

1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE SOUTHERN DISTRICT OF TEXAS
3 CORPUS CHRISTI DIVISION

4 ROGER DALE HOLLAND AND DRENDA)
5 SHEPARD HOLLAND, INDIVIDUALLY)
6 AND AS NEXT FRIENDS OF TAUSHA)
7 MARIE HOLLAND AND JESSICA)
8 NICOLE HOLLAND; WILLIE MAE)
9 HOLLAND AND J. SELMON HOLLAND)
10 Plaintiffs,)

11 vs.)

C. A. NO. C-91-78

12 MONSANTO, INC.; CENTRAL POWER)
13 AND LIGHT COMPANY; AND HOUSTON)
14 LIGHTING & POWER COMPANY,)
15 Defendants.)

16 DEPOSITION OF DR. EMMET KELLY
17 Taken behalf of the Plaintiffs
18 June 28, 1991

19 **COPY**

20
21 Reported by
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Plaintiffs,)

vs.)

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MONSANTO, INC.; CENTRAL POWER)
AND LIGHT COMPANY; AND HOUSTON)
LIGHTING & POWER COMPANY,)
Defendants.)

DEPOSITION OF DR. EMMET KELLY, produced,

sworn, and examined on behalf of the Plaintiffs on

June 28, 1991, between the hours of eight o'clock in
the forenoon and five o'clock in the afternoon of that
day at the offices of Husch, Eppenberger, Donohue,
Cornfeld & Jenkins, 100 North Broadway, Suite 1300,
St. Louis, MO 63102, before SUZANNE BENOIST, a
Registered Professional Reporter and a Notary Public
within and for the State of Missouri.

APPEARANCES

The Plaintiff was represented by the law firm of Edwards & Terry, 1400 Texas Commerce Plaza, P.O. Drawer 480, Corpus Christi, Texas 78403 by Mr. Michael G. Terry.

The Defendant Monsanto was represented by the law firm of Woodard, Hall & Primm, P.C., 7000 Texas Commerce Tower, Houston, Texas 77002 by Mr. Robert A. Hall.

The Defendant Houston Lighting & Power Company was represented by the law firm of Baker & Botts, One Shell Plaza, 910 Louisiana, Houston, Texas 77002-4995 by Mr. Tracy D. Hester.

The Defendant Central Power & Light Company was represented by the law firm of Bracewell & Patterson, 2900 South Tower Pennzoil Place, Houston, Texas 77002 by Ms. Lisa D. Anouilh.

The Defendant United States of America was represented by the U.S. Department of Justice, Torts Branch, Civil Division, P.O. Box 340, Ben Franklin Station, Washington, DC 20044 by Mr. Michael T. McCaul.

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1 IT IS HEREBY STIPULATED AND AGREED by and
2 between Counsel for the Plaintiff and Counsel for the
3 Defendant, that this deposition may be taken in
4 shorthand by SUZANNE BENOIST, a Registered
5 Professional Reporter and Notary Public, and
6 afterwards signed by the Witness.

7
8 o-o-o

9 DR. EMMET KELLY
10 of lawful age, being produced, sworn and examined on
11 the part of the Plaintiff, deposes and says:

12 EXAMINATION

13 QUESTIONS BY MR. TERRY:

14 Q. Can you tell us your name, sir?

15 MR. HALL: Same stipulation?

16 MR. TERRY: Yes.

17 A. Robert Emmet Kelly, M.D. K-e-l-l-y.

18 Q. (By Mr. Terry) Where do you reside Dr.
19 Kelly?

20 A. 665 South Skinker, St. Louis, Missouri,
21 63105.

22 Q. How old are you?

23 A. 81.

24 Q. Did you work at Monsanto?

25 A. Yes. From 1936 until 1974. With the

1 exception of four years in the service.

2 Q. Did you retire in 1974?

3 A. At 65.

4 Q. What did you do while you were at
5 Monsanto?

6 A. First, I was engaged at first as a plant
7 official in their plant in St. Louis called Plant A
8 which later was called the Queeny Plant. Then
9 following when I returned from the service I became
10 director of their medical department, that was a new
11 department, staff department, I was director of that
12 until I retired.

13 Q. Would that be from 1945 --

14 A. '46 until '74.

15 Q. As the director of the medical department
16 did your responsibility include any portion of
17 Monsanto's dealings with people outside the work
18 force?

19 A. Yes. You mean the customers?

20 Q. Yes.

21 A. Yes.

22 Q. Can you describe for me what sorts of
23 responsibilities you would have with respect to the
24 customers?

25 A. Well, medical department under my

1 direction had the responsibility for putting any safe
2 handling data, any toxicological data in any of the
3 published material that went out of the company. The
4 medical department had the responsibility of answering
5 any customer complaints or inquiries about actual or
6 possible harmful effects from contact with the
7 company's products.

8 Q. In connection with the toxicological data
9 that would accompany the products that left Monsanto,
10 where did you obtain the data? Was it independent
11 research conducted by you or how did you go about it?

12 A. If the data were not available we engaged
13 outside laboratories to run the toxicological
14 experiments. We had no laboratory of our own until
15 '75 or '76.

16 Q. After your retirement?

17 A. Yes. We started planning in 1973 or '74.

18 Q. When you referred to if data not
19 available, what were your sources for data?

20 A. Well your sources were several things.
21 One, if it were a compound, in other words Dow might
22 have made it or DuPont might have made it I would talk
23 to the medical directors of those companies, what do
24 you know about it; do you know any published data and
25 if they did they would give it to me just like it was

1 a two way street, I would give them material that we
2 had. That material could be plant experience,
3 research, chemist's experience. Then there may be
4 data available in the published literature. We had a
5 librarian that catalogued the material in the English
6 language. There weren't that many publications in
7 those days, that many magazines, there were probably
8 two or three in the United States, one in the United
9 Kingdom. So we got the material that way.

10 Q. In this case that we are dealing with
11 today involves PCB's. Are you familiar with those?

12 A. Yes.

13 Q. Manufactured by Monsanto and used in
14 liquids designed for use in electrical transformers.

15 A. Yes.

16 Q. Are you familiar with those?

17 A. Yes.

18 Q. Did you have any personal involvement in
19 preparing safe handling data for PCB's or in
20 communicating toxicological data?

21 A. Yes. I enrolled and/or reviewed any
22 toxicological data that was in our development
23 bulletins, our technical bulletins. I wrote the safe
24 handling precautions on all our labels and I answered
25 inquiries both written and oral from any of our

1 customers regarding effects of PCB's.

2 Q. Are there health hazards for humans
3 associated with PCB's?

4 A. Yes. If you get extensive exposure to it
5 at elevated temperatures or in confined spaces you can
6 get serious problems if you get enough. Just like
7 anything else. No compound, table salt is as harmful
8 in large amounts. But there have been with the
9 exception of chloracne there have been no reported
10 cases of illness in workers or users of PCB's in the
11 United States.

12 Q. Is there any health hazard other than
13 chloracne in your opinion associated with PCB's?

14 A. Yes. If you inhale the material in
15 sufficient quantities, and that means elevated
16 temperatures or in extremely confined spaces, one may
17 get liver trouble. There's a chemical hepatitis
18 that's associated, characterized by jaundice and I
19 would imagine you can get a fatality if you did enough
20 of it. There have been none however. There have been
21 few isolated cases of chemical hepatitis, not in the
22 transformer industry but in the heat transfer
23 industry.

24 Q. Are PCB's regarded as carcinogenic,
25 either animal or human?

1 A. They certainly are not regarded by me or
2 what I believe the large amount of scientific evidence
3 as being carcinogenic in humans. There are data both
4 pro and con of the carcinogenicity of PCB's in
5 animals. That's carcinogenicity devoted to the liver,
6 some studies have shown carcinogenicity cancer
7 producing of the liver after prolonged feeding of two
8 years and some have not.

9 Q. Are PCB's in your opinion safe to use?

10 A. Certainly.

11 Q. Why did Monsanto stop making them?

12 A. Because of the environmental aspect. It
13 was causing two things that occurred: One was
14 material was found to be non-biodegradable. Secondly
15 the phenomenon of bioaccumulation occurred which meant
16 that if the material were say in the bottom of a river
17 the algae, the plankton that live in the bottom of the
18 river would ingest the PCB, they would be eaten by the
19 shrimp and the PCB level would increase in shrimp,
20 shrimp would be eaten by a fish, it would increase in
21 a fish then along comes a peregrine falcon and eats
22 the fish and lays an egg without shells on it and that
23 is a pretty serious effect for the avian species so
24 that's why they did it. They did not stop
25 manufacturing the material because of any possible

1 real or applied health hazards in humans, it was to
2 avian species and also the presence of a material in
3 fish and the FDA does not like the presence of any
4 untoward product in the food chain. So we stopped it.

5 Q. So Monsanto made the decision to stop the
6 production of PCB's because it was detected in the
7 environment?

8 A. Not only because it was detected in the
9 environment, it was harming the eagles, it was harming
10 the peregrine falcon, it was harming several species
11 of birds especially on the west coast.

12 Q. Do you know or have an opinion as to how
13 PCB's were being introduced into the environment?

14 A. Certainly by discarding it unwisely.

15 Q. By discarding expended or used material
16 containing PCB's unwisely?

17 A. Remember now PCB's constitute a large
18 amount of several different PCB's. There are also
19 other PCB manufacturers outside the United States.
20 Monsanto is the only one in the United States, there
21 were manufacturers in Japan and Germany and France,
22 Italy, so there were an awful lot of them, half a
23 dozen large manufacturers. They're used in heat
24 transfer operations, they're used in hydraulic fluids,
25 they were used in greases, they were used in paint,

1 they were used to plasticize so there were a number of
2 ways they could get in the environment mostly by use
3 in carbonless copy paper, people discarded the carbons
4 and they were either put in a landfill or trash or
5 burned. So there's any number of ways they could get
6 into the environment.

7 Q. Is it your opinion that the primary
8 source for PCB's in the environment was discarding the
9 material or the material containing PCB's unwisely?

10 A. I would think so, yes.

11 Q. In connection with Monsanto's production
12 of PCB's was Monsanto unaware that the material was
13 biodegradable?

14 A. Not only Monsanto was everybody was
15 unaware that it was non-biodegradable. I mean we
16 considered it non-biodegradable but we did not think
17 that non-biodegradability was a negative factor. In
18 fact we thought that the PCB would lie down in the
19 settlement at the bottom of a lake or river like a
20 lump of coal or piece of gravel and just stay there.
21 We did not and the scientists did not recognize the
22 bioaccumulation factor which occurred about the same
23 time.

24 Q. Setting aside the bioaccumulation factor
25 Monsanto was aware that the PCB's were

1 non-biodegradable was it not?

2 A. I don't believe that -- I can't answer
3 that. I don't believe that that was given much
4 thought until the 1968's.

5 Q. What are the properties of PCB's that
6 make it non-biodegradable?

7 A. Probably -- I can't answer that. I don't
8 know. I'd have to be surmising.

9 Q. Do you know whether or not the very
10 properties that make it non-biodegradable are the same
11 properties that make it most desirable in liquids
12 used for transformers?

13 A. I think so. I think there is a
14 relationship between the chlorine content of the
15 material that makes it important for electrical use
16 and non-biodegradability.

17 Q. The very qualities that make it most
18 suitable for use as a liquid in transformers where it
19 is resistant to heat, resistant in arcing, persistent
20 in its state for a long period of time, are the same
21 qualities that make it non-biodegradable; is that
22 fair?

23 A. Again I'd have to surmise, I'm not an
24 authority on that, but I would surmise yes, that that
25 is the reason.

1 Q. And Monsanto was of course aware of the
2 properties of PCB's used in liquids for transformers
3 that made it desireable?

4 A. Yes.

5 Q. And in fact urged those properties as a
6 reason to use its product Askarel in transformers?

7 A. Yes.

8 Q. As evidenced by the documents, deposition
9 exhibits, that you have before you.

10 A. Yes.

11 Q. Did you have any hand in making any
12 determination about the specific chemical properties
13 of the particular product we are dealing with,
14 Askarel?

15 A. No sir. Remember now Askarel is a
16 generic term for half a dozen PCB's that go into
17 transformers and electric capacitors but the answer is
18 no because the history of PCB's and Askarel with
19 Monsanto was that the Swan Chemical Company made it in
20 1930, Monsanto bought the company in 1935, I came with
21 the company in 1936 so I had nothing to do with it.

22 Q. I'm sorry, I probably didn't make myself
23 clear. I'm not asking about whether or not you had
24 anything to do with the initial invention or discovery
25 of the compound Askarel, that became part of Askarel,

1 but in connection with your work as medical director
2 did you have any occasion to determine the specific
3 chemical properties of Askarel?

4 A. No sir.

5 Q. Okay. In connection with determining the
6 toxicological information that should be communicated?

7 A. That's different. That's a different
8 question.

9 Q. But in connection with that did you do
10 any work with the material itself to determine what
11 its chemical properties were?

12 A. No. That was done by the manufacturing
13 group and analytical group.

14 Q. How did you determine what toxicological
15 information to be communicated about the product,
16 Askarel?

17 A. Well it depends on two --

18 (DISCUSSION HELD OFF THE RECORD.)

19 (WHEREUPON REPORTER READ FROM THE RECORD AS DIRECTED).

20 A. Decided on the use of the product. In
21 other words PCB's is an industrial chemical obviously,
22 it's not intended to be sold over the counter, it's
23 not intended to be used except as an industrial
24 chemical. So the toxicological information we
25 developed on that was to protect the worker who would

1 use it and so that generally as short-term testing,
2 you test it on the skin to see what caused irritation,
3 you test it to see if the material can be absorbed by
4 the skin, you test it on eyes, you test it by
5 breathing a saturated vapor and you get what is called
6 an LD-50, that means the lethal dose for half the
7 animals that you administer the material to, it's sort
8 of a benchmark for toxicity much like specific gravity
9 is a benchmark for viscosity. Then when the material
10 started to be used in other aspects where -- it first
11 was used as a dielectric, then when it became
12 prominent as a hydraulic fluid and as a heat transfer
13 agent where it could be used in elevated temperatures
14 we ran testing on the material at elevated
15 temperatures to see what exposure a man could stand
16 without any harmful effects. Then when it turned up
17 to be present in the food chain, game fish especially,
18 although it was a small amount we didn't know what the
19 probability or whether there was any toxicity at low
20 levels, we ran two-year testing much like one would do
21 for a food additive, we did that after consultation
22 with the Food and Drug Administration, we were
23 obviously not going to recommend it as a food
24 additive, we ran through the same testing, that was in
25 late '60's we did this.

1 So an industrial chemical you do one type
2 of tests if there's a possibility it can be ingested
3 by people over a long period of time you ran prolonged
4 testing. So that's what we did.

5 Q. In connection with the testing that you
6 did when the product would be used as a dielectric
7 what test did you do there?

8 A. There was a package testing that included
9 feeding the material to get the LD-50, see if the
10 material was absorbed through the skin, dropped in the
11 animal's eyes to see what occurred in the eyes and had
12 inhalation of the material at room temperatures. But
13 remember here we had this product that was made by
14 Swan that had some testing done previously by Swan,
15 that had some testing done by, at Harvard where they
16 would use the material not as a dielectric but as a
17 wire coating material so there was considerable amount
18 of toxicity work done back in the '30's.

19 Q. Did you redo the work that had been done
20 by Swan and Harvard?

21 A. No we did not.

22 Q. Did you do additional work?

23 A. Not at that time because they came out
24 with some pretty definite answers.

25 Q. So in terms of the toxicological

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A. That's correct.

Q. And that work would have included feeding
uff to animals?

A. Yes.

Q. To get the LD-50?

A. Well they didn't call it LD-50 at that minimum lethal does or something like that they it.

Q. And applying it to the skin of animals?

A. Yes. I believe Harvard did. Swan did, F-l-y-n-n, in New York did work for Swan, he had it to the skin of animals.

Q. And into the eyes of animals?

A. I don't think he did. We did that
yes.

Q. Then you had the animals breathe vapors
at various concentrations?

A. Yes. At saturated room temperatures.

Q. And on the basis of that you determined a toxicological information that should be indicated to users of the fluid as a dielectric.

1 A. That's correct. As well as put on the
2 labels.

3 Q. Did the information that was communicated
4 to users of the fluid as a dielectric change over the
5 years?

6 A. Well it changed at the time the
7 environmental aspect became prominent, that was in
8 1970.

9 Q. Was there any change in the information
10 communicated from 1936 until 1970?

11 A. Would you repeat that question please?

12 Q. Was there any change in the information
13 that was communicated, and again we're talking about
14 toxicological information, communicated to users of
15 the product as a dielectric, from 1900 and 36 until
16 1900 and 70?

17 A. No sir. Not as a dielectric. It changed
18 as far as the heat transfer units were concerned but
19 not as a dielectric.

20 Q. In 1900 and 70 did the information
21 change?

22 A. Yes. Because of the environmental aspect
23 it changed.

24 Q. How did the information change? What was
25 added or what was taken away?

1 A. Nothing was taken away. We added
2 cautions about being more stringent in disposing of
3 the material, we offered to have the material returned
4 to us and be incinerated by Monsanto.

5 Q. We learned from Mr. Pappageorge yesterday
6 that in 1900 and 70 to '71 Monsanto designed and put
7 in place an incinerator capable of combusting PCB's.

8 A. Yes.

9 Q. And we learned thereafter that Monsanto
10 offered to dispose of scrap or waste material
11 containing PCB's, liquids, at the rate of three cents
12 a pound beginning in '70 or '71.

13 A. Yes.

14 Q. Did you have anything to do with that
15 process or were you simply aware that it was ongoing?

16 A. I was aware. I didn't have anything to
17 do with the process.

18 Q. In connection with communicating the
19 information to users about being more stringent in
20 disposing the material and the fact that Monsanto had
21 the incinerator available did you have anything to do
22 with that?

23 A. Well there are two questions there. One,
24 as far as the information is concerned I had something
25 to do with putting it on the label and putting it in

1 the technical bulletins however the actual interface
2 between the customers was on the part of Pappageorge
3 who was in 1970 appointed the environmental point man
4 as it were for PCB's. He was the primary contact with
5 the customer, and also the sale, the marketing group
6 let their customers know about the availability of the
7 incinerator. Now I think Pappageorge sent a whole
8 series of letters out to all the customers both
9 dielectric and plasticizers and everything else
10 telling what should be done and what we were doing and
11 when we were going to discontinue some of the open
12 uses.

13 Q. But in connection with preparing the
14 information that should be communicated to users in
15 1970 were you involved in that?

16 A. Well we had two industrial hygienists who
17 were pretty familiar with the EPA regulations before
18 Pappageorge came aboard, I mean came into his
19 position, and I believe they had quite a bit of
20 contact with the people who had discovered the
21 presence of PCB in eagles and falcons and other birds
22 in Sweden and on the west coast. So we did have some
23 input into that.

24 Q. But in terms of preparing the information
25 that was communicated to the customers about disposal

1 did you have anything to do with that personally?

2 A. No sir.

3 Q. You were just aware that it was ongoing?

4 A. That's correct.

5 Q. Did you have anything to do prior to 1900
6 and 70 with communicating to customers about how the
7 material was supposed to be disposed of?

8 A. I can't answer that. It may very well be
9 that members of the medical department did because we
10 had people who were familiar with the rules of the
11 various states at that time and I'm sure whatever
12 information they sent out, that we sent out was what
13 we sent out on any industrial chemical to put it in an
14 approved landfill, don't just throw it down the sewer.
15 I mean putting it in an approved landfill seemed to be
16 the common method of disposal but I can't recall
17 telling customers what they should do. It may very
18 well be that some of the members of the medical
19 department may have. Our industrial hygiene group.

20 Q. Was the industrial hygiene group a group
21 under your direction?

22 A. That's correct.

23 Q. Was that the title of the group,
24 industrial hygiene?

25 A. Well the group was two people, it was

1 four people but there were two people more directly
2 involved with the customers.

3 Q. Just two people, they probably didn't
4 have a group name. Who were the people; do you
5 remember?

6 A. One was Albert Wheeler who's now deceased
7 the other is Jack Garrett who's retired from the
8 company.

9 Q. Now Mr. Wheeler and Mr. Garrett would
10 have been industrial hygienists?

11 A. That's right. They started as industrial
12 hygienists and developed into doing some work in the
13 environmental aspect.

14 Q. And how long, I mean did you always have
15 an industrial hygienist or more?

16 A. Well I came with the company as a
17 director in 1946 and I think I engaged Wheeler in '47
18 or '48.

19 Q. And then Mr. Garrett?

20 A. Garrett came in the early '50's I think.

21 Q. So you would have had at least one
22 hygienist for as long as, within a year after you
23 became medical director?

24 A. Yes. But I do not believe they had any
25 contact with the environmental aspect until the '60's

1 I suppose.

2 Q. If there were information communicated by
3 the medical department directly to customers about
4 disposal of PCB's or liquids containing PCB's it would
5 have come from Mr. Wheeler or Mr. Garrett?

6 A. That's correct.

7 Q. In connection with literature that
8 Monsanto would have delivered to its customers in
9 connection with proper disposal of liquids intended as
10 dielectric-containing PCB's who would have been
11 responsible for preparing that section of the
12 literature?

13 A. Well it depends on the time frame. After
14 1970 it was Pappageorge, before that it would be the
15 manufacturing group with input from the non-medical
16 part of the medical department who's Garrett and
17 Wheeler.

18 Q. All right. So prior to 1900 and 70 the
19 people in your department that would have had input
20 for that class of information would have been Mr.
21 Wheeler or Mr. Garrett.

22 A. Remember before 19, before the EPA came
23 out states had a great deal of regulations and things
24 and Garrett was, Garrett and Wheeler would help the
25 plants in their relationships with the various states

1 and their governing bodies.

2 Q. Now in the literature that you have
3 before you, in my review of that literature, I see
4 that there is some information communicated about safe
5 handling and some indication of ill effects or how to
6 avoid ill effects from handling and I assume that that
7 is the kind of information that you would have
8 communicated as toxicological information.

9 A. And medical information, yes. That would
10 be my responsibility. Of course the other was my
11 responsibility also as it came from the medical
12 department. You know what Wheeler and Garrett might
13 have said about disposal ultimately was my
14 responsibility but I didn't do it myself. I was privy
15 to the information I'm sure because I knew Garrett and
16 Wheeler were around visiting or I would see
17 correspondence dealing with those matters.

18 Q. I understand that you did not do it
19 personally but people under you in your department
20 would communicate to customers about how to dispose of
21 the material.

22 A. That's correct.

23 Q. In terms of the literature that was
24 prepared do you know what Monsanto communicated to its
25 customers about proper disposal?

1 A. Certainly after 1970 I did.

2 Q. Prior to 1900 and 70.

3 A. I don't recall knowing anything about
4 that.

5 Q. I assume, and you correct me if I'm
6 wrong, that you would have reviewed the publications
7 that are before you before they were sent out with
8 respect to the toxicological and safe handling
9 information from a health respect?

10 A. Yes. In fact I would probably write it
11 and then I would see the finished copy, they might do
12 some editorial corrections as far as space is
13 concerned but I would see the final product before it
14 went out.

15 Q. And then you would have reviewed the
16 remainder of the material to make certain that
17 inconsistent information was not communicated, for
18 example where you say you should avoid prolonged skin
19 contact the section that deals with testing says and
20 put your hand in it and keep it there for 20 minutes,
21 that sort of thing.

22 A. Yes.

23 Q. You would do that?

24 A. Yes.

25 Q. In connection with your review of the

1 literature do you remember looking specifically to see
2 whether or not Monsanto would communicate information
3 about how to dispose of the material properly?

4 A. Before 1970?

5 Q. Before 1970.

6 A. No. Because I think the standard
7 practice at that time was it's an industrial chemical,
8 we tell you how to avoid ill harm from it and we
9 expect our customer to follow the same precautions
10 when he's getting rid of it. In other words if we
11 tell him don't get it on your skin when you're working
12 with it we don't expect him to give to somebody to
13 pour in a street where somebody could get in contact
14 with it. I think that was standard industrial
15 practice. The disposal of a product, we didn't
16 consider it our responsibility after the primary user,
17 in other words we sold it to transformer people or we
18 sold it to capacitor manufacturers. What they did
19 from then on out was their responsibility as far as
20 anything was communicated to their customers,
21 information we sent them, because we didn't know who
22 their customers were going to be in a vast majority of
23 cases. We didn't know what they were doing with it.

24 Q. I don't think that's an answer to the
25 specific question.

1 A. What is the question again then?

2 Q. I've forgotten but I don't think you
3 answered it. That's all right, we'll come back to it.

4 I am looking to see whether or not you
5 reviewed the literature to see if appropriate
6 information about proper disposal was communicated.
7 Did you do that?

8 A. Before 1970 I did not.

9 Q. And then after 1970 did you do that?

10 A. Yes.

11 Q. Prior to 1970 was it your assumption then
12 that either other people in Monsanto were
13 communicating information about proper disposal or it
14 was not necessary to communicate information about
15 disposal?

16 A. I think it was both. In other words here
17 is an industrial compound that was used for 40 years
18 and never had any problem, I mean no problem surfaced
19 until it showed up in the birds in Sweden in 1968, it
20 had been manufactured since 1935 and there was
21 absolutely no problems with it, whether disposal or
22 during use. I can count on the fingers of one hand
23 how many inquiries I had about possible ill effects
24 and that's an extremely meager number considering the
25 ones we would get from any of our other chemicals.

1 Q. Okay. Was there or did you know
2 personally as medical director of Monsanto what the
3 regular practices were prior to 1970 about the
4 disposal of industrial chemicals?

5 A. Well did I know personally?

6 Q. Yes.

7 A. I mean did I know what GE did with them
8 after they put it in a transformer? Is that what you
9 mean?

10 MR. HALL: The question is do you know
11 what the proper method of disposal was before 1970.

12 A. Is that what the question was?

13 Q. (By Mr. Terry) Yes. Do you know what
14 was considered to be proper disposal of industrial
15 chemicals prior to 1970?

16 A. Yes, I did.

17 Q. What was it?

18 A. It was to be put in an approved landfill.
19 That was the standard method of disposing it.

20 Q. Do you know or did you know what it took
21 to make an approved landfill?

22 A. Just --

23 Q. I understand and I appreciate that as
24 medical director it may not have been your area to
25 make a study as to what it takes to make a landfill,

1 how much clay, what kind of containment, water
2 drainage and that sort of thing.

3 A. That again is a moving target, it all
4 depends. Before people now an approved landfill is
5 enormously different than what an approved landfill
6 was in 1960. I think in 1960 they had a landfill the
7 stuff didn't blow around or didn't leak out and get
8 into the ground water. Now they have all sorts of
9 liners and covers and other things. But that's all I
10 know about what an approved landfill was in 1960.

11 Q. Did you understand prior to 1900 and 70
12 that the purpose of using an approved landfill as
13 apposed to simply pouring the stuff down the street or
14 in a sewer was to contain the industrial chemical?

15 A. Yes.

16 Q. And to prevent people, birds, animals
17 from coming into contact with the industrial chemical.

18 A. Repeat that question.

19 Q. The question was I understand that you
20 knew that the purpose of using an approved landfill
21 was to confine the industrial chemical after it had
22 been disposed of.

23 A. Yes.

24 Q. And not only to contain it but to prevent
25 accidental contact with those chemicals once they're

1 disposed of by people, birds, animals, fish and that
2 sort of thing.

3 A. Now are we talking strictly about PCB's
4 now or any kind of a landfill?

5 Q. Let me back up.

6 It is my understanding that prior to 1900
7 and 70 you were of the opinion that the proper method
8 of disposal was to treat liquids containing PCB's as
9 an industrial chemical.

10 A. Yes.

11 Q. They did not receive special treatment.

12 A. That's correct.

13 Q. So prior to 1970 the liquids containing
14 PCB's in your opinion would simply be treated as any
15 other industrial chemical.

16 A. Yes.

17 Q. So I'm not making a distinction prior to
18 1970 between the purposes for the landfill for
19 industrial chemicals and one devoted to PCB's. Okay?
20 Was one of the purposes of using an approved landfill
21 to handle the disposal of liquids containing PCB's to
22 prevent contact, unintentional contact, by people,
23 birds, animals, fish and fowl with the chemicals once
24 disposed of?

25 A. Yes. But I'd have to eliminate birds and

1 animals. I mean I don't think they kept pigeons from
2 flying over landfills but they certainly didn't want
3 people mucking around in a landfill.

4 Q. Okay. Do you have an opinion as to
5 whether or not utilizing a landfill, an approved or
6 authorized landfill as that term was used prior to
7 1970, would have been sufficient to contain disposed
8 liquids containing PCB's?

9 A. Yes, I think it would have.

10 Q. Would it have been using an approved or
11 authorized landfill as that term was defined prior to
12 1960 --

13 MR. HALL: '70.

14 Q. (By Mr. Terry) I'm sorry, '70. Would
15 that have been in your opinion sufficient to prevent
16 accidental or unintentional contact with the disposed
17 liquids containing PCB's by humans?

18 A. You would have to have a fence around it.
19 I mean if you had a landfill obviously there could be
20 contact with humans unless you had a guard there but I
21 would imagine that you had a landfill in a safe place
22 that was so around or so fenced in that people are
23 playing softball on it or something like that.

24 Q. No landfill I've ever seen.

25 But apart from individuals actually

1 coming to the landfill and mucking around in the
2 landfill would using an approved landfill as that term
3 is defined prior to 1970 prevent contact from disposed
4 chemicals from other people, people who might drink
5 water, people who might eat food, people who might be
6 in the same geographic area as the landfill?

7 A. Yes.

8 Q. Do you have an opinion as to whether or
9 not Monsanto had a responsibility to communicate to
10 its customers toxicological information about PCB's in
11 liquids designed for use as a dielectric?

12 A. Yes, we did.

13 Q. It is my understanding that Monsanto was
14 the sole producer of PCB's in this country; is that
15 correct?

16 A. Yes. But recall General Electric had the
17 patent on the material, they invented the material.
18 We manufactured for General Electric, we manufactured
19 them for Westinghouse under their specifications.

20 Q. But in terms of the manufacture of the
21 product within this country Monsanto was the only
22 company that did that.

23 A. That's correct.

24 Q. There were other companies elsewhere in
25 the world that manufactured the material.

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1 Q. Do you remember anything about when it
2 had been done?

3 A. I don't.

4 Q. Did you have any awareness of that study
5 by Westinghouse other than in connection with some
6 lawsuit?

7 A. No. I did not have any knowledge of it
8 at all.

9 Q. Did you come into possession of that
10 information then after you had retired?

11 A. Yes.

12 Q. Do you know whether or not Monsanto or
13 anyone else in Monsanto was aware that Westinghouse
14 had done this other work however sketchy it was prior
15 to your becoming aware?

16 A. I feel quite sure they did not otherwise
17 I would have known about it.

18 Q. So in terms of the time that you were at
19 Monsanto preparing and reviewing the toxicological
20 information communicated to customers you would have
21 been aware of no other source of information for your
22 customers for that information; is that fair?

23 A. Well there are always isolated case
24 reports in the medical literature but I don't believe
25 anybody was doing toxicological work on PCB's until,

1 outside of Monsanto, until after 1972 or '73.

2 Q. Okay. So in terms of the information
3 that would have been available to your customers to
4 pass on to their customers on the toxicological effect
5 of PCB's used in liquids for transformers your
6 information would have been the primary source.

7 A. Yes.

8 Q. Do you have an opinion as to whether or
9 not the customers of Monsanto's customers needed to
10 know the toxicological information that you provided
11 your customers?

12 A. No. Because I don't have an opinion
13 because I don't know exactly how they were using it or
14 what they did or whether they -- no, the answer is no.

15 Q. You don't have an opinion?

16 A. Not without knowing more facts about
17 exactly what our customer's customers did.

18 Q. Okay. When we talked to Mr. Pappageorge
19 yesterday he indicated that he divided the customers
20 into two classes essentially and I may be paraphrasing
21 but it was my understanding that he divided the
22 customers of customers into a class that for lack of a
23 better term we called a consumer and that would be
24 like the Holiday Inn where they have a transformer on
25 the premises but they never touch it, they hire out to

1 have it worked on and then there are others who are
2 more knowledgeable and actually work on their own
3 stuff like a utility company where their own people
4 will come in contact with the transformers and the
5 liquids contained in the transformers. Are you with
6 me?

7 A. Yes, I'm with you.

8 Q. Setting aside the group of customers that
9 are essentially consumers and do not come in contact
10 with their transformer other than to have it on the
11 place, the hotel and that sort of thing, and
12 concentrating on those customers of customers that
13 actually work with the transformer and come in contact
14 with the liquids that the transformer contains where
15 the workman may be required to filter the liquid, to
16 replace the liquid, to work inside the components,
17 inside the transformer, deal with the components. Are
18 you with me?

19 A. Yes.

20 Q. Do you have an opinion as to whether or
21 not those companies needed to know the toxicological
22 information that you were communicating and that you
23 considered important to communicate to the direct
24 customers of Monsanto?

25 A. Yes. I think they should have.

1 Q. Now was the information that you
2 communicated to your customers, in your opinion,
3 sufficient for that class of customers of your
4 customers?

5 A. Yes.

6 Q. What steps does Monsanto take to see to
7 it that the end users who would come in contact with
8 the liquids would be armed with the toxicological
9 information they needed?

10 A. The end user again meaning out to the
11 utility?

12 Q. Yes.

13 A. I believe we did not consider that to be
14 our responsibility. We gave the information
15 completely to the transformer manufacturer and we
16 considered it his responsibility to inform his
17 customers. We didn't even know in a lot of cases who
18 their customers were. There's no way we could have
19 done it.

20 Q. Would it be fair to say then in order to
21 get that information, the toxicological information to
22 the end user like the utility, Monsanto relied on its
23 customers to communicate the information?

24 A. Well among other things. I mean these
25 utilities were not running in a vacuum, there were an

1 awful lot of publications put out by the National
2 Electrical Manufacturers Association and by God knows
3 how many utility groups that discussed Askarel which
4 is a generic name, Askarel in transformers.

5 Q. Well in terms of the toxicological
6 information about Askarel used in transformers
7 Monsanto would have been the primary source of that
8 information in this country.

9 A. Yes. Of obtaining it but not of
10 disseminating it to the customer's customers.

11 Q. Did you make that kind of toxicological
12 information to these other groups and organizations
13 that you identified?

14 A. Well certainly if they asked for it we
15 gave it to them. We made it available and I know that
16 there have been publications by manufacturing groups
17 that had utility people on it, transformer
18 manufacturers on it and Monsanto personnel on it.
19 There have been those documents.

20 Q. Did those documents contain toxicological
21 information about the Askarel?

22 A. Yes.

23 Q. Did Monsanto then communicate to these
24 other organizations toxicological information that
25 could be disseminated to the industry as a whole

25 A. To the best of my recollection I think it

1 was.

2 Q. Is there any way you can identify or
3 define or describe the publication so that we can find
4 it?

5 A. No, I don't. I can't do that.

6 Q. Did you personally do anything in
7 connection with this publication?

8 A. No I did not.

9 Q. Are you aware of the kind of information
10 that would be generally available to the utility
11 concerning the toxicological effect of Askarel prior
12 to 1970, whether the source of the information be the
13 transformer manufacturer, the NEMA or any other
14 association?

15 A. No, I would not know that.

16 Q. Do you have an opinion as to whether or
17 not there was enough information generally available
18 for utilities to be aware of the toxicological effects
19 of Askarel?

20 A. Yes I think so.

21 Q. Can you identify for me the sources of
22 information to the utilities?

23 A. No I can't.

24 Q. You would of course assume that the
25 transformer manufacturer would provide the

1 information?

2 A. Yes.

3 Q. Any other source of information that you
4 can think of?

5 A. Well no, but I know that, I've talked to
6 people at Union Electric in St. Louis, they have
7 called me about toxicological information concerning
8 Askarels, maybe just because they were in St. Louis
9 they called me but I talked to them and they certainly
10 knew quite a bit about it.

11 Q. Any other source of information that you
12 can identify that supports your opinion that there was
13 enough information generally available to utilities
14 about the toxicological effects of Askarel?

15 A. The fact there were no health problems
16 reported at any of the utilities showed that they were
17 certainly following the same safety precautions we
18 gave the transformer people because there had been no
19 reported cases of any illness in electrical users in
20 the United States with the -- period.

21 Q. So the absence of as far as you know
22 reports of injuries associated with exposure to
23 Askarel by utility workers is a source of information?

24 A. Yes. Not only absence but also the
25 reports of prominent Government authorities on PCB's

1 were not, Rena Kimbraugh who's probably the most
2 logical, I mean the most knowledgeable Government
3 worker working on PCB's for 20 years at least, she
4 stated there had been no health effects with the
5 exception of chloracne in any worker in the United
6 States.

7 Q. Is this Ms. Kimbraugh?

8 A. Yes. Doctor. She's at EPA or someplace.
9 Down in research triangle. She's had various
10 positions.

11 Q. What's the research triangle?

12 A. That's Raleigh Durham, that's with NIOSH.

13 Q. Do you know if she is still with the
14 Government?

15 A. She was a year and a half ago or two
16 years ago when she came out with her latest paper.

17 Q. What was her title or position then?

18 A. Honestly I don't remember. I mean she
19 has changed titles but she's still working with the
20 same matter.

21 Q. Do you know what agency she was connected
22 with?

23 A. No, I don't.

24 Q. And her name is Kimbraugh?

25 A. K-i-m-b-r-a-u-g-h.

1 Q. Do you remember the name or the title of
2 the latest paper?

3 A. Environmental Health Digest.

4 Q. Did she have a paper in the digest?

5 A. Beg your pardon?

6 Q. Did she have a paper in the digest?

7 A. That was the paper. It was either
8 Environmental Health News or Environmental Health
9 Digest and there were several articles, she had the
10 lead article on it.

11 Q. What was her article called; do you
12 remember?

13 A. Health Effects of PCB's or something like
14 that.

15 Q. And is the digest a Government
16 publication?

17 A. No it is not.

18 Q. Private?

19 A. Yes. Certainly not Government but I
20 don't know what type of group puts it out.

21 Q. So you are of the opinion that the
22 utilities had enough information about the
23 toxicological effects of PCB's.

24 A. Well I didn't say that. I didn't say
25 that they had enough information I say there was

1 enough information available.

2 Q. I'm sorry. Without asking you to
3 determine whether or not any particular utility had
4 enough information there was enough information
5 available to the utilities to know the toxicological
6 effects of PCB's.

7 A. Yes.

8 Q. Do you know whether or not the
9 toxicological effects of PCB's persist even after the
10 liquid, the Askarel, is disposed of?

11 A. Wait a minute now. Do I know whether or
12 not the toxicological properties of Askarel persist
13 after it's disposed of?

14 Q. Yes.

15 A. Well it depends how it's disposed. If
16 it's burned it's gone. If it's incinerated it's gone.
17 If it's lying in a puddle in a landfill it's still
18 there. It has the same properties there as it does
19 when it was inside the transformer.

20 Q. When you say when it's burned it's
21 gone --

22 A. When I say burned I mean incinerated.

23 Q. Specifically using the process Monsanto
24 designed in 1970 or '71.

25 A. Well you have to get it up to a certain

1 temperature to destroy all of it and so there are
2 other incinerators, commercial incinerators around the
3 country that reach that temperature and do destroy it.

4 Q. But I mean in order to destroy the PCB's
5 by incineration you have to follow a particular
6 procedure using temperatures of 1,600 to 2,000
7 degrees, using particular combinations of oxygen, that
8 sort of thing.

9 A. Yes.

10 Q. It's not just burning it like putting it
11 in the fireplace?

12 A. No. Because it doesn't burn easily,
13 that's the purpose of it.

14 Q. Did you know prior to 1900 and 70 that
15 the toxicological effects of Askarel would persist
16 even when the liquid was disposed of in an authorized
17 landfill?

18 A. There again I couldn't be sure because
19 even though we considered it non-biodegradable we
20 didn't know what would happen in a landfill, we didn't
21 know what else was in that landfill, we didn't know
22 what the bacterial content of the landfill was so I
23 can't answer that question. I would not know that.

24 Q. Did you know prior to 1900 and 70 that
25 the toxicological effects of the Askarel would

1 continue after it was disposed of if it was not
2 disposed of in an authorized landfill, if it was
3 simply poured down the drain or poured out in the back
4 yard, that sort of thing?

5 A. Yes. I think it would still persist.

6 Q. Did Monsanto communicate to its customers
7 that the toxicological effects of the PCB's contained
8 in Askarel would persist even after the liquid
9 containing Askarels had reached the point where it
10 should be disposed of?

11 A. I don't recall any such communication.

12 Q. Do you consider that information
13 important to be communicated?

14 A. I don't think so because here's a
15 compound that is a stable compound and its use in
16 transformers is vitiated by other things rather than
17 the material breaking down into -- I think what
18 happens in a transformer, there is some change in the
19 material but we certainly were under the impression
20 that the material maintained the same toxicological
21 properties and I don't think that the question ever
22 came up that we said that after it was used in a
23 transformer it became innocuous.

24 Q. I did not mean to imply you communicated
25 that it became innocuous after it had been used but

1 did you consider it important to communicate that it
2 retained the same toxicological properties even after
3 it had been used?

4 A. Say that over?

5 Q. Okay. I understand and did not mean to
6 imply that Monsanto communicated to its customers that
7 the toxicological properties of Askarel ceased and the
8 product became innocuous once it reached the point
9 where it was disposed of. You didn't say that did
10 you?

11 A. No.

12 Q. The question is did you communicate to
13 your customers that Askarel retained its toxicological
14 properties even after it reached the point where it
15 would be disposed of?

16 A. No sir. We considered Askarel Askarel
17 whether it was, and the precautions we advised for
18 Askarel when it went in the transformer should be also
19 used when it came out of a transformer.

20 Q. Did you specify that?

21 A. No sir, not that I recall.

22 MR. HALL: Would this be a convenient
23 spot to stop for a second?

24 MR. TERRY: Absolutely.

25 (RECESS TAKEN BY PARTIES.)

1 Q. (By Mr. Terry) Did Monsanto consider it
2 important to communicate to its customers that the
3 toxicological effects of the Askarel such as they were
4 persisted even after the Askarel was suitable for
5 disposal or reached a point where it would be
6 disposed?

7 A. No sir. I don't think they thought it
8 was important because they didn't believe the
9 toxicological properties changed. So the answer is
10 no.

11 Q. Do you have an opinion as to whether or
12 not it was generally understood by people who would
13 come in contact with the Askarel that the
14 toxicological properties would persist even after the
15 liquid had reached a point where it would be disposed
16 of?

17 A. Yes. I have an opinion. I can't tell
18 you what I base my opinion on except that Askarel
19 isn't a compound that spends itself or something of
20 that sort like a storage battery does or something
21 like that, so no.

22 Q. So in your opinion the people who would
23 use Askarel would know that whatever toxicological
24 properties it had would persist even when the Askarel
25 reached a point where they would dispose of it?

1 A. Yes.

2 Q. Do you have any idea on what you base
3 that opinion?

4 A. No. But I think a general knowledge of
5 chemistry is that if you aren't reacting one chemical
6 with the other and you discard it for any number of
7 reasons whether it's contaminated or anything else
8 that there's nothing that will change the inherent
9 toxicity of the particular product. There's been no
10 information at all that I know of that transformers
11 that have used Askarel in them are any different
12 toxicological wise than when the Askarel went in. In
13 fact I think there's published material to the same,
14 to the reverse, that transformers that failed because
15 of dielectric failure and there have been
16 toxicological studies that show there's been no change
17 in it. I don't know how widespread that information
18 is but from my knowledge working in the chemical
19 industry people who use the material if you use it,
20 any kind of material you don't believe it's changed
21 inherently from the toxicity point of view.

22 Q. The studies on transformers with used
23 Askarel in them that you have referred to?

24 A. Yes.

25 Q. Can you identify those in any way?

1 A. No I can't. But it has been, there have
2 been reports on it. I cannot identify them.

3 Q. And one of the reasons that the Askarel
4 when disposed of has to be disposed of in an
5 authorized landfill is because its toxicological
6 properties persist.

7 A. Yes.

8 Q. Not only because the Askarel itself
9 persists but its toxicological properties persist.

10 A. Yes. I think they're one in the same.

11 Q. Okay. In your opinion could Monsanto
12 reasonably foresee that Askarel sold to a transformer
13 manufacturer would eventually reach the point where it
14 would be disposed of?

15 A. Yes.

16 Q. And therefore Monsanto could foresee that
17 the Askarel when disposed of should be disposed of in
18 a proper manner, be it an authorized landfill or after
19 1970, '71, incinerated in a proper way.

20 A. Repeat that again now.

21 Q. Okay. It would be reasonable for
22 Monsanto to foresee that the Askarel when it was
23 disposed of would have to be disposed of or should be
24 disposed of in an authorized landfill or after 1971
25 incinerated in a proper way?

1 A. Yes.

2 Q. And it would be reasonable for Monsanto
3 to foresee that if the Askarel were not properly
4 disposed of there would be a risk of injury to those
5 that might come in contact with it.

6 A. Well that I can't answer because I think
7 you have got to define how they're coming into contact
8 with, what the type of injury would be.

9 Q. Without identifying a particular type of
10 injury you recognized that there were certain
11 toxicities or toxicological properties associated with
12 Askarel.

13 A. Yes.

14 Q. So that if people would come in contact
15 with it under some circumstances they could be hurt
16 even if it just be chloracne.

17 A. If they had sufficient contact. Are we
18 talking now about a landfill?

19 Q. No sir.

20 A. Yes. They could get chloracne if they
21 got enough of it over a sufficient, over a prolonged
22 period of time, yes.

23 Q. And if the material is not properly
24 disposed of, if it's simply poured out in a pond or
25 just collected in a lake there is a risk that people

1 can come in contact with it and get hurt.

2 A. Well I can't answer that because I don't
3 know really what the dilution factor in any particular
4 lake or puddle or landfill is and I don't know what
5 the interaction of the other chemicals in that
6 particular landfill might be so I can't answer that
7 question.

8 Q. Why is it that you wanted the Askarel
9 disposed of in a proper landfill?

10 A. To avoid any risk to anybody.

11 Q. Which would indicate to me that if it
12 were not done there is a risk that people could get
13 hurt, however slight there is the risk. Would you
14 agree with that?

15 A. If there were enough of the material and
16 the person had enough contact with it over a
17 prolonged, over a sufficient period of time he could
18 develop some injury, yes.

19 Q. And one of the conditions for that to
20 occur is that the material not be disposed of in a
21 proper way.

22 A. That's correct.

23 Q. So you and Monsanto could foresee that if
24 this material was not disposed of in a proper way
25 there was a risk of injury to people. Not that they

1 would get hurt but that they might get hurt.

2 A. There's always a possibility, yes.

3 Q. Particularly if the material is not
4 properly disposed of.

5 A. Yes.

6 Q. Did Monsanto prior to 1900 and 71 rely on
7 others to see to it that the material, Askarel, was
8 properly disposed of?

9 A. Yes. We did not arrange for the disposal
10 of it ourselves or we expected our customers who we
11 told, informed about the hazards of the material and
12 the safe handling procedures, we expected them to
13 follow that through in the disposal of the material.

14 Q. And you relied on your customers or your
15 customer's customers to see to it that the material
16 was properly disposed of prior to 1971.

17 A. Yes.

18 Q. Did Monsanto take any steps to inform
19 itself to see whether or not the material was being
20 properly handled prior to 1971?

21 A. Not that I know of.

22 Q. After 1970 did Monsanto take any steps to
23 see if the material was being properly handled?

24 A. We did not investigate our customers to
25 see what they did with it, we told our customers what

1 our recommendation was. If that's an answer to your
2 question. We did not go out to the transformer
3 manufacturers and see what they did with the material
4 that they may have had leaks or over filling or
5 something like that. We did not do that. We told
6 them what our recommendations were, what they should
7 do, but we did not police them to the best of my
8 knowledge. We certainly did not go as far as a
9 customer's customer, or the third generation
10 customers.

11 Q. I guess the question I'm asking is
12 earlier we had discussed the fact that one of the
13 probable sources for widespread presence of PCB's in
14 the environment, be it the fish or the fowl, was
15 improper handling or disposal of materials containing
16 PCB's.

17 A. Well improper in the light of later
18 information.

19 Q. Well I thought that you had indicated
20 that even prior to 1900 and 70 if the liquids or if
21 the PCB's, if the materials containing PCB's were
22 properly disposed of in authorized landfills that that
23 would be sufficient to contain the PCB's.

24 A. Yes. That's correct.

25 Q. And the studies of the fish and the fowl

1 and other things indicate that the PCB's were not
2 being contained.

3 A. That's correct also.

4 Q. So it would indicate that the presence of
5 PCB's in the environment resulted from improper
6 handling of disposal, one of the probable causes would
7 be improper handling.

8 A. One of the causes might very well be
9 that, yes.

10 Q. Other than making that conclusion from
11 the presence of PCB's in the environment generally, in
12 the fish and in the fowl, did Monsanto do anything to
13 determine how the materials were in fact being
14 handled, not so much policing customers but just
15 finding out what was happening to liquids containing
16 PCB's?

17 A. You'll have to repeat that one.

18 Q. Okay. I understand that the chain of
19 logic is that we can determine from the generalized
20 presence of PCB's in the environment as indicated by
21 presence in the fish, in the fowl and other portions
22 of the food chain, that one of the probable causes is
23 improper disposal of materials containing PCB's.

24 A. Yes.

25 Q. The stuff's not being contained like it

1 should be.

2 A. Yes.

3 Q. And that would indicate that materials
4 containing PCB's are not being properly disposed of.
5 Right?

6 A. Yes. That's correct. Not all, I mean
7 some.

8 Q. Some are not.

9 A. Yes.

10 Q. So you can conclude from the presence of
11 PCB's in the environment that materials containing
12 PCB's, some of it, is not being properly disposed of.

13 A. Yes, I think so.

14 Q. Then the question is did Monsanto make
15 any effort to determine by any kind of investigation
16 whether or not that conclusion was correct? That is,
17 did you make an effort, the company, to determine if
18 the materials were not being properly disposed of?

19 A. When?

20 Q. After 1970.

21 A. You mean whether the proper disposal
22 continued after 1970? Is that what you said?

23 Q. Whether or not there was a practice of
24 properly disposing materials containing PCB's actually
25 in place in this country prior to 1970?

1 A. I lost you.

2 Q. Okay. Let me do it again.

3 A. You got a little compound question.

4 Q. I must confess to you that it is a
5 difficult subject to discuss in a question and answer
6 form particularly by someone who's not a scientist
7 with someone who is so I'm constrained by the
8 structure that I have to deal with and I apology to
9 you for that.

10 A. No problem.

11 Q. But I understand from the presence of
12 PCB's in the environment one of the conclusions you
13 can draw is that materials containing PCB's are not
14 being properly disposed of.

15 A. Well that is one of the factors that
16 leads to the presence of PCB's in the environment.

17 Q. That's right.

18 A. There are other factors that we know
19 about and some we don't know about.

20 Q. I understand. But one of the factors is
21 improper disposal.

22 A. Yes. Correct.

23 Q. Then the question is having determined
24 that that's one of the factors that could explain the
25 presence of PCB's in the environment did Monsanto do

1 anything to see what the actual disposal practices
2 were?

3 A. When?

4 Q. After 1970? What was going on out there
5 in the field; did you find out?

6 A. No sir. We warned the customers that we
7 sold the material to what the hazards were to the
8 environment. We recommended strict precautions of
9 disposal, we recommended ways to help them dispose of
10 it at a no profit to Monsanto arrangement but as far
11 as going past that we did not.

12 Q. Okay. These representations on disposal
13 that you made, you and I had talked about the
14 incinerator and that Monsanto made that available.
15 Okay?

16 A. Yes.

17 Q. Mr. Pappageorge mentioned that he
18 prepared a proposed disposal guideline or he was aware
19 that one had been prepared that he worked on. Do you
20 know anything about that?

21 A. No sir.

22 Q. Did you personally have anything to do
23 with communicating to the customers about the
24 necessity for and the reasons behind the necessity for
25 proper disposal?

1 A. No sir.

2 Q. Did you have any direct dealings with
3 Monsanto customers, and I mean you personally,
4 concerning disposal of the materials at any time
5 during your stay there?

6 A. No sir. Not that I can recall.

7 Q. Are you aware of anyone on your staff,
8 particularly Mr. Wheeler or Mr. Garrett, having
9 contact from customers about proper disposal of the
10 materials?

11 A. No sir. I'm not aware but it could have
12 occurred and I have no recollection of it. That's as
13 far as, I'm not sure.

14 Q. Are you aware of any written
15 communications to customers concerning the necessity
16 for proper disposal of Askarel containing PCB's prior
17 to 1970 other than the material that is attached to
18 these depositions that is before you?

19 A. No sir, I do not recall it. I'm not
20 aware of it at any rate.

21 Q. In connection with the preparation of
22 material that would be submitted to customers of
23 Monsanto was proper disposal within your area as
24 medical director or would that have been in some other
25 area?

1 A. I think it would have been under
2 manufacturing or marketing. It wouldn't be under my
3 area.

4 Q. In connection with the preparation of
5 materials that go to customers I understand that you
6 personally had a role to play in preparing some of the
7 material and in reviewing the material. Who would be
8 your counterparts or would have been your counterparts
9 in manufacturing and marketing?

10 A. When?

11 Q. When this material was prepared?

12 A. You mean before '70?

13 Q. Yes. And if you could Doctor begin with
14 those that might still be alive.

15 A. Sorry?

16 Q. Begin with those that might still be
17 alive.

18 A. That's going to be hard to answer.

19 I think that the marketing director was
20 Howard Bergen, B-e-r-g-e-n, might be the one but
21 that's the only one I can think of.

22 Q. We heard the name Benignus yesterday and
23 Mr. Pappageorge described his relationship to
24 marketing and the communication of information to
25 customers. Do you know if Mr. Benignus had anything

1 to do with it?

2 A. With disposal, I don't know whether he
3 did or not. He's alive to the best of my knowledge.

4 Q. Mr. Berger, is he still alive?

5 A. B-e-r-g-e-n, Bergen. Yes, I think so.

6 Q. Is he active with the company?

7 A. No, he's retired.

8 Q. And he would have been director of?

9 A. Marketing.

10 Q. Do you remember about when he was in that
11 position?

12 A. Late '60's, early '70's.

13 Q. Doctor, did you participate in -- and let
14 me tell you the background against which I'm asking
15 these questions. Mr. Pappageorge described the
16 decision making process that Monsanto used for '70 to
17 '77 which led to reduction of permitted uses of
18 products containing PCB's to the final cessation of
19 manufacture of PCB's. Okay?

20 A. Yes.

21 Q. He described a committee of approximately
22 15 people composed of various representatives of
23 various divisions within the company that would review
24 the uses, make determinations or recommendations as to
25 whether or not that use was to be permitted and then

1 they would recommend to the next order which involved
2 divisions of products involved in the manufacture and
3 sale of the use that they recommended curtailed and
4 then go up to the big dogs who would make decisions.
5 Did you participate in that decision making process?

6 A. No. But I believe probably Wheeler was
7 in that group, that group of 15.

8 Q. Okay. Were you aware that the process
9 was ongoing?

10 A. Yes, I believe that we, the manufacturing
11 people, the marketing people and the medical
12 department, told the executive committee that we were
13 going to cut down the uses where we couldn't control
14 the disposal, for example like we picked carbonless
15 copy paper. There was no way in the world that you
16 can collect all the carbons from throughout the United
17 States that contained PCB's so that operation went
18 out, it was discontinued. We knew the material was
19 used as a plasticizer, there was no way to contain
20 that material so we stopped there. So we stopped all
21 operations right after 1970. I don't know the exact
22 time frame.

23 Q. And were you aware that this decision was
24 being made?

25 A. Yes.

1 Q. Did you have input into the decision in
2 your capacity as the medical director or were you
3 simply just aware of the process?

4 A. I think I was aware of it because I think
5 there were people a lot closer to the end use of the
6 PCB than I was. It was a question of hazard to people
7 as a question of being you contain the material once
8 it's, reaches a final use.

9 Q. I understand that but my question is
10 before I ask you any more questions is did you have
11 anything to do with the decision making process?

12 A. No sir.

13 Q. Was it your understanding that the
14 decision making process was premised on whether or not
15 we can control the disposal of the PCB's?

16 A. Disposal of the product that used, that
17 had the PCB used in it, yes.

18 Q. Right. Okay. And if that product, the
19 disposal of that product could not be contained than
20 the use was discontinued.

21 A. That's correct.

22 Q. Why was the use of PCB's in Askarel which
23 is a closed container system eventually terminated?

24 A. I don't know. It was terminated after I
25 left the company. It was terminated I think in 1977,

1 I left the company in 1974.

2 Q. In connection with the decision making
3 process to terminate open uses or closed uses of
4 products containing PCB's it would appear that someone
5 would have to make a decision as to whether or not we
6 can contain the disposal of the product containing
7 PCB's.

8 A. Yes.

9 Q. Do you know if anyone within Monsanto
10 made that kind of decision before you left the
11 company, in connection with Askarel, liquids
12 containing PCB's designed for use in transformers?

13 A. No, I don't think they did. Because I
14 know that they were encouraged by the Government to
15 keep manufacturing material because there were places
16 that it was absolutely impossible to do without the
17 Askarel, there was no statute in subways, in the White
18 House, the transformers at Busch Stadium where it was
19 important to have a fire resistant product and there
20 was no fire resistant statute at that time.

21 Q. They were using Askarel or they did in
22 the White House?

23 A. Yes. The transformers in the White
24 House.

25 Q. Are you sure it doesn't have some

1 toxicological effect --

2 A. We never tested it for that.

3 (DISCUSSION HELD OFF THE RECORD.)

4 A. I might add that we withdrew, one of the
5 reasons that we withdrew from those operations was
6 that statutes were available. They were available for
7 plasticizers, I think they were available for
8 carbonless copy paper but for the dielectric uses
9 there were no statutes at that time. They were
10 non-inflammable.

11 Q. (By Mr. Terry) In connection with the
12 continued protection of Askarel as a dielectric are
13 you personally aware of Government insistence on
14 continued production or was that something you just
15 heard about?

16 A. Something I just heard.

17 Q. Can you associate it with any Government
18 offices, agencies or names?

19 A. No sir, I cannot.

20 Q. Is there any way for you to arrange these
21 documents in chronological order? We asked
22 Pappageorge to do this and he just about shot us.

23 A. I don't think so.

24 Q. I figure the ones with the pixies on them
25 are pretty old but beyond that I can't tell.

1 A. (Reviewing Document).

2 Q. What I'd like you to do Doctor is I would
3 like you to take a moment to review some of that
4 literature and identify the particular passages that
5 you did or worked on.

6 A. Okay.

7 Q. If you wouldn't mind taking about five or
8 ten minutes to do that.

9 A. (Reviewing Document).

10 (DISCUSSION HELD OFF THE RECORD.)

11 MR. HALL: Mr. Terry, Dr. Kelly has
12 looked through Discovery Exhibits No. 7, 18, 19, 14,
13 9, 13, 8, 3, 2, 4, 15, 5, 12, 11, 10, 16 and 17 and of
14 course as you can appreciate he has not had time to
15 read every word in all of these documents and he has
16 separated the ones that he feels he did have some
17 input into and we have tried to mark them with a paper
18 clip for your ease of location and the ones that he
19 feels that he did have input into are numbers 7, 18,
20 19, 14, 9, 13, 8, 3, 2, 4 and 15. (Indicating).

21 Q. (By Mr. Terry) Doctor, Exhibit No. 7 is
22 an instrument that is dated 1900 and 60 on the bottom.

23 A. Yes.

24 Q. And then you have paper clipped a section
25 that deals with --

1 A. Dermatology And Toxicology.

2 Q. Right.

3 A. Pages 98, 99 and 100.

4 Q. Do you know if there was a document that
5 existed before 1900 and 60 that served the same
6 function as Exhibit No. 7?

7 A. I'd have to assume it because it says it
8 was revised in January of 1960 so presumably there was
9 one before that.

10 Q. I did the same.

11 Do you know or can you remember whether
12 or not the toxicological information in the prior
13 document or documents was the same as the information
14 in Exhibit No. 7?

15 A. Well I don't know. I mean I don't know
16 without seeing it. There was no change in the
17 information -- well, I just don't know because I don't
18 know when that other document was. If it were written
19 in the '50's there's some information that we have in
20 this document we would have had in the 1950's but I
21 can't answer the question.

22 Q. Can you identify for me from Exhibit 7
23 the information communicated in '60 that you wouldn't
24 have had available in the '50's in that section that
25 was your responsibility?

1 A. (Reviewing Document). Yes. On Page 99
2 in the first paragraph the experimental work in
3 animals indicates that the maximum safe concentration
4 of vapors in work rooms is in the range of 0.5 to 1.0
5 milligrams per cubic meter of air. This work was done
6 in 1954 and 1955.

7 Q. Would the information about safe
8 concentrations in vapor have been available after the
9 work in 1955?

10 A. Yes.

11 Q. Was there any safe concentration in vapor
12 published prior to 1955?

13 A. I do not believe there was. Well, I
14 can't answer that because there had been some work
15 done on one or two isolated Arochlors done by Trinker
16 back in 1938 he did some vapor inhalations but I do
17 not know if that was published by the American
18 Conference of Government Industrial Hygienists who
19 were the people that put out these safe levels and I
20 know they used these fish after 1954 or '55 to arrive,
21 to publish their safe level but I do not know if they
22 had one before that.

23 Q. Trinker. Have you mentioned his name
24 before?

25 A. Yes.

1 Q. Is he that fellow at Harvard?

2 A. Fellow at Harvard, yes.

3 Q. Was there any published safe level in
4 vapor that Monsanto published prior to 1955?

5 A. No, I do not believe so.

6 Q. Were there any directions or guidance
7 given about concentrations in vapor in any sense prior
8 to 1955?

9 A. No sir. Except elevated temperatures are
10 in confined spaces but no mention of concentration was
11 made.

12 Q. Was the use of vapor concentrations as
13 stated in the 1960 publication a common term used
14 prior to 1960?

15 A. You mean the actual fish?

16 Q. Not the fish but the use of that kind of
17 threshold where you define it in terms of milligram
18 per cubic foot of air.

19 A. Well it was used, again the ACGIH group
20 published a set of standards for any number of
21 chemicals, 50 or 100, which they called it first the
22 maximum allowable concentration then the threshold
23 limit value, they changed that. These were published
24 but they were not used much until OSHA came out in
25 '70's and that sort of either mandated or recommended

1 people analyze for concentrations. They were not done
2 routinely at all in the industry.

3 Q. Prior to that time.

4 A. That's correct.

5 Q. Other than the information that you have
6 identified pertaining to vapor concentrations
7 contained in the 1960 manual as far as you can
8 remember was every other element of information
9 communicated in earlier publications? Or were there
10 any other changes or additions made in 1960?

11 A. (Reviewing Document). No sir. Except
12 back in 19 -- did you say prior to '60 or after?

13 Q. Prior to '60.

14 A. No there were not.

15 Q. After '60 were there any changes made?

16 A. Yes. We went to synthetic rubber gloves,
17 we added that in our bulletins.

18 Q. Is the information contained in that
19 deposition exhibit that we're reviewing now the basic
20 toxicological information that Monsanto communicated
21 to its customers?

22 A. When?

23 Q. At all times?

24 A. No. Because we didn't do the two-year
25 feeding testing, that was done in 1968 to '70 or '71.

1 Q. Then prior to the two-year feeding
2 testing was that the basic toxicological information
3 communicated by Monsanto to its customers?

4 A. Yes.

5 Q. At all times?

6 A. Yes.

7 Q. In your opinion is that sufficient
8 information about the toxicological properties or
9 toxicity of the product to be communicated to a user
10 of Askarel like a utility company? Is that enough for
11 them to know?

12 A. Yes.

13 Q. Is there anything in the material that
14 you prepared and have reviewed today that indicates
15 that the toxicity such as it is persists even when the
16 liquid is to be disposed of? Do you mention that one
17 way or another?

18 A. No we did not mention it one way or the
19 other.

20 Q. In the material that you prepared that
21 you are looking at in that exhibit is there any
22 direction or guidance given as to disposal or proper
23 disposal of the material?

24 A. I didn't overlook it for that.

25 Q. Not the book generally but just in the

1 material that you prepared?

2 A. No.

3 Q. Was that book ever supplemented after
4 1960 prior to your departure from the company in 1974
5 with additional information pertaining to the
6 toxicology of the product?

7 A. I don't know when the information
8 concerning long term feeding tests was written or I'm
9 not even sure whether it was included in our bulletins
10 because at that time we were getting out of them, I
11 mean the toxicity information was sent to various
12 groups of the Government, it was sent to our various
13 customers by letter but I'm not certain whether we had
14 bulletins about it or not.

15 Q. In connection with the two-year feeding
16 study.

17 A. Yes.

18 Q. Can you describe for me the basic
19 parameters of the test?

20 A. Sure. You take two species of animals,
21 usually a rodent rather, both sexes, dogs and you feed
22 them three levels. You feed them material mixed with
23 their food. You feed at a level that you are pretty
24 sure will cause some trouble, that's the top level.
25 Then you pick one that you know as well as you can you

1 assume it will not cause any trouble then you try to
2 get one in the middle. So generally 100 parts per
3 million, 10 parts per million then one part per
4 million. You feed that for two years. Before you go
5 into the two years testing, it really takes three
6 years to run a two-year test because you have to get
7 the animals, quarantine them, make sure they're well
8 then you got to do rank finding tests because there's
9 no sense starting off with a series of doses that have
10 the animals die six months down the road.

11 Q. It would make record keeping for the next
12 18 months easy.

13 A. You would have to keep them in a deep
14 freeze.

15 So it takes about six months to do all
16 that. Then at the end you run pathology on the
17 animals, you sacrifice some along the way to see how
18 they're going and then at the end you do microscopic
19 examination of 15 or 20 different tissues.

20 Q. Now was this test performed at your
21 place?

22 A. Yes.

23 Q. Did you do it yourself?

24 A. I made the request, certainly.

25 Q. Was it run by your people?

1 A. No. It was outside laboratory,
2 commercial laboratory.

3 Q. Do you remember the name --

4 A. Yes, Industrial Biotest Laboratory.

5 Q. Were the results published generally or
6 just communicated to you?

7 A. I do not believe -- well, we were sent
8 the reports but I sent the reports to the FDA and
9 Department of Agriculture, EPA got those, a lot of
10 Government people as well as our large transformer
11 customers.

12 Q. What were the results?

13 A. Well nothing happened to the dogs over
14 two years, at all levels the dogs were all right. At
15 100 parts per million we did have liver problems in
16 the 100 parts per million in some of the, we ran three
17 different PCB's, I think we ran either 42 or 48, 54
18 and 60 and we ran, we got liver problems with probably
19 all three to the best of my recollection at 100 parts
20 per million.

21 Q. In the rodents?

22 A. Yes, in the rodents.

23 Q. And what happened to 10 parts per
24 million?

25 A. I think there were some minor changes but

1 not nearly as conclusive as the, in the 100 parts per
2 million. One part per million was clean.

3 Q. In connection with the toxicological
4 information that would be communicated to a user as a
5 result of that test how would that modify the
6 information you would communicate?

7 A. Well we really didn't -- you said a
8 person, a brochure listing a bunch of toxicological
9 information. I mean I think that's an exercise in
10 futility because they're not --

11 Q. No, don't misunderstand me. I understand
12 that you take the data and you put it in terms that
13 the user can understand as you did in Deposition
14 Exhibit No. 7 and you had indicated to me that you
15 were not certain if that data was modified because of
16 the two year animal study and so my question is if it
17 was modified by the two-year animal study how would
18 you have modified it?

19 A. I don't think we would have modified it
20 at all because we weren't expecting people to eat the
21 stuff or to eat this every day for their lifetime so a
22 two-year feeding test is a two-year lifetime study in
23 a rodent, that's all they live. Two years, 28 months,
24 something like that. So it wouldn't have modified our
25 safe handling procedures or our recommendations as to

1 avoiding any problems.

2 Q. In connection with Deposition Exhibit No.
3 7 and it's predecessors or successors if any what kind
4 of distribution does it receive? Who gets this? Do
5 you know?

6 A. I don't know.

7 Q. These exhibits, 18, 19, 16, 9 and 15 all
8 bear the title Inspection And Maintenance Guide.

9 A. Yes.

10 Q. And I assume that they are a series of
11 publications under the same title, Inspection And
12 Maintenance Guide. Okay?

13 A. Yes.

14 Q. When you reviewed that portion that you
15 provided input for did the input change at all over
16 the life of this publication?

17 A. No sir. I don't think so at all.

18 Q. Did you look at it for that?

19 A. It looked like it was pretty much the
20 same all the way through. (Reviewing Document).

21 Q. Generally speaking Doctor does the
22 information show up in the section of the manual
23 dealing with handling?

24 A. Page 4 and 5, yes.

25 Q. And it shows up where you, there's the

1 section that talks about using ordinary personal
2 precautions.

3 A. Yes. And then the next page.

4 Q. But that's the section where the
5 information shows up.

6 A. Yes.

7 Q. And the information shows up in the same
8 place in each of the manuals?

9 A. I think so. (Reviewing Document). These
10 two are the same. I think they're all the same.

11 MR. HALL: You want him to check and see?

12 A. I want to check, I want to be sure.

13 Q. (By Mr. Terry) Take your time.

14 A. (Reviewing Document).

15 (DISCUSSION HELD OFF THE RECORD.)

16 Q. (By Mr. Terry) These deposition exhibits
17 that are all labeled Inspection And Maintenance
18 Guide, do you know what the distribution for this
19 is, who gets these?

20 A. No, I don't. I have to assume but I
21 don't want to assume all our customers. I don't know.

22 Q. Is, and since the information that was
23 communicated about the safe handling or the
24 toxicological information is the same throughout it
25 doesn't really make any difference when they were

1 submitted, it's always the same information from your
2 perspective; correct?

3 A. Yes.

4 Q. Do you know if there's any way to arrange
5 them in chronological order?

6 A. No sir, I don't.

7 Q. Now these that have, this one that has
8 the title Care and Grooming of Askarel Fluid, the
9 section that you identified as being yours is again is
10 it the safe handling section?

11 A. Yes.

12 Q. Do you know what the distribution on this
13 was? Is this promotional material or is this material
14 that a purchaser gets or have any idea?

15 A. I haven't the slightest idea. I don't
16 think I've ever seen one of these before.

17 Q. Okay. This, the technical bulletin that
18 is Deposition Exhibit No. 8 --

19 MR. HALL: For the record the document he
20 just referred to in that last answer was Discovery
21 Exhibit No. 13.

22 MR. TERRY: Okay.

23 A. (Reviewing Document).

24 Q. (By Mr. Terry) In the technical bulletin
25 could you give me the page numbers that you have

1 clipped?

2 A. 17.

3 Q. And what is the title of the section if
4 it has one?

5 A. Dermatology and Toxicology.

6 Q. Okay.

7 A. And there's also a section on page --
8 don't have a page.

9 MR. HALL: It's not numbered.

10 A. But it follows -- there's no page number
11 on it.

12 Q. (By Mr. Terry) At the bottom there
13 should be a xerox copy of a sticker that I added.

14 Q. This is 202-002240 is the page.

15 A. The other page then --

16 Q. That's all right. What is the section?

17 A. Safe Handling.

18 Q. Is the information communicated in the
19 safe handling section essentially the same as the
20 information in the Inspection and Maintenance Guide?

21 A. No. This is now a later one because they
22 talk about avoiding environmental contamination with
23 PCB's and they talk about facilities for proper
24 incineration and they talk also about how PCB fluid
25 should be removed from solid scrap. That information

1 was not my part of the paragraphs.

2 Q. Okay. In terms of the information that
3 was your part of the paragraphs it was essentially the
4 same as had been communicated earlier.

5 A. Well --

6 Q. I'm not talking about Page 18 yet, I'm
7 talking about just the last page, the safe handling
8 page. That's essentially the same information that
9 you had been communicating before.

10 A. Yes.

11 Q. Now the other part, Page 18?

12 A. Yes.

13 Q. Now that's the part that was labeled
14 Dermatology and --

15 A. No, that's 17. Dermatology and
16 Toxicology.

17 Q. I'm sorry. Is that new information?

18 A. It's not new, I don't know why they put
19 in this information about the patch testing on people
20 because that was done when the material was being
21 advocated as a plasticizer and so we ran patch tests
22 to see if there would be any irritation or sensitivity
23 so if a baby were sitting in an automobile seat cover
24 that Aroclor is a plasticizer so what that has to do
25 with transformers I don't know but that's information

1 they obtained from us on, was in other bulletins and I
2 think they just transposed it into this.

3 Q. Do you know what the date of that
4 technical bulletin is?

5 A. Date of what?

6 Q. The bulletin, the technical bulletin?

7 MR. HALL: Exhibit No. 8.

8 A. No. But it's after we had the
9 incinerator because they talk about --

10 MR. HALL: Is there a date on the front?

11 A. No. I don't know why they never dated
12 these things. They must have had their own code
13 somehow or other. Well there's a thing down here 8/71
14 on Page 7202-002241 that's listed 8/71. I would
15 assume that's the date.

16 Q. (By Mr. Terry) Approximate date of
17 production. And we can verify that it was after the
18 incinerator went on line because there is reference
19 there to the incinerator.

20 A. That's correct.

21 Q. Do you know if that technical bulletin
22 replaced, that is this particular one that is
23 Deposition Exhibit No. 8, replaced a technical
24 bulletin that was currently in publication or was this
25 a brand new document?

1 A. I'm sure it was brand new because there
2 certainly has been technical bulletins on Arochlors
3 for a long time so I'm sure whether it replaced or was
4 an addition I do not know but this is specifically
5 directed to capacitors and transformers and I don't
6 know if they had a specific bulletin on capacitors and
7 transformers before or not, I don't know that.

8 Q. Do you know if there was a technical
9 bulletin on Ascholors prior?

10 MR. HALL: On what?

11 Q. (By Mr. Terry) Askarel. Do you know if
12 there was a technical bulletin that would have covered
13 Askarel?

14 A. I don't believe there would be because I
15 think it would be under Monsanto's trade name of
16 Arochlors. Askarel is a generic like aspirin then
17 there's Bayer aspirin, St. Joseph aspirin only they
18 have different names so I don't think, there may or
19 may not have been an Askarel technical bulletin, I
20 don't know.

21 Q. Okay. In that technical bulletin you had
22 alluded to the information on Page 18.

23 Q. Yes.

24 Q. Okay. And we can tell that that
25 particular page had to be prepared after 1971 because

1 the reference to the Monsanto incinerator is there.

2 Okay?

3 A. Yes.

4 Q. Do you know if the information contained
5 on Page 18 had been contained in a technical bulletin
6 prior to 1971 save and except for that element we know
7 couldn't have been there before the incinerator went
8 on line?

9 A. I don't know.

10 Q. Do you know if there was any other
11 publication that Monsanto made available to customers
12 that contained this kind of instruction about disposal
13 prior to 1971?

14 A. I do not know that.

15 Q. Now Exhibit No. 3 had to be after 1971;
16 correct?

17 A. Yes.

18 Q. What involvement did you have in the
19 preparation of that?

20 A. No sir.

21 Q. It was clipped.

22 A. This part was on it.

23 Q. I'm with you. I think that Mr.

24 Pappageorge indicated that those two pages that you're
25 looking at generally came together. That may have

1 been why.

2 A. Yes. I had the precaution statement.

3 Q. And that would have been done after 1971?

4 A. Yes.

5 Q. And then the same with --

6 A. If this was on it that was after '71 but
7 if the statement of environmental, being an
8 environmental contaminant that could have been 1970.

9 Q. And then this one, which exhibit number
10 is that?

11 MR. HALL: No. 4.

12 Q. (By Mr. Terry) No. 4, essentially the
13 same as the prior in terms of the information
14 communicated?

15 MR. HALL: 2 and 3.

16 A. Yes.

17 Q. (By Mr. Terry) Okay. Now do you know
18 what these things are that we're looking at? What
19 this is?

20 A. What what is?

21 Q. Is it a sticker that goes on a 55 gallon
22 drum?

23 A. That's the whole label.

24 Q. That's the whole label?

25 A. Yes.

1 Q. Did this label replace the kind of labels
2 that had been used before?

3 A. It replaced it as far as this was
4 concerned. (Indicating). When they were changing the
5 labels -- now I don't know if this was on an Inerteen
6 PPO label or not. When they were changing the labels
7 they had a sticker they put on until they got the new
8 labels then they discarded the old label which had the
9 cautions and had a label that contained both the
10 cautions, the waste disposal and the environmental
11 problems.

12 Q. The information that was on the caution,
13 contains chlorinated hydrocarbons, would that
14 information have been contained on all the labels?

15 A. Yes.

16 Q. Whenever the material went out.

17 A. Yes.

18 Q. The stuff on the other one which is some
19 studies have shown may be persistent, an environmental
20 contaminant, that sort of thing right there?

21 A. Yes.

22 Q. That information had to be put on the
23 labels after those studies which would have been '68
24 to '70; right?

25 A. Yes.

1 Q. Do you know when the decision was made to
2 put this information on the labels?

3 A. Some time around 1970 give or take six
4 months.

5 Q. Now that information, that section that
6 I'm asking you to review also says extreme care to be
7 taken to prevent any entry into the environment. Do
8 you see that section?

9 A. Yes.

10 Q. Do you know if there was anything on the
11 prior labels which referred to disposal that this
12 sentence replaced?

13 A. No sir, I do not know of any.

14 Q. Do you know why the decision was made to
15 include this on the label in 1970? Did you
16 participate in that decision?

17 A. Yes because the material was showing up
18 in fish and the avian species and it hadn't been
19 showing up before 19, well it first showed up in 1968
20 but there was no harm, '66 or '68 I guess but there
21 was no evidence of any harm for another year.

22 Q. Do you know if the prior labels contained
23 any directions, any suggestions, any reference to
24 disposal of the material or spills, leakage or use in
25 any way, shape or form prior to 1970?

1 A. I do not know that either.

2 Q. Okay. Thank you sir, that's all I have.

3 EXAMINATION

4 QUESTIONS BY MR. HESTER:

5 Q. Hello Dr. Kelly, my name is Tracy Hester,
6 I'm here representing Houston Lighting and Power
7 Company and I have only a few questions for you.

8 When you were working at Monsanto as
9 director of the medical department did you have
10 responsibility for investigating employee health or
11 safety issues?

12 A. Of Monsanto employees, yes.

13 Q. For example if a Monsanto employee
14 claimed that he had gotten a particular condition from
15 a Monsanto product would you have been the person to
16 investigate that claim?

17 A. Yes. It depends on the condition.
18 Suppose a man had a skin rash down in our Texas City
19 plant the plant doctor would take care of it but if a
20 man complained that he had an occupational illness,
21 that he had selenosis or hepatitis, that information
22 would come to me and I would discuss it with our plant
23 doctor and decide on investigating it, yes.

24 Q. And even if an employee -- strike that.
25 Even if the information does not arise

1 from a report from an employee but say for example
2 Monsanto simply noticed that there was an incidence of
3 a particular condition among several of its employees
4 would you have investigated that as well?

5 A. Yes. Because I made weekly or yearly
6 visits to all the plants and I would check with the
7 plant doctor and the plant nurse as to whether there
8 was any clustering of conditions there.

9 Q. In discharging that responsibility did
10 you ever get information indicating that there was a
11 link between PCB exposure and Hodgkin's disease?

12 A. No sir. I was never aware of any such
13 link either in Monsanto employees or in the medical
14 literature.

15 Q. Okay. In discharging those
16 responsibilities did you find any link between PCB's
17 and any kind of kidney disfunction?

18 A. No sir. There has been no report of any
19 in our employees and no report of any such occurrences
20 in the literature.

21 Q. I have no more questions for you.

22 EXAMINATION

23 QUESTIONS BY MR. MCCAUL:

24 Q. My name is Mike McCaul I represent the
25 United States in this lawsuit. We've been brought in

1 by the Monsanto Corporation into this lawsuit. The
2 allegations that Monsanto has made against the United
3 States are that we through one of our agencies
4 delivered batteries and transformers to the site that
5 is in question in this lawsuit. Do you have any
6 knowledge whatsoever about these allegations?

7 A. It's the first I ever heard of it.

8 Q. I believe off the record during the break
9 you asked me why the United States was in the lawsuit,
10 I responded it's a good question you should ask your
11 attorney. Do you remember that conversation?

12 A. Yes, I do.

13 Q. Do you have any documents or any
14 knowledge of any sale of PCB's or dielectric fluid to
15 the United States in the Corpus Christi area?

16 A. No sir, I do not.

17 Q. As to the health effects or risks of
18 exposure to PCB's you said chloracne was the only
19 symptom that has arisen from your experience that you
20 have seen from exposure?

21 A. Now are we talking about -- first of all
22 let me explain myself.

23 Q. Okay.

24 A. I have seen no chloracne in electrical
25 workers. I have seen no chloracne in Monsanto workers

1 who worked with PCB's. I have seen one instance of
2 chloracne in women who were working in a thermometer
3 factory in which they were making these blow
4 thermometers for ovens or something sort of like the
5 size of an onion in a leather container and they would
6 dip these things into the Arochlor to fill them up and
7 they developed chloracne and it was interesting
8 because that's the first I had heard of it, of
9 chloracne and I wanted to see it so I went up there.
10 It was someplace in New York and I said why don't you
11 get some sort of a gimmick like a forceps so you don't
12 have to put your hands in there so they did it and
13 that was it. That was the only chloracne that I know
14 of in the United States. There may have been some
15 chloracne reported in foreign literature in capacitors
16 but I am not too familiar with that. There have been
17 two acute episodes that I know of where people were
18 using Arochlors or PCB's in heat transfer units.
19 These were acute episodes where there were
20 installations that they developed chemical hepatitis
21 and they talked to me about it and I followed it up
22 and they did all recover but there were acute
23 episodes, two cases, I mean two instances, that's all
24 I know.

25 Q. And the latter cases involved elevated

1 temperatures?

2 A. Yes. Quite elevated.

3 Q. Do the properties change when the
4 temperature is elevated?

5 A. No. But you get more chances of
6 exposure. In other words you can have a pan of PCB's
7 on the floor and you can breathe it all day because
8 the vapor progresses so low you wouldn't get any
9 problem. But if you heat it you evolve the vapors so
10 it's a question of the amount of exposure rather than
11 the properties changing.

12 Q. PCB's as I understand are not volatile?

13 A. Very little. You can smell them but it's
14 a very low vapor. The higher ones, you can't smell
15 them at all at room temperature.

16 Q. Only when the temperature is elevated
17 will they vaporize?

18 A. I think if you, they'll vaporize over a
19 couple years I mean if you have a saucer full of PCB's
20 and you left it someplace 10 years later you may not
21 have it but it's a very slowly vaporizing material.

22 Q. Are you familiar with PCDF?

23 A. Sure.

24 Q. Could you explain to me what that is?

25 A. Well it's a contaminant that occurs in

1 PCB's. It's dibenzofuran, it occurs at a certain
2 window in the temperature range, in other words if you
3 start with a PCB and heat it up to like 600 degrees
4 Fahrenheit, I'm not too sure about this, between 600
5 degrees and 800 degrees, you will develop
6 dibenzofurans. If you raise the temperature over that
7 you will destroy the dibenzofurans.

8 Q. Am I correct then in saying that the
9 properties do change when the PCB's are heated if they
10 change into PCDF does that change the properties?

11 A. Yes. It doesn't change the properties it
12 adds, you got a different compound in there. I mean
13 you have both PCB's -- that doesn't change
14 immediately, you don't take two ounces of PCB's and
15 heat it up to 650 and get two ounces of dibenzofurans,
16 you get a certain percentage of them. 20 parts per
17 million, 50 parts per million, something like that.

18 Q. Is there more of a risk with PCDF's as
19 opposed to PCB's?

20 A. I think inherently the PCDF's are more
21 toxic than PCB, yes, by several magnitudes.

22 Q. So PCB's and the non-elevated temperature
23 state would be less, of less risk.

24 A. Then you have got to qualify exposure. I
25 mean PCB's have not shownn any risk in industrial use

1 as mentioned by your exception to chloracne, as
2 mentioned by your Government expert Kimbraugh.

3 Q. By Kimbraugh, that's correct.

4 The Inerteen, is that the brand name?

5 A. That's the trademark name of
6 Westinghouse.

7 Q. What type of PCB is Inerteen?

8 A. I think 60 percent, 12, 60 and 40 percent
9 trichlorbenzene.

10 Q. When you observe the chloracne, and this
11 as I understand it were people in direct contact with
12 the fluid; right?

13 A. Yes.

14 Q. So you would have to actually pour the
15 liquid onto you I assume to develop that?

16 A. Well presumably. I mean chloracne occurs
17 from a lot of things. It occurs, you can get it from
18 agricultural chemicals, you can get it from
19 'penachloraphenal', you do not get chloracne from the
20 access of the material on the skin, you get it from
21 the absorption of the material and it causes systemic
22 reaction which causes the chloracne. Now there's a
23 condition very close to chloracne that's something
24 like boils and whether these people back there had
25 that or chloracne, back in the thermometer business

1 had that or chloracne I'm not so sure because it was
2 only on their arms, it was not anyplace else and the
3 chloracne I've seen in agricultural workers and wood
4 treating chemical workers has occurred not at the
5 place of contact but other places on the body like the
6 chin, the cheeks, places like that.

7 Q. Typically chloracne is found on the face
8 and behind the ears?

9 A. And the back, yes.

10 Q. That's typically on the arms you said?

11 A. That's a contact thing.

12 Q. Wherever they come in contact with it.

13 A. That's correct.

14 Q. Is that associated with PCB exposure?

15 A. I don't think so.

16 Q. Do you know what the cause of that is?

17 A. I think it's probably clogging up of the
18 sweat follicles, the hair follicles and sweat glands
19 with the oil and you get infection under it.

20 Q. Do you know who made the determination to
21 ban PCB production in the United States?

22 A. Well the Government banned it two years
23 after we stopped making it but certainly the
24 management of the company made the decision, I didn't
25 make it. The CEO made it.

1 Q. Right.

2 A. But he was acting on advise from a lot of
3 different people.

4 Q. Most likely EPA and OSHA?

5 A. Well no, they weren't in the act at that
6 time. We stopped it because statutes came out. They
7 came out with silicones or I don't know what the --
8 this happened after I left so I'm not so sure but
9 Monsanto stopped manufacturing it two years before the
10 Government banned it.

11 Q. Okay. I'm just about ready to wrap this
12 up.

13 As far as any type of liver problems that
14 could be associated with PCB exposure first of all as
15 I understand it it's your testimony that liver
16 problems are not the result of exposure to PCB's.

17 A. I didn't say that. I said there have
18 been acute exposures and I also said that animals have
19 shown liver problems after prolonged feeding with
20 PCB's but I said there have been no evidence of any
21 liver problems in industrial workers exposed to PCB
22 and no liver problems to anybody as far as I'm
23 concerned.

24 MR. HALL: You mentioned two cases of
25 hepatitis.

1 A. With the exception of the acute
2 exposures.

3 Q. And I suppose the objection would be
4 anything acute?

5 A. What?

6 Q. Industrial would not include ingestion.

7 A. Vapor, you don't expect a person to drink
8 an industrial compound.

9 Q. I'm just referring to the Yusho cases.
10 You have to have very extreme cases.

11 A. Yes. There you had very high, first of
12 all Yusho was not a Monsanto PCB.

13 Q. Form for Monsanto, right.

14 A. It's made by a process, it's also had
15 levels of dibenzofuran that were high and then it was
16 a heat transfer unit that heated the material again
17 and then the Japanese and the Chinese 'Ye Chang'
18 episode heated this rice oil in woks or whatever they
19 used to heat the stuff to have their soybean pancakes
20 out of it, make the soybean pancakes so the Japanese
21 site as a permanent conclusion that it was the severely
22 elevated levels of dibenzofurans.

23 Q. So you're dealing with PCDF's again.

24 A. That's correct.

25 MR. MCCAUL: I have no further questions.

1 MS. ANOUILH: No questions.

2 MR. TERRY: Just a couple.

3 EXAMINATION

4 QUESTIONS BY MR. TERRY:

5 Q. (By Mr. Terry) When did you become aware
6 that PCDF's had a degree of risks several magnitudes
7 higher than PCB's?

8 A. About the time of the Yusho episode and
9 that was in 1965, I believe.

10 Q. Did you know before that that PCB's
11 degenerated into PCDF's in the presence of heat?

12 A. First of all they do not degenerate into
13 it, you can get the presence of dibenzofurans, PCDF's,
14 from the application of certain levels of heat. They
15 do not degenerate into it in a transformer for
16 example. You don't get it from the use of a
17 transformer. Because there's no oxygen in there.

18 Q. When did you realize that PCB's in the
19 presence of heat can become associated with PCDF's?

20 A. 1966, '67, around then.

21 Q. Do you know what happens when the body or
22 does the body metabolize PCB's?

23 A. Well they store it and then they
24 eventually get rid of it, sure.

25 Q. Do you know the process by which the body

1 metabolizes PCB's, what they become?

2 A. No sir, I don't.

3 Q. Thank you. That's all I have.

4 MR. HALL: I don't have any questions for
5 you Dr. Kelly.

6

7

DR. EMMET KELLY

8

9

IN WITNESS WHEREOF, I have hereunto set my
10 and and seal _____.

11

My commission expires _____.

12

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[NOTARY PUBLIC]

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NOTARIAL CERTIFICATE

STATE OF MISSOURI)

)

CITY OF ST. LOUIS)

I, SUZANNE BENOIST, a Registered Professional Reporter and a duly commissioned Notary Public within and for the State of Missouri, do hereby certify that DR. EMMET KELLY, the witness whose deposition is hereinbefore set forth, was duly sworn by me and that this transcript of such deposition is a true record of the testimony given by such witness.

I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand and seal July 23, 1991.

My Commission expires October 7th, 1991.

NOTARY PUBLIC

KARPOWICZ REPORTING COMPANY
316 Merchants Laclede Building
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July 16th, 1991

Woodard, Hall & Primm, P.C.
7000 Texas Commerce Tower
Houston, Texas 77002
ATTN: MR. ROBERT A. HALL

RE: HOLLAND VS. MONSANTO

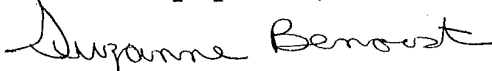
Dear Mr. Hall,

This letter, incorporated as the last page of the deposition of DR. EMMET KELLY taken on June 28, 1991 will serve as notice to you that the testimony is now ready for reading and signing of same.

I have enclosed the original transcript along with an errata sheet on which any necessary corrections should be made.

After the transcript has been reviewed and the signature page signed and notarized please return it to Mr. Terry so that the original transcript can be filed with court.

Sincerely yours,



SUZANNE BENOIST
REGISTERED PROFESSIONAL REPORTER

91-170

KARPOWICZ REPORTING COMPANY
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