By Mr. Kim) You tell me.
- 14 MR. BAUER: Same objection.
- 15 A. Well, the same objection is I am not in the
- 16 selling of gasoline and I can't make a
- 17 comment on what --
- 18 Q. (By Mr. Kim) Exactly. Those that give
- 19 warnings should have an expertise or a
- 20 knowledge in that area?
- 21 A. That's correct.
- 22 Q. Those that give warnings should know
- 23 everything possible about their compound?
- 24 A. Those that give the warnings should, yes,
- 25 certainly.

1 Q. They should have done testing?

2 A. You test for adequacy and protection of the
3 worker and the user. And, yes, we did that,
4 and I did know that.

5 Q. And you should foresee both intended uses and
6 unintended uses of that product?

7 MR. BAUER: Object to the form.

8 A. No, I don't think so. I don't believe that I
9 would -- if I am selling an industrial
10 chemical, an unintended use might be to put
11 it on pancakes. I couldn't, by any stretch
12 of the imagination, think that would be --
13 that's an unintended use, and I am not
14 supposed to foresee that.

15 Q. (By Mr. Kim) So in your warning philosophy
16 that you encapsulated while at Monsanto
17 Chemical Company, is it your position that
18 you did not take into account the potential
19 for misuse or unintended uses of the
20 product?

21 A. No matter if -- the one exception, we did not
22 say "Do not take internally" because we did
23 not expect anybody using an industrial
24 chemical as something to be taken by mouth.

25 We certainly took warnings against

1 unintended uses when we said "Do not breathe
2 at elevated temperatures or in confined
3 spaces" and we said "Do not" -- "Avoid" --
4 not "Do not" -- "Avoid prolonged or repeated
5 skin application." Those certainly took care
6 of unintended, unforeseen uses. If a person
7 decided to use it to remove paint from his
8 hands, that would be covered. That would be
9 covered under the designation of repeated or
10 continuous skin contact.

11 Q. Is it fair to say that the contemplated
12 environment of use included both those
13 intended uses and those accidental exposures
14 that might occur in an occupational setting?

15 A. Is it fair to say what?

16 Q. That in the environment of use of your
17 product that environment of use includes not
18 only its intended use but also accidental
19 exposures by misuse or accident?

20 A. Yes, because if they got it on them we said,
21 "Wash it off." We told them not to breathe
22 it at elevated or repeated -- or elevated
23 temperatures or in confined spaces. That
24 would take care of it, and it worked because
25 as I've stated before, there were no injuries

1 or ill effects from the use of PCB in the
2 electrical industry.

3 Q. And if that is the truth, Dr. Kelly, then why
4 as you indicated in September of 1955 were
5 you so worried about juries?

6 MR. BAUER: Object to the form of
7 the question. He didn't say he was so
8 worried about juries.

9 A. I wasn't worried about juries particularly.
10 I was worried about the use of it in England,
11 in the United Kingdom. I had no idea how it
12 was liable to be used. I didn't know whether
13 or not it would be a household product over
14 there, whether these were mom-and-pop shops
15 rather than pretty sophisticated companies.
16 I just didn't know.

17 Q. (By Mr. Kim) If Monsanto's position was
18 there were absolutely no concern from a
19 health standpoint with respect to PCBs, then
20 why in 1972 did it require indemnity from its
21 customers before it would sell them any more
22 PCB products?

23 MR. BAUER: Object to the form.
24 Mischaracterizes his testimony.

25 A. I believe at that particular time -- well,

1 first of all, I don't know why. I had
2 nothing to do with indemnity; but this was
3 the time of the environmental aspect and it
4 was not -- their concern was problems with
5 the environment rather than problems with the
6 workers.

7 Q. (By Mr. Kim) Is it your position that
8 Monsanto thought there could be environmental
9 implications that did not implicate human
10 health?

11 A. Yes. We thought there was a possibility when
12 we found out that it was present in the food
13 chain. That's why we started -- that it
14 might be present in the food chain. That's
15 why we started the chronic feeding
16 experiments.

17 Q. So, yes, you thought it was possible that the
18 environmental implications could have human
19 implications. Is that correct?

20 A. It was a possibility, yes.

21 Q. And that is when you initiated the IBT tests
22 to test this supposition?

23 A. That's correct.

24 Q. Did you ever visit the IBT Laboratories?

25 A. Yes. Dozens of times.

1 Q. Do you know whether Mr. Levinskas did?

2 A. Yes, he did. When he came with the company,
3 he went up there once every month, once every
4 two months.

5 Q. Do you recall testifying differently in any
6 other court proceeding?

7 A. I may have been -- I never testified that he
8 never went up there. I may have had a
9 different amount of times he went up there.

10 Q. Let me show you what we've marked as your
11 deposition Exhibit No. 53 and just ask if you
12 recognize that.

13 A. Yes, sir.

14 Q. Do you recall seeing those contemporaneous to
15 1972?

16 A. I don't remember that I have.

17 Q. Do you recall if -- whether you were made
18 privy to discussions that surrounded the
19 introduction of those letters?

20 A. No, I was not.

21 Q. Let me represent to you that those letters
22 indicate that Monsanto would not sell its PCB
23 products to its customers absent a hold
24 harmless or indemnity agreement. Were you a
25 participant in that decision-making process?

- 1 A. No, I was not.
- 2 Q. In any event, you knew by 1972 that the
3 continued sales of PCBs was a concern at
4 Monsanto Chemical Company?
- 5 A. Some uses were, yes.
- 6 Q. Why?
- 7 A. Why? Because they were open uses. They
8 were -- there was no way to prevent them from
9 going into the environment.
- 10 Q. And what were the implications of PCBs being
11 exposed to the environment?
- 12 A. It was killing birds. It could -- quite
13 possibly could wipe out the Peregrine falcon,
14 quite possibly could wipe out the bald
15 eagles. That was the primary concern.
- 16 Q. How about --
- 17 A. Then when -- may I finish?
- 18 Q. You bet. I'm sorry.
- 19 A. Then when we found out that it was being
20 metabolized by the fish and shrimp and lower
21 aquatic organisms and was being biomagnified
22 as it went up the food chain, we were
23 concerned about that.
- 24 Q. You knew, at least from an environmental
25 standpoint, that PCBs were nonbiodegradable

1 in the 1950s or 1940s?

2 A. Did I know that? It was my belief, it was
3 Monsanto's belief that they were
4 nonbiodegradable in the 1950s. Yes, sir.

5 Q. In the 1950s, did Monsanto and yourself carry
6 the same belief that the nonbiodegradability
7 might affect the food chain?

8 A. No, sir. We thought if they were
9 nonbiodegradable they would not affect the
10 food chain.

11 Q. Did you initiate any tests to verify or
12 disprove that supposition?

13 A. No, sir. I did not.

14 MR. KIM: Let's take a break.

15

16 (A recess was taken from 9:55 a.m.
17 until 10:05 a.m.)

18

19 Q. (By Mr. Kim) Doctor, let me show you what's
20 been previously marked as your deposition
21 Exhibit No. 52 and ask if you recognize
22 that.

23 A. Yes, I do.

24 Q. What is it?

25 A. It's a draft of a presentation to be given to

1 the corporate development committee of
2 Monsanto on November 17, 1969.

3 Q. Did you attend that meeting?

4 A. Yes, I did.

5 Q. Did you participate in that meeting?

6 A. Yes, I did. But the majority of the
7 participation from the medical department was
8 by Wheeler.

9 Q. What was the nature of your participation?

10 A. Gosh. I guess I was lending moral support to
11 Wheeler, and I was there to answer
12 questions. I was there to answer the -- any
13 toxicological questions. I believe I talked
14 about that, what we were doing
15 toxicologicalwise.

16 Q. What was the purpose of this meeting?

17 A. To bring the corporate development committee,
18 which was the organization that ran the
19 company, up to speed, up to the -- our
20 present knowledge of the problem with PCBs
21 vis-a-vis the environment particularly.

22 Q. You indicated that the corporate development
23 committee or CDC ran the company?

24 A. Well, the executive committee ran it; but the
25 same people were on it. So they wore two

1 different types of hats.

2 Q. On the first page, it indicates some
3 individuals that were present and maybe you
4 can identify them: an E. J. Bock?

5 A. He was the chairman of the committee, and I
6 think he was either the president or the CEO
7 at that time. I'm not sure.

8 Q. How about H. H. Bible?

9 A. He was head of administration, a vice
10 president and a member of the board of
11 directors.

12 Q. J. R. Eck?

13 A. He was head of manufacturing, a vice
14 president and a member of the board of
15 directors.

16 Q. J. L. Gillis?

17 A. He was head of marketing and also a member of
18 the board of directors.

19 Q. E. J. -- is it Putzell?

20 A. Putzell. He was a chief counsel for the
21 company.

22 Q. C. M. Sommer?

23 A. He was the chairman of the board, and I don't
24 know if he was CEO at that time or not.

25 Q. And J. N. Ehlers?

1 A. Was a lawyer, and he was the secretary of
2 this particular committee.

3 Q. Fair to say that within the organizational
4 chart of Monsanto Chemical Company in
5 November of 1969 these were the leaders of
6 the company?

7 A. No question about it.

8 Q. If you will turn to the page -- I think it's
9 about four down where it's titled "PCB
10 Presentation to Corporate Development
11 Committee."

12 A. Page which?

13 MR. BAUER: What is the production
14 number on the bottom?

15 MR. KIM: Well, they're not the
16 same.

17 MR. BAUER: Oh, all right.

18 MR. KIM: But they're the same
19 document.

20 Q. (By Mr. Kim) Did Mr. Wheeler give this
21 portion of the presentation, the
22 introduction?

23 A. I'm not sure. Remember, this is the rough
24 draft. It says the minutes before, but this
25 wasn't the minutes.

- 1 Q. Right.
- 2 A. I don't know who started it off.
- 3 Q. Okay.
- 4 A. Because I have to go back to the people on
5 the front. There was -- Smith and Mason,
6 T. K. Smith and Bergen, Springgate were all
7 from the division that manufactured PCBs. I
8 think Smith was probably the ranking person
9 there. So whether it was Smith -- either of
10 the Smiths or Mason or Bergen or Springgate
11 that gave the preamble or the -- I don't know
12 who did.
- 13 Q. Well, let's just talk about a couple of the
14 things that are in the draft, and let me ask
15 you a couple questions about that. Okay?
- 16 A. Sure.
- 17 Q. If you will take a look at the third
18 paragraph under the heading of Introduction
19 where it says "From the standpoint of
20 reproduction, the PCBs are highly toxic to
21 birds" --
- 22 A. Yes, sir.
- 23 Q. -- what was the implication of that as you
24 recall?
- 25 A. Well, if it were carried to the extreme, it

1 could wipe out a species. These birds were
2 laying eggs with thin eggshells; and when
3 they sat on the nest, it was good-bye to the
4 egg and to the chick inside it.

5 Q. At least in 1969, Monsanto was aware of
6 possible reproductive toxicity in animals or
7 birds?

8 A. Yes, sir.

9 Q. The fifth paragraph indicates that those
10 making the presentation indicated that it was
11 a serious matter from two point of views,
12 correct?

13 A. Yes, sir.

14 Q. The first being a pollution matter?

15 A. Yes, sir.

16 Q. And the second being a profit --

17 A. Yes, sir.

18 Q. -- analysis.

19 A. And a third one, too: adverse legal and
20 public relations problems.

21 Q. Absolutely right. What type of adverse legal
22 problems were contemplated?

23 MR. BAUER: Objection. Lacks
24 foundation.

25 A. I don't know. That's outside my field.

1 Q. (By Mr. Kim) Would it be the same type of
2 problems that you expressed concerns about in
3 the September 1955 letter where you were
4 concerned about what juries would do? And
5 hold on because we're going to have an
6 objection.

7 A. Well, no. In that letter I was talking about
8 health effects. Here I believe they were
9 talking about environmental aspects.

10 Q. And you made a distinction between
11 environmental aspects and health effects?

12 A. When?

13 Q. In 1955.

14 A. I think when I was talking to England, yes.

15 Q. How about in 1969?

16 A. I believe in '55, there was no thought about
17 environmental aspects. And in 1969, it was
18 very, very prominent.

19 Q. Did you make a distinction, Dr. Kelly,
20 between environmental impacts and health
21 impacts, human health impacts?

22 A. No. But I believe that the environmental
23 aspects were much, much greater.

24 Q. You never made that distinction?

25 MR. BAUER: Object to the form.

1 What do you mean making a distinction?

2 A. I don't know how or what sort of a
3 distinction.

4 Q. (By Mr. Kim) Well, you told us earlier that
5 one supposition or impression that you had
6 was that the persistence of PCBs in the
7 environment may cause some attendant type of
8 concerns for humans.

9 A. Yes, sir.

10 Q. When did you come to that realization?

11 A. In the late sixties when we found out it was
12 present in the food chain.

13 Q. So am I correct in understanding that at the
14 time you wrote this letter that we've marked
15 as your deposition Exhibit No. 51, your
16 concern was solely in human health at that
17 point in time?

18 A. May I see it?

19 Q. It's right there.

20 A. Yes, sir. This was purely human health
21 effects at this time.

22 Q. In 1969, in November when the presentation
23 was made to the CDC, would the possible
24 adverse legal effects that were contemplated
25 have been as a result of the environmental

1 implications or the human health implications
2 or both?

3 MR. BAUER: Objection. Lacks
4 foundation.

5 A. I think both.

6 Q. (By Mr. Kim) Am I correct in understanding
7 that as of November 1969, no testing had been
8 completed to test the supposition that you
9 had of a correlation between environmental
10 persistence and human health persistence?

11 A. The suspicion, did you say?

12 Q. Suspicion.

13 A. Suspicion.

14 MR. BAUER: Objection. You said
15 "human health persistence"?

16 Q. (By Mr. Kim) Or persistence in humans.

17 A. Well, I think we did know something about the
18 fact that there was some presence in humans
19 at that particular time. After all, Jensen
20 found it in Europe; and I think there was --
21 I don't know when the first fat biopsy showed
22 up in the United States.

23 Q. Were you involved in any of the analysis that
24 reached the conclusion within that same
25 paragraph, Doctor, that PCBs involved a gross

- 1 profit of \$10 million?
- 2 A. No, sir.
- 3 Q. If you will turn with me to Page 4 of that
- 4 draft --
- 5 A. Yes, sir.
- 6 Q. -- where it talks about Monsanto's worldwide
- 7 Aroclor business, was this a part of the
- 8 presentation to the CDC, as you recall?
- 9 A. I don't recall. I don't know -- they
- 10 certainly didn't go into all this. We didn't
- 11 spend all that time with the CDC as you might
- 12 expect from looking at all this. I don't
- 13 know how long we were in there, but I thought
- 14 we were in there half an hour or something
- 15 like that or 45 minutes. So I don't know. I
- 16 imagine they did mention this, but -- I don't
- 17 know what our sales were in '69, but they
- 18 were probably -- what? -- 400 million. So
- 19 we're talking about --
- 20 Q. Well, it indicates --
- 21 A. -- 22 million.
- 22 Q. -- PCBs would account for 22 million?
- 23 A. In sales. Yes, sir.
- 24 Q. With a gross profit per year of 10 million?
- 25 A. Yes, sir. And our profit that year, again, I

1 don't know, but there were -- my guess would
2 be 200 million.

3 Q. Do you know --

4 A. Wait a minute. I fell apart. Well, I may
5 need a lawyer yet. Thank you.

6 Q. Doctor, the sixth line item where it says
7 worldwide M/I --

8 A. Yes.

9 Q. -- do you know what that means?

10 A. No, I don't.

11 Q. If you will turn to Page 9, I think the first
12 sentence is "We considered four alternative
13 courses of action."

14 A. Yes, sir.

15 Q. Do you have a recollection of that?

16 A. I think so, yes.

17 Q. The first was just to do nothing and react to
18 legislation and emotion?

19 A. Yes, sir.

20 Q. What type of emotional responses were you
21 talking about?

22 A. Adverse publicity.

23 Q. How about legal effects?

24 A. I don't know. It doesn't say that, so I
25 don't know what -- whether that was included

1 in this or not.

2 Q. On the previous page, there is a little
3 description which I believe indicates
4 underneath Alternative 1 that those making
5 the presentation recognized that it was the
6 quickest route to being forced out of
7 business.

8 A. But they also said it was considered
9 unacceptable from a legal, moral and
10 customer, public relations and company policy
11 viewpoint. It looks like they just put a
12 straw man to knock him down right off the
13 bat.

14 Q. What is -- did you make -- did you
15 participate in the development of the four
16 alternative courses of action?

17 A. No, sir.

18 Q. Okay. Do you have a recollection of this
19 discussion before the CDC?

20 A. Yes, I have a recollection.

21 Q. Was this a part of the 30-minute presentation
22 that was made to the CDC?

23 A. Yes, sir. Remember, don't hold me to that 30
24 minutes; but that was what I remember 25
25 years ago.

- 1 Q. Okay. It was not an expansive presentation?
- 2 A. It wasn't all afternoon. That's for sure.
- 3 Q. You got in and got out?
- 4 A. Yes.
- 5 Q. The second one is titled get out of total
- 6 Aroclor business?
- 7 A. Yes, sir.
- 8 Q. And the analysis under there was that it was
- 9 unacceptable from a divisional viewpoint?
- 10 A. Yes, sir.
- 11 Q. But from a corporate standpoint may be
- 12 necessary?
- 13 A. Yes, sir.
- 14 Q. Why might there be a discrepancy between the
- 15 divisional and corporate viewpoints?
- 16 MR. BAUER: Objection. Lacks
- 17 foundation.
- 18 Q. (By Mr. Kim) If you know.
- 19 A. I don't know. I didn't belong to the
- 20 division. I didn't belong to the corporate
- 21 managing group.
- 22 Q. If you will look with me at the very next
- 23 sentence where it says "Only you can make
- 24 that decision" --
- 25 A. Yes, sir.

- 1 Q. -- are they referring there to the CDC?
- 2 A. That's correct.
- 3 Q. Was that a decision with respect to these
- 4 alternatives that must have come from the
- 5 CDC?
- 6 A. That --
- 7 Q. The final decision must have been made --
- 8 A. Yes.
- 9 Q. -- by the CDC?
- 10 A. That's correct.
- 11 Q. In other words, a division could not initiate
- 12 these alternatives on its own but had to have
- 13 approval from the CDC?
- 14 A. That's my belief. I'm not certain of that,
- 15 but it's my belief.
- 16 Q. Okay. The next sentence indicates that all
- 17 Aroclor products are not serious pollutants.
- 18 Many degrade. There is too much customer
- 19 market need and selfishly too much Monsanto
- 20 profit to go out. Is that correct?
- 21 A. That's what they wrote. Yes, sir.
- 22 Q. Again, was profit and money a factor
- 23 considered in the alternative to be chosen?
- 24 A. Well, I don't know if it's a factor and
- 25 alternative to be chosen because eventually

1 they did go out. And profit is always an
2 item with any industrial chemical, with any
3 company; but I have to repeat what they say
4 here: 12 cents a share profit. Well, our
5 profit in '69 was probably two dollars and a
6 half or three dollars a share. So we're
7 talking about 3 percent of the profit.

8 Q. You would also agree with me that they also
9 indicated that selfishly too much Monsanto
10 profit to go out?

11 A. Well, whoever wrote this said that.

12 Q. Do you have an understanding whether the type
13 of analysis engaged in 1969 was a
14 risk/benefit type of analysis with respect to
15 products or was it a risk/utility analysis?

16 A. Risk which?

17 Q. Utility.

18 A. I don't know what you mean by risk/utility.

19 Q. You understand what risk is?

20 A. Yes. I understand risk.

21 Q. And by utility, I'm not talking about just
22 those pecuniary benefits; but I'm also
23 talking about the general benefits to the
24 product such as those claimed by Monsanto
25 with respect to dielectric fluids in that it

1 was a good fire retardant and better and
2 safer conductor.

3 A. Well, I'm sure that entered into it because
4 they did not have acceptable relatively
5 nonflammable electrical uses for dielectrics
6 at that time.

7 Q. My question was: Was it both a risk/benefit
8 type of analysis and risk/utility analysis,
9 or was it one or the other; or do you know?

10 A. Well, you told me what risk/utility was. I
11 can understand that. Risk/benefit -- benefit
12 to whom?

13 Q. Benefit to the company.

14 MR. BAUER: Object to the form.

15 A. Well, the only benefit of the company
16 obviously would be the profit and I don't
17 think that was a predominant thing. Now,
18 there was a risk/benefit certainly to the
19 users; but I thought that would fall under
20 risk/utility, by your definition.

21 Q. (By Mr. Kim) You don't believe that in 1969
22 that benefit in terms of money to the company
23 was a predominant consideration?

24 A. Oh, I think it was the least of it. In fact,
25 as I think I've told you before, that Bock

1 who was there said if we can't handle this
2 problem, we're going to quit. He said walk
3 away from it or -- walk away from PCBs.

4 Q. Alternative No. 3 called for going out of the
5 Aroclor 1254 and 1260 production?

6 A. Yes, sir.

7 Q. This alternative was eventually eliminated,
8 correct?

9 A. Yes, sir.

10 Q. Why was that?

11 A. Well, I believe that it was valuable to the
12 electrical utility users and some places
13 where they had transformers that it would be
14 completely unsafe to have an oil-based
15 transformer such as stadium -- the lights at
16 Busch Stadium here and the White House and
17 trains.

18 So at that particular time, it's my
19 impression the government advised us not to
20 go out of the electrical business.

21 Q. The fourth action was just to develop
22 specific action plans tailored to the
23 different business units?

24 A. That's correct.

25 Q. And each customer market situation to clean

1 up the mess?

2 A. Right.

3 Q. Was this the plan that was ultimately adopted
4 by the CDC?

5 A. Yes, sir.

6 Q. And they directed the tailoring of plans and
7 the cleanup of the mess to each individual
8 division?

9 A. I don't know what the cleanup of the mess
10 was, what they meant by that; but there was a
11 12-point proposal to the CDC in there
12 someplace and they adopted that.

13 Q. That 12-point proposal I think we can find on
14 Page 20 titled Recommended Action Plan.

15 MR. BAUER: I think as adopted --
16 I've lost my microphone now -- as adopted,
17 it's in the minutes -- the second page of the
18 minutes as it was adopted.

19 Q. (By Mr. Kim) Let's look at the second page
20 of the minutes. Do you recall those to be
21 the 12 actions recommended by the CDC?

22 A. We recommended them to the CDC, and then the
23 CDC approved it. These were the task force
24 group from the organic division, the law and
25 medical departments. We came up with these

1 12 and said "This is what we want to do," and
2 they said "Okay. Go ahead."

3 Q. Were all these 12 points done subsequent to
4 this presentation?

5 MR. BAUER: Objection. Lacks
6 foundation.

7 A. Well, let's start off one at a time.
8 Papageorge was appointed to fulfill No. 1.
9 2, all Aroclor customers were notified.
10 3, we reduced the effluents from Monsanto
11 plants.

12 Q. (By Mr. Kim) Let me stop you right there and
13 go back to No. 2. What PCB problem were the
14 Aroclor customers notified of?

15 A. The environmental problems.

16 Q. Okay.

17 A. The disposal of the material, disposal of
18 spent material.

19 Q. How about its potential implications to human
20 hazards, human health?

21 A. Well, there were no actual -- there hadn't
22 been any problems with human health in the
23 users, so we didn't talk to them about that.

24 Q. I thought we had a suspicion by that time
25 that the persistence in the environment may

- 1 lead to potential human implications.
- 2 A. Yes, but that's not the customer. That's the
- 3 person who is eating shrimp or eating fish.
- 4 Q. So you felt no need to convey that type of
- 5 information?
- 6 A. That the workers with the PCBs shouldn't eat
- 7 game fish? No.
- 8 Q. Or that the ingestion of PCB may lead to
- 9 potential human health concerns?
- 10 A. No, sir, because we didn't believe that.
- 11 Q. Okay.
- 12 A. But we wanted to be double sure, so that's
- 13 why we started the toxicological
- 14 investigation.
- 15 Q. At this point in time when these
- 16 notifications to Aroclor customers went out,
- 17 that testing had not been completed?
- 18 A. No, it had not.
- 19 Q. Both the customers and Monsanto were unaware
- 20 of the ultimate results of those tests in
- 21 November of 1969?
- 22 A. That's correct.
- 23 Q. Go on, please.
- 24 A. Reduce and effectively control PCB effluents
- 25 from Monsanto plants. That we did. Educate

1 customers in the need to reduce and
2 effectively control PCB effluents.

3 Q. Let me stop you there. What did that
4 education consist of?

5 A. I don't know. You'll have to ask Papageorge.

6 Q. Did you take part in developing an education
7 program for your customers?

8 A. No, sir. This is on how -- this is certainly
9 manufacturing and disposal. So it was not
10 the medical department's problem or
11 responsibility.

12 Q. There was no input from the medical
13 department as to the impact of not
14 controlling PCB effluents?

15 A. Well, we had been talking for months to
16 everybody in the company about the fact that
17 we've got an environmental problem here and
18 let's stop it. So they certainly didn't need
19 another memorandum from me saying, "This is
20 important not to have this stuff spilled out
21 in the country." So, no, there was not
22 specific input from the medical department.

23 Q. To those within Monsanto and those customers
24 as well?

25 A. No. But that was taken care of by other

1 parts of the Monsanto organization.

2 Q. What other parts?

3 A. The manufacturing department.

4 Q. The manufacturing department would have the
5 availability and wherewithal to pass on
6 toxicological type of information to
7 customers?

8 A. We are talking here about control PCB
9 effluents. That's what No. 4 is. The
10 manufacturing people certainly knew a lot
11 more about how to control effluents from a
12 manufacturing process than the medical
13 department did.

14 Q. And again, that was consistent with the
15 labeling or warning philosophy that you told
16 us last time that you just tell your
17 customers or workers what to do; and so long
18 as they do it, there is no need to tell them
19 of the potential effects of failing to comply
20 with those directions?

21 A. Well, no. Look at No. 2. We told all the
22 customers about the problem.

23 Q. Did you tell them about the supposition that
24 there may be an implication of human health
25 concerns?

- 1 A. From eating food?
- 2 Q. From exposure to PCBs --
- 3 MR. BAUER: His confusion is --
- 4 Q. (By Mr. Kim) -- by virtue of --
- 5 MR. BAUER: -- worker exposure
- 6 versus environmental exposure.
- 7 Q. (By Mr. Kim) -- by virtue of its
- 8 environmental persistence.
- 9 A. I don't know what the No. 2 letters
- 10 contained, but I would believe it would be
- 11 directed towards the environmental control of
- 12 the problem. And certainly the customers had
- 13 been told by bulletins, by correspondence
- 14 that we sent out, by sending out the Treon
- 15 reprints, by sending out the American
- 16 Industrial Hygiene reprints that they knew
- 17 about the health problems.
- 18 Q. No. 5 and No. 6 were to introduce new
- 19 packaging and replacement products, correct?
- 20 A. Yes, sir.
- 21 Q. And those were done for 1254 and 1260?
- 22 A. They were done what?
- 23 Q. And those were done?
- 24 A. Yes.
- 25 Q. No. 7 was to continue and expand

1 biodegradation test program with the Aroclor
2 series?

3 A. Yes, sir.

4 Q. What biodegradation tests had been --
5 programs had started prior to November of
6 '69?

7 MR. BAUER: Objection. Lacks
8 foundation.

9 A. I can't answer that, but it's my
10 impression -- I cannot answer that
11 specifically, but it's -- my impression was
12 that they had carried out biodegradation
13 studies in England at our Ruabon Laboratory
14 and also at our either our St. Louis or
15 Anniston research department. They had
16 started some before this meeting. I don't
17 know the earliest date they started it.

18 Q. (By Mr. Kim) In the sixties? But that would
19 not have come from your department?

20 A. No, sir. It would not have.

21 Q. It would not have been a test that was
22 initiated from you?

23 A. No, sir. It was not.

24 Q. Did you ever see the results of the
25 biodegradation tests?

1 A. I can't remember whether I did or not.

2 Q. Do you feel that the results of the
3 biodegradation tests would have been
4 important to you in formulating the type of
5 warnings or communications to your customers?

6 MR. BAUER: Object to the form.

7 A. Well, we -- you mean as far as spilling it,
8 disposing it in the ground or spilling it in
9 the lake or what?

10 Q. (By Mr. Kim) Do you just think that any
11 information gained by the biodegradation
12 tests may have been important to you from a
13 standpoint of the type of communication that
14 you would pass on to your customers?

15 MR. BAUER: Object to the form.

16 A. Well, I don't think it was necessary for us
17 to have this to tell the people to use
18 extreme care in disposal of the material,
19 whether it biodegraded or not according to
20 our tests. We certainly had other people
21 saying that the stuff was biodegradable, and
22 we had taken that into consideration in our
23 warnings to the customer from the
24 environmental aspect.

25 Q. (By Mr. Kim) So the answer to my question is

1 it would have had no impact in the type of
2 communications that you would have given to
3 your customers --

4 MR. BAUER: Object to the form.

5 Q. (By Mr. Kim) -- because of the type of
6 warnings that you --

7 A. That might have been another reason, but we
8 had ample reason to tell the person not to
9 dispose of the stuff unwisely.

10 Q. No. 8 is to continue toxicological test
11 program, and that was your department?

12 A. Yes, it was.

13 Q. And that continued?

14 A. I beg your pardon?

15 Q. And that continued?

16 A. Yes, it did.

17 Q. No. 9 was to accelerate present analytical
18 test program?

19 A. Yes, sir.

20 Q. Was that underneath your division --

21 A. No.

22 Q. -- or department?

23 A. It was not. That was the research or
24 analytical group.

25 Q. What were they presently in 1969 trying to

1 analyze or test?

2 A. Where the material was, how much the material
3 was. And I do not know whether they were
4 looking for -- I think that's the answer.

5 Q. Were they doing analytical tests with respect
6 to synergy?

7 MR. BAUER: Object to the form.

8 A. Well, I don't know how you could mix up an
9 analytical test with synergy. Synergy is the
10 action of two products, and an analytical
11 test is picking up this one product and a
12 whole milieu of earth samples or water
13 samples. I don't know that necessarily was
14 synergy.

15 Q. (By Mr. Kim) Would the analytical tests have
16 included decomposition analysis?

17 A. If you're looking for biodegradation,
18 obviously you are looking for what it
19 biodegrades to; so it would.

20 Q. How about by-products dependent upon various
21 environments?

22 MR. BAUER: Object to the form.
23 The question is whether they were being
24 studied as of 1969?

25 Q. (By Mr. Kim) Sure. It says accelerate

1 present analytical test program. I just want
2 to know what they were studying.

3 A. I don't know. You'll have to ask one of the
4 analytical people about that. That did
5 not -- the medical department did not have
6 any input into that.

7 Q. Did you ever see any results from the
8 analytical department?

9 A. I don't know if I did or not.

10 Q. And again, my question to you is: Do you
11 have a thought as to whether seeing the
12 results from the analytical test program
13 would have had an impact on you as the person
14 responsible for communicating with Monsanto's
15 customers about PCB effects?

16 MR. BAUER: Object to the form.

17 A. You have a condition, a clause in there. The
18 medical department was not the organization
19 that communicated with Monsanto's customers
20 about anything except health effects. It did
21 not communicate -- on humans. It did not
22 warn about what the environmental aspects
23 were except as what information we sent on to
24 customers before the advent of Papageorge in
25 1970. Wheeler may have written some

1 customers -- and I believe he did -- about
2 what he found in Sweden and Holland relative
3 to the environmental aspects.

4 Q. (By Mr. Kim) And that was under your
5 direction?

6 A. That would have been under my direction.
7 Right.

8 Q. In fact, Mr. Papageorge didn't assume
9 controls of environmental concerns until
10 after this --

11 A. January of 1970.

12 Q. -- CDC meeting, correct?

13 A. That's correct.

14 Q. And what I want to know is: Prior to that,
15 in November of 1969, would any results from
16 the analytical test program have impacted the
17 type of communications you gave to the
18 Monsanto customers with respect to PCB
19 products?

20 MR. BAUER: Objection. Calls for
21 speculation. We don't even know if there
22 were any yet.

23 A. I don't know. I mean I cannot recall that
24 having any particular impact, but I do not
25 know. I'm not certain about how -- what the

1 truth of an answer to that question would
2 be.

3 Q. (By Mr. Kim) Did you -- were you aware in
4 November of 1969 that analytical testing was
5 ongoing?

6 A. Yes. And they were quite confused, as I
7 recall. They were confused about their
8 analytical test methods, and I did not
9 believe that they were as positive about
10 their findings of PCB as other workers were.

11 Q. What were they confused about?

12 A. Are we finding it? Are we getting this? Are
13 we getting some other compound similar to
14 it? Are we getting DDT? That's the
15 impression I have.

16 Q. Is it fair to say that in November of 1969,
17 you indeed had some interaction with members
18 of the analytical test program?

19 A. I had some interaction? Well, yes. But I --
20 I probably knew they were working on it, but
21 I don't think they sent me reports on their
22 information.

23 Q. We're just about through, Dr. Kelly, and I've
24 appreciated your patience.

25 A. Well, you've been very kind.

- 1 Q. Thank you. The -- in the draft, if you will
2 turn to Page 22 -- let me get that for you.
3 It will be easier -- it talks about -- well,
4 the heading is "What Could We Expect From
5 This Program," correct?
- 6 A. Yes, sir.
- 7 Q. And I suspect -- and correct me if I'm
8 wrong -- that the next sentence -- "Through
9 this action program, Monsanto would expect
10 to:" -- is referring to Plan No. 4.
- 11 A. Yes, sir.
- 12 Q. The one ultimately adopted by the CDC?
- 13 A. That's correct.
- 14 Q. And the first consideration as we list here
15 under the draft is that it would retain or
16 convert a good portion of our business and
17 profits, correct?
- 18 A. That's what it says.
- 19 Q. It's a profit analysis?
- 20 A. I beg your pardon?
- 21 Q. A profit analysis?
- 22 A. Yes.
- 23 Q. The second one was to gain further valuable
24 knowledge and time to learn more facts,
25 protect our position, correct?

1 A. Yes.

2 Q. What position were you interested in
3 protecting?

4 A. Are you talking about me or Monsanto?

5 Q. Monsanto, if you know.

6 A. Because I had nothing to do with this.

7 Q. I understand. But you were there?

8 A. Yes, I was there.

9 Q. Do you have a recollection of what position
10 was recommending -- they were recommending to
11 protect?

12 A. Yes. They wanted to protect the sales and
13 use of some of the products that were -- they
14 considered indispensable to the electrical
15 industry.

16 Q. Wanted to protect its market share?

17 A. Well, it wasn't considered -- they were the
18 only people who were making a relatively
19 noninflammable dielectric. They didn't have
20 to worry about the market share.

21 Q. They wanted to protect its market, then?

22 A. Well, they also wanted to contribute to a
23 very necessary use. It was certainly very
24 important to the whole United States industry
25 to have a noninflammable dielectric.

1 Q. The third expectation was to clean up the
2 major --

3 MR. KIM: And I'll object to
4 nonresponsiveness.

5 Q. (By Mr. Kim) The third expectation was to
6 clean up the major contributing pollution
7 factors, correct?

8 A. Yes, sir.

9 Q. And the fourth one was to minimize customer
10 complaints and hardships?

11 A. Yes, sir.

12 Q. If you will turn with me to the next page --

13 A. Yes, sir.

14 Q. -- the program then went on to say that
15 adopting Alternative 4 would or the program
16 would, correct?

17 A. Yes, sir.

18 Q. Is that your understanding of what this page
19 would indicate?

20 A. Yes, sir.

21 Q. That the adoption of Alternative 4 would lead
22 to the following results?

23 A. Yes, sir.

24 Q. And again, the first item listed would be
25 cost some money?

- 1 A. Yes, sir.
- 2 Q. It was a financial analysis?
- 3 A. Yes, sir.
- 4 Q. The -- what is estimated SARE?
- 5 A. Sales and research expenditures or expenses.
- 6 Q. Okay. And the implementation of the program
- 7 would cost somewhere between a million one
- 8 and a million two?
- 9 A. Correct.
- 10 Q. And according to the prior pages, it would
- 11 help retain a division that enjoyed
- 12 \$10 million in gross profits annually?
- 13 A. That I can't comment on.
- 14 Q. Sure. The second consideration was that it
- 15 would expose Monsanto to continued adverse
- 16 publicity and possible lawsuits?
- 17 A. Yes.
- 18 Q. Were you a party to the discussion that
- 19 indicated or discussed the type of lawsuits
- 20 that might implicate Monsanto?
- 21 A. Yes. I think the type of lawsuits -- I
- 22 remember only anecdotally -- was here we're
- 23 selling a person something that is important
- 24 to his business and we stop selling it to him
- 25 and he's out of business.

1 Q. So it would be those civil suits involving
2 business interruption to your customer?

3 A. That's my impression. But again, I was not
4 privy to what might have occurred or what
5 they were talking about. But that's just
6 from the recollection I have.

7 Q. Was there any discussion of suits involving
8 cleanups for the environmental pollution?

9 MR. BAUER: Objection. Lacks
10 foundation.

11 A. I don't know.

12 Q. (By Mr. Kim) Any discussion of potential
13 suits involving health hazards or personal
14 injury suits?

15 A. No, sir, because that they would have talked
16 to me about, and there was no talk about
17 that.

18 Q. The third consideration was customer
19 discontent?

20 A. Yes, sir.

21 Q. Did you feel in November of 1969 that the
22 presentation to the corporate development
23 committee and its acceptance of the
24 recommended plan of action was a responsible
25 approach from a toxicological standpoint?

1 A. Yes, sir.

2 Q. And as of 1974, it is your position -- well,
3 strike that.

4 Today, with the benefit of 20 some
5 odd years more of knowledge since your
6 retirement, do you have an opinion as to
7 whether PCBs pose any human health concerns?

8 MR. BAUER: Objection. Calls for
9 expert testimony.

10 A. Human health concerns now or then or --

11 Q. (By Mr. Kim) Today.

12 A. Whether PCBs have any human -- there are any
13 human health concerns in 1974 -- I mean
14 1994?

15 Q. I'm asking you, Dr. Kelly, today as we sit
16 here --

17 A. Today.

18 Q. -- in this deposition, 1994 -- I'd give you
19 the date but I don't know it -- April of
20 1994, do you have an opinion as to whether
21 PCBs pose any human health concerns?

22 A. Yes, I do have an opinion.

23 Q. And what is it?

24 A. They do not --

25 MR. BAUER: Objection. It calls

1 for expert testimony.

2 A. They do --

3 MR. BAUER: And that doesn't
4 specify the dose; but go ahead, Dr. Kelly.

5 A. They do not have any human health concern.
6 No, sir.

7 Q. (By Mr. Kim) I thank you for your time.

8

9 EXAMINATION

10 BY MR. BAUER:

11 Q. Dr. Kelly, I have a few more questions for
12 you. As you know, my name is Scott Bauer
13 representing Monsanto Company.

14 A. Yes, sir.

15 Q. From the 1930s forward, Dr. Kelly, did you
16 believe that overexposure to PCBs could cause
17 liver damage?

18 A. Yes, I did.

19 Q. You've used the term target organ several
20 times in your testimony. What do you mean by
21 the term target organ?

22 A. That is the organ system of the body, the
23 individual part of the body that is affected
24 most seriously by an overexposure to any
25 particular chemical.

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1 Q. Was it widely known in the scientific
2 community from the 1930s forward that the
3 liver was the target organ for PCBs?

4 A. Yes, sir. It was.

5 MR. KIM: Object. Speculation.

6 Q. (By Mr. Bauer) What did Monsanto do to
7 ensure that the workers who were
8 manufacturing PCB at Monsanto's plants did
9 not get liver damage from exposure to PCBs?

10 A. We did three different things. We cleaned up
11 the housekeeping. We kept them from getting
12 any inhalation of the material where there
13 was filling of the drums and elevated
14 temperatures. We used spot ventilation
15 there. We saw to it that they had -- did not
16 have repeated or continuous skin absorption.
17 We also medically monitored their health.
18 And I think that's what we did.

19 Q. Was it your judgment that it was not
20 necessary to tell Monsanto's workers that the
21 liver was the target organ for PCBs?

22 A. Yes, sir. I saw no reason to tell them that.

23 Q. Why is that?

24 A. Because they weren't getting any problems
25 with the liver.

1 Q. Was it your judgment that it was not
2 necessary to keep workers with a prior
3 history of liver injury out of the PCB unit?

4 A. Yes. We know that the liver regenerates; and
5 we know that whether or not the man had any
6 previous liver problems, nothing showed up on
7 his physical examination that would indict
8 his work environment.

9 Q. Were you hiding your opinion that the liver
10 was the target organ from Monsanto's
11 customers?

12 A. Oh, no, sir. On the contrary. Almost any
13 information we sent out in the reprints of
14 Treon that talked about liver being the
15 target organ, under the American Industrial
16 Hygiene Association reprints that were
17 formulated by the Government Industrial
18 Hygienists Group that spent a lot of time
19 talking about liver problems.

20 Q. Why was it that you would include such
21 information when you were sending out
22 reprints but you would not put that
23 information on a warning label on a drum?

24 A. Well, one reason is that we had a two- or
25 four-page brochure we sent out with the

1 liver -- talking about the liver and the
2 label has got a finite geographical space.
3 It's got a finite area.

4 And, number two, we didn't need to
5 put it on the label because they would not
6 get a -- any liver trouble if they followed
7 the -- our labels, followed the warning
8 system -- warning statements on our labels.

9 And, third, we sort of tailored our
10 response to the audience. We didn't think
11 that we needed to go into a very elaborate
12 discussion of the whole toxicological matter
13 to all groups of people.

14 Q. What was the audience that received the Treon
15 reprint and the hygienic guide series
16 reprint?

17 A. Plant managers, doctors, medical directors.

18 Q. Dr. Kelly, did you believe prior to the
19 report by Jensen and Widmark that PCBs were
20 in the environment in Sweden that PCBs would
21 be eaten by fish or birds?

22 A. No, sir. I did not.

23 Q. Did you believe prior to the report by Jensen
24 and Widmark that PCBs would get into the food
25 chain in any manner?

1 A. No, sir. I did not.

2 Q. Was it well-known in the scientific community
3 in the 1930s and the 1940s that PCBs were
4 very stable compounds?

5 A. Yes, it was.

6 MR. KIM: Object to speculation.
7 Vague as to well-known.

8 Q. (By Mr. Bauer) Was one of the reasons that
9 PCBs were useful in industry the very fact
10 that they were stable?

11 A. Yes, sir.

12 Q. Do you make a distinction in your mind about
13 whether something metabolizes in the body
14 versus whether it accumulates in the body?

15 A. Well, it all depends on what you mean by
16 metabolize. If it's metabolized, are the end
17 products excreted. And accumulation means
18 does some of the material persist in the
19 body. So there is that difference. Yes,
20 sir.

21 Q. Why is it -- strike that.

22 Did you have a belief in the 1930s
23 and 1940s and the 1950s that PCBs were
24 persisting inside the bodies of animals or
25 humans?

1 A. You went up to the fifties? No.

2 Q. Was there any article or paper published
3 prior to 1966 suggesting that the stability
4 of PCBs meant that they were spreading
5 through the environment and would eventually
6 get into fish and other things eaten by
7 people?

8 A. I have no -- I do not know if there was any.
9 I have no recollection of seeing any such
10 article.

11 Q. Did Monsanto, to your knowledge, conceal from
12 customers concerns that it had about PCBs
13 accumulating in the environment?

14 A. No. Do you mean when they found out about
15 it?

16 Q. At any time, but --

17 A. No. No, they did not.

18 Q. Did you personally have concerns, prior to
19 the reports by Jensen and Widmark, about PCBs
20 accumulating in the environment?

21 A. No, sir. I did not.

22 Q. About PCBs accumulating in any specific
23 species?

24 A. No, sir.

25 Q. Did you have any understanding or belief

- 1 prior to 1966 that PCBs biomagnified?
- 2 A. No, sir. I did not.
- 3 Q. Would you tell us what you understand
- 4 biomagnification to mean?
- 5 A. Yes. Well, let's start with PCBs if you want
- 6 to. Here it is in the water, lying down
- 7 there. The shrimp or the algae or something
- 8 are down -- the algae are there; and for some
- 9 reason the algae are able to metabolize,
- 10 break down the PCBs that they take into
- 11 their -- enable them to take it into their
- 12 body. And the shrimp come -- so they have --
- 13 these are all rough -- really rough figures.
- 14 I'm just using it to explain
- 15 biomagnification. They're not taken as
- 16 absolute.
- 17 Q. Sure.
- 18 A. So they're there at one part per billion. A
- 19 shrimp comes along and eats all these algae.
- 20 Then when he ends up with his meals of algae
- 21 after a lifetime, he has ten parts per
- 22 billion. Along comes a small minnow and
- 23 eats -- or a herring or something and eats
- 24 the shrimp. He eats this for a good part of
- 25 his life. I mean lots of shrimp. And he

1 ends up with 100 parts per million or ten
2 parts per million, going down from billion to
3 million. Then along comes an eagle or a
4 Peregrine falcon or any raptorial bird that
5 is a predator of fish and eats the fish, and
6 he ends up with a larger amount of the
7 material in his body, maybe a factor of 10.

8 Q. All right.

9 A. So it goes from one part per billion -- again
10 these are -- I'm just describing it. I'm not
11 saying absolute figures -- up to parts per
12 million, ten parts per million or even
13 higher.

14 Q. When was the question of whether PCBs were
15 biomagnifying in the environment first a
16 concern?

17 A. At the time of Widmark and Jensen in 1969
18 or -- no -- '68 -- late sixties.

19 Q. The Jensen and Widmark paper, whenever it was
20 published?

21 A. Yes.

22 MR. BAUER: That's all I have.

23 MR. KIM: I've got a couple
24 questions.

25

1 FURTHER EXAMINATION

2 BY MR. KIM:

3 Q. Dr. Kelly, you are aware that in 1977,
4 Monsanto ceased its PCB production?

5 A. Yes, sir.

6 Q. Do you agree or disagree with that from a
7 standpoint of your position as the former
8 medical director of Monsanto?

9 A. No, sir. I do not disagree with it.

10 Q. Do you agree or disagree with Congress'
11 legislation that imposed some restrictions to
12 the use of PCBs in 1976?

13 A. I thought they banned the material a matter
14 of months after we -- or a year after we
15 stopped manufacturing it. I'm not familiar
16 with any Congressional action that may
17 have -- in 1966. I just don't know.

18 O. Excuse me. 1976.

19 A. '76. I just don't know.

20 Q. It is your belief that -- strike that. Thank
21 you.

22 MR. BAUER: We're all finished.

23 THE WITNESS: How about the
24 gentleman here?

25 MR. ROTH: No, thank you.

1 THE STATE OF Missouri :
 2 COUNTY OF St. Louis :
 3

4 I, ROBERT EMMET KELLY, M.D., hereby
 5 certify that I have read the foregoing
 6 transcript of my testimony given in the
 7 foregoing numbered and styled case and that
 8 same is true and correct to the best of my
 9 knowledge and belief.

10 I further certify that any and all
 11 corrections have been made on a separate page
 12 and initialed by me.

13 This the 18th day of
 14 March, 1994.

15
 16
 17 Robert Emmet Kelly, M.D.
 18 ROBERT EMMET KELLY, M.D.

19 SUBSCRIBED AND SWORN TO BEFORE ME,
 20 this the 18th day of March, 1994.

21
 22 Josephine S. Niblock
 23 Notary Public in and for
 24 the State of Missouri

25 My Commission Expires
 Job No. 94-117

JOSEPHINE S. NIBLOCK
 NOTARY PUBLIC STATE OF MISSOURI
 ST. LOUIS COUNTY
 MY COMMISSION EXP. JAN. 15, 1995

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1 THE STATE OF TEXAS :

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I, Jana L. Martin, Certified Court
Reporter in and for the State of Texas,
hereby certify that this deposition
transcript is a true record of the testimony
given by the witness named herein, after said
witness was duly sworn or affirmed by me.

I further certify that I am neither
attorney nor counsel for, related to, nor
employed by any of the parties to the action
in which this testimony was taken.

Further certification requirements,
if any, pursuant to the Rules will be
certified to in the Supplemental Certificate
after they have occurred.

Subscribed and sworn to on this,
the 29th day of April, 1994.

Jana L. Martin
Jana L. Martin, CCR
Certificate No. 1007
Expires 12/31/94

My Notary Commission expires 11/17/96.

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PAGE 1 OF 1

Robert Kelly
NAME OF WITNESS

DEPOSITION CORRECTION SHEET

In re: Upon reading the deposition and before subscribing thereto,
the deponent indicated the following changes should be made:

Page 612 Line 7 Should read: *the word 'not' should be deleted*

Reason for change: *either faulty transcription or inadvertent misstatement by witness*

Page Line Should read:

Reason for change:

Page Line Should read:

Reason for change:

Page Line Should read:

Reason for change:

Page Line Should read:

Reason for change:

Robert Kelly
SIGNATURE OF WITNESS

LIST OF CHANGES OR CORRECTIONS

To the Deposition of _____

If there are any changes or corrections, please list them below giving the page number, line number, and reason for the change.

The reasons for making changes are:

- (1) To clarify the record:
- (2) To conform to the facts:
- (3) To correct transcription errors:

Page No. 60 Line No. 11 Reason for Change either misstatement or misinterpretation
 Changed 6% To 10%

Page No. 71 Line No. 24 Reason for Change misinterpretation
 Changed from To not

Page No. 75 Line No. 24 Reason for Change omission
 Changed --- To make

Page No. 80 Line No. 13 Reason for Change mispeeling
 Changed Serial To Cereal

Page No. 89 Line No. 22 Reason for Change misinterpretation
 Changed 40 To 48

Page No. 102 Line No. 22+23 Reason for Change misinterpretation
 Changed ice To eyes

Page No. 104 Line No. 2 Reason for Change omission
 Changed --- To humans

Page No. 107 Line No. 6 Reason for Change mispeeling
 Changed Keel To Kehoe

Page No. 164 Line No. 13 Reason for Change mispeelt
 Changed Peter Lemon To Fitzhugh Lemon

Witness B. Bennett Keely

LIST OF CHANGES OR CORRECTIONS

To the Deposition of _____

If there are any changes or corrections, please list them below giving the page number, line number, and reason for the change.

The reasons for making changes are:

- (1) To clarify the record:
- (2) To conform to the facts:
- (3) To correct transcription errors:

Page No. 194 Line No. 9 Reason for Change misspelling
Changed Canat Cancolor To Kanacolor

Page No. 195 Line No. 9 Reason for Change misspelling
Changed Lutitus To neuritis

Page No. 197 Line No. 15 Reason for Change misspelling
Changed Vateche To Badische

Page No. 209 Line No. 2 Reason for Change mistranscription
Changed Texaco To Texas Plant

Page No. 226 Line No. 23 Reason for Change mistranscription
Changed Taker To Tanker

Page No. 263 Line No. 6 Reason for Change Typo
Changed 12 To one half 1/2

Page No. 305 Line No. 22 Reason for Change typo
Changed 59 To 39

Page No. 320 Line No. 4 Reason for Change misspelling
Changed reactive To radioactive

Page No. 330 Line No. 23 Reason for Change wrong transcription
Changed product To problem

Flora Kelly
Witness

LIST OF CHANGES OR CORRECTIONS

To the Deposition of

Benjaminally m D

If there are any changes or corrections, please list them below giving the page number, line number, and reason for the change.

The reasons for making changes are:

- (1) To clarify the record:
- (2) To conform to the facts:
- (3) To correct transcription errors:

Page No. 363 Line No. 13 Reason for Change mis transcription

Changed Call To cause

Page No. 363 Line No. 2425 Reason for Change Confusion + mistake on the part of the witness

Changed yes To no.

Page No. 387 Line No. 11 Reason for Change mis transcription

Changed paper To paint.

Page No. 439 Line No. 12 11 Reason for Change mis transcription

Changed and To in.

Page No. _____ Line No. _____ Reason for Change _____

Changed _____ To _____

Page No. _____ Line No. _____ Reason for Change _____

Changed _____ To _____

Page No. _____ Line No. _____ Reason for Change _____

Changed _____ To _____

Page No. _____ Line No. _____ Reason for Change _____

Changed _____ To _____

Page No. _____ Line No. _____ Reason for Change _____

Changed _____ To _____

Benjaminally m

Witness

DEPOSITION CORRECTION SHEET

In re: Upon reading the deposition and before subscribing thereto,
the deponent indicated the following changes should be made:

? Page 6/2 Line 7 Should read: the word 'not' should be deleted

Reason for change: either faulty transcription or inadvertent
misstatement by witness

Page Line Should read:

Reason for change:

Page Line Should read:

Reason for change:

Page Line Should read:

Reason for change:

Page Line Should read:

Reason for change:

Pamela Kelly
SIGNATURE OF WITNESS