

1 IN THE CIRCUIT COURT OF THE CITY OF ST. LOUIS

2 STATE OF MISSOURI

3
4 GLENN BROWN, et al,

5 Plaintiffs,

6 vs.

Cause No. 862-00694

7 MONSANTO COMPANY,

8 Defendant.

9
10
11
12 Volume IV

13 Deposition of R. EMMET KELLY, M.D.

14 On behalf of Defendant

15 June 13, 1990

16
17
18 QUESTION FOR CERTIFICATION

19 Pg. 46, Ln.1

20 Q I would ask you to bring it with you Friday
21 so that you may fully amplify all the --

22
23
24 WALLER REPORTING, INC.

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11 DEPOSITION OF R. EMMET KELLY, M.D., produced,
12 sworn and examined on behalf of the Defendant, June 13,
13 1990, between the hours of eight o'clock in the forenoon
14 and five o'clock in the afternoon of that day, at the
15 offices of Communitronics, 1907 S. Kingshighway, St.
16 Louis, Missouri, before TOD MINNIGERODE, a Certified
17 Shorthand Reporter and a Notary Public within and for the
18 State of Missouri.

19
20
21 A P P E A R A N C E S

22 The Plaintiff was represented by Mr. Thomas M.
23 Carney of the law firm of Husch, Eppenberger, Donahue,
24 Cornfeld & Jenkins, 100 N. Broadway, St. Louis, MO 63101.

25
26 The Defendant was represented by Mr. David
27 McCrea, of the lawfirm McCrea & McCrea, 119 South
28 Walnut Street, Bloomington, Indiana 47402.

1 IT IS HEREBY STIPULATED AND AGREED by and
2 between Counsel for the Plaintiff and Counsel for the
3 Defendant, that this continued deposition may be taken in
4 shorthand by TOD MINNIGERODE, a Certified Shorthand
5 Reporter and Notary Public, and afterwards transcribed
6 into typewriting, and signed by the witness.

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9 o-o-o

10
11 R. EMMET KELLY, M.D.,
12 of lawful age, being produced, sworn and examined on the
13 part of the Plaintiffs, deposes and says:

14 EXAMINATION

15 QUESTIONS BY MR. MC CREA:

16 Q Good morning Dr. Kelly.

17 A Good morning, sir.

18 Q Dr. Kelly, could you describe for me
19 conditions which you would consider unsafe in a industrial
20 setting with respect to the use of PCB's and worker
21 exposure?

22 A I think wherever a worker's exposed to
23 repeated or continuous skin contact or breathing the fumes
24 at elevated temperature or possibly in confined spaces for
25 prolonged periods of time that would be unsafe.

1 Q Doctor, could you give us your definition of
2 a significant exposure to PCB's?

3 A No, sir. It varies all over the place. I
4 couldn't quantify that.

5 Q After Paul Wright was indicted do you know if
6 there was any review of the long term PCB studies which
7 Monsanto contracted with I.B.T. to perform, was there any
8 review by Monsanto?

9 A Yes. Dr. Levinskas reviewed it.

10 Q Did he review it as a result of the
11 indictment, i.e., to look for particular shortcomings?

12 A I don't know. I was gone from the company at
13 that time.

14 Q You don't have any independent knowledge of a
15 review by Monsanto of the data as a result of the
16 indictments?

17 A Well, I don't know what you mean by
18 independent knowledge. I have talked to Dr. Levinskas and
19 he said I checked it all over, I checked figures and it
20 looks fine to me. He said, I'm sure the government has
21 reviewed it; they are as interested as we are. They have
22 copies of the results, we have never heard anything pro or
23 con from the government.

24 Q Do you know which agency of the government
25 was involved in reviewing it?

1 A It would be the FDA. Remember the PCB work
2 was not to the best of my knowledge a subject of this
3 trial.

4 Q I agree and that's stipulated.

5 A Yes.

6 Q Did Monsanto ever construct any chemical
7 analyses to determine if dioxins were a contaminant of
8 PCB's?

9 A I'm sure not only Monsanto did but the EPA
10 did and at no time were dioxins found. In fact
11 scientifically they could not occur from PCB.

12 Q Did Monsanto conduct any studies to determine
13 if dioxins were a byproduct of the heating of PCB's?

14 A I can't be sure, but it certainly has been
15 conducted by other people and the same answer is the
16 government has stated -- the government meaning the EPA
17 has tested PCB's as far as the presence or occurrence of
18 dioxins under any kind of conditions and they do not occur
19 for PCB.

20 Q Do you know if there have been any studies in
21 which trichlorobenzene and PCB as a transformer fluid have
22 been tested to determine if heat produces dioxins?

23 A I don't know if they have been tested
24 together. Trichlorobenzene will produce dioxins under
25 certain conditions.

1 Q Would it be your opinion that there would be
2 certain conditions in which dioxins could be produced as a
3 result of heating the combined fluid of PCB and
4 trichlorobenzene?

5 A Yes.

6 Q Do you know of any studies in which mineral
7 oil contaminated with PCB's has been heated to test for
8 the byproduct of dioxin?

9 A I don't recall any.

10 Q Do you know if the heating of mineral oil
11 contaminated with PCB's can produce dioxin?

12 A I don't know that. I would doubt it.

13 Q Yesterday you mentioned that you called Paul
14 Wright preliminary to the trial in Texas and chatted with
15 him about the trial. Who asked you to call Paul Wright?

16 A One of the counsels in Texas. I forget his
17 name.

18 Q What reason did he give you?

19 A Well, he said he'd like Paul to testify but
20 he doesn't want to testify. You know Paul, you want to
21 call him and see if he's changed his mind.

22 Q Dr. Kelly, yesterday you made reference to
23 epidemiological studies of the Bloomington workers; can
24 you tell us us --

25 A I said the Bloomington people. I didn't say

1 the Bloomington workers, I said the Bloomington population
2 who were exposed to the sludge of the Bloomington outflow
3 of the city.

4 Q All right, sir. Do you know of any other
5 epidemiological studies other than that one particular
6 study in Bloomington either of the citizens or the workers
7 at the Westinghouse capacitor plant?

8 A Well, I don't know if this was the
9 Westinghouse people or not. I do not know if Brown and
10 Jones' work in 1981 was related to the Bloomington study
11 or not, Bloomington workers or not.

12 Q Do you have a list of epidemiological studies
13 on cards that you are referring to?

14 A Yes, I do.

15 Q Can you identify for us those studies and
16 tell us what information was produced by each of those
17 studies?

18 A Yes. You realize this is pretty vast -- a
19 small abstract of the studies but I'll give it to you.
20 Baker Bureau of Epidemiology of the Center for Disease
21 Control of NIOSH, Metabolic Exposure to PCB's in Sewage
22 Sludge, American Journal of Epidemiology, 1980. 148
23 people, PCB levels 17 to 37 parts per billion, all
24 negative findings.

25 SAFE, S-a-f-e, IEEE, technical bulletin No. 86

1 health effects of PCB, and this is a direct quote,
2 "relatively few adverse health effects." Gostasfawn,
3 G-o-s-t-a-s-f-a-w-n, 1986, American Journal of Industrial
4 Medicine; no increase in cancer.

5 Brown and Jones, 1981, United States Public Health
6 Service, Archives of Environmental Health. He found an
7 increase in liver cancer but the increase was inversely
8 related to exposure. In other words, he found fewer
9 cancers in people who worked longer than people who worked
10 shorter intervals.

11 Smith, Communicable Disease, Center for Disease
12 Control, 1982, British Journal of Industrial Medicine. I
13 quote again, page 387 -- he worked with capacitor
14 manufacturing -- quote: "None of the published
15 occupational or epidemiological studies," paren,
16 "including ours," close paren, "have shown that
17 occupational exposure to PCB's is associated with any
18 adverse health outcome except some clinical biochemical
19 alterations."

20 That means some will have, some may have some liver
21 enzyme changes. Kimbrough, Health and -- she's, I think
22 we discussed her qualifications yesterday. Health and
23 Environmental Digest, August, 1988, two quotes. "Several
24 occupational studies have presented no conclusive
25 scientific evidence that PCB's have caused cancer in

1 humans."

2 Another quote: "Thus despite positive laboratory
3 animal data and except for chloracne exposure to PCB's --
4 except for chloracne, comma, exposure to PCB's has led to
5 no convincing demonstrable health effects in humans."
6 That's it.

7 Q Thank you.

8 (Whereupon, Plaintiff's Deposition Exhibit No. 5
9 was marked for identification.)

10 Q Dr. Kelly, have there been any
11 epidemiological studies of Monsanto's workers?

12 A There have been two. One by Zack and Musch,
13 which was a mortality study and sometime after 1954, which
14 was published, and the other by Gaffey of all Monsanto
15 workers at the Krummrich or East St. Louis plant. That
16 included the PCB workers but they were a small fraction of
17 the total. Not a small, maybe ten percent of the total.

18 Q I'm going to hand you what is marked as
19 Plaintiff's Exhibit No. 5 and ask you if you can identify
20 the exhibit?

21 A Yes, sir.

22 Q Is that the mortality study which you
23 referenced?

24 A Yes, that is true.

25 Q Was this study conducted on workers at the

1 Sauget plant who were exposed to PCB's?

2 A This study was devoted to death certificates.

3 Q Of workers who had worked with PCB's?

4 A That's correct.

5 MR. CARNEY: It might be simpler, I think we
6 referenced to that as the East St. Louis plant and since
7 people in St. Louis know where that is more than Sauget it
8 might be helpful.

9 THE WITNESS: Or Krummrich.

10 MR. CARNEY: Yeah, Krummrich doesn't mean much
11 either.

12 MR. McCREA: All right. We'll refer to it
13 as the East St. Louis manufacturing plant of Monsanto.

14 Q (By Mr. McCrea) Dr. Kelly, when was this
15 report first made available to you?

16 A It appeared in a medical journal sometime in
17 '95 or '96 I think. She certainly didn't do it when I was
18 there and I left at the end of ninety -- '74, so I can't
19 tell you when I think it was published, but I don't know
20 where, whether I saw it before it was published or not, I
21 can't remember, but --

22 Q Do you know where it was published?

23 A It's easily found. I think it was in the
24 Journal of Industrial Occupational Medicine or something
25 like that. I don't know.

1 Q And by publishing you would mean that it was
2 approved by the individuals who publish periodical and
3 distributed in the public domain?

4 A Well, you mean the editor of the magazine,
5 sure.

6 Q Right, so this information would be in the
7 public domain --

8 A Yes.

9 Q -- as a result of being published?

10 A Yes.

11 Q But you do not know in which publication it
12 was printed?

13 A Well, it's easy to find out.

14 Q Did you know Judith Zack when you were
15 employed at Monsanto?

16 A No, she was not employed when I was there and
17 I never met her. I never talked to her.

18 Q Did you know David Musch?

19 A No.

20 Q On the second page it was Monsanto Company
21 Department of Medicine and Environmental Health. Do you
22 see that?

23 A Yes.

24 Q Did Monsanto have a department of
25 Environmental Health when you were there?

1 A I think we changed our name from Medical
2 Department to Department of Medicine and Environmental
3 Health sometime, one or two years before I left.

4 Q And the address 1751 Legend Lane, St. Louis,
5 Missouri, is the address of the Monsanto Department of
6 Medicine and Environmental Health?

7 A No, I don't know whose it is. My guess is
8 it's Judith Zack.

9 Q Yes, you're right. It's footnoted above,
10 that would be her address.

11 Q Can you turn to Page 5 of the study?

12 A Yes, sir.

13 Q Can you go down to the fourth line from the
14 bottom on that page which reads, "While no industrial
15 hygiene monitoring data were available to quantify the PCB
16 exposure levels during the study time, interviews with
17 plant personnel established the fact that PCB exposure
18 levels did not vary considerably within the PCB
19 department." Is that an accurate statement as far as you
20 know?

21 A Yes. I am really a little confused by what
22 she means by the study time. Does that mean the study
23 time means when this -- this is a mortality study, if you
24 remember. She goes back to the death certificates of
25 people who worked there from a period of 1945 to 1965, if

1 that's what she means, the study time.

2 Q '35 --

3 A '45 to '65.

4 Q Is that statement accurate that Monsanto had
5 no monitoring data?

6 A No, that doesn't mean that at all. It says
7 it wasn't available to her. I don't know where those
8 records were, from 1965. She did this study ten years
9 later?

10 MR. CARNEY: I'm going to object also that the
11 question calling for speculation as to what the time
12 period was. I don't think she indicates what it was and
13 it might call for Dr. Kelly to speculate as to what she
14 meant by that.

15 Q (By Mr. McCrea) I think in the beginning of
16 that paragraph, Dr. Kelly, the authors state under
17 materials and methods, during the period from 1936 to 1977
18 PCB's were manufactured at Monsanto Company, Sauget,
19 Illinois plant, which we understand is the same as East
20 St. Louis?

21 A Yes, sir.

22 Q Then the sentence to which we're referring
23 states, "While no industrial hygiene monitoring data were
24 available to quantify the PCB exposure levels during the
25 study time, interviews with plant personnel established

1 the fact that PCB exposure levels did not vary
2 considerably within the PCB department." What -- to what
3 is she -- to what are the authors referring when they
4 state monitoring data?

5 A Well, that's --

6 MR. CARNEY: Again, let me just object that
7 it may call for the witness to speculate inside the mind
8 of somebody else. It may be that Dr. Kelly will know but
9 I caution him not to speculate.

10 A If you look, Mr. McCrea, on page two in the
11 abstract she says a total of eighty-nine workers exposed
12 to PCB's for a minimum of six months during a period of
13 1945 to 1965. Now, I don't know if that's the study time
14 '45 to '65 or '36 to '77 or '45 to '77.

15 Q (By Mr. McCrea) Wouldn't that indicate that
16 she was looking at workers who were employed at the East
17 St. Louis plant from 1945 to 1965 and she looked for
18 death -- she looked for death certificates through 1977?

19 MR. CARNEY: Well, I'm going to object again.
20 It also could mean the time that she did her study, which
21 would be different than any of those dates. So I think
22 we're in the realm of trying to speculate inside the mind
23 of Judith Zack, and it might be more appropriate to ask
24 her what she meant unless she says what she meant in the
25 report, then you wouldn't have to speculate.

1 Q (By Mr. McCrea) This is a study to determine
2 the number of deaths and the cause of deaths of workers
3 exposed to PCB's, is that correct?

4 A Yes.

5 Q And can you determine from this report, Dr.
6 Kelly, the time period that those workers were exposed to
7 PCB's?

8 A No, because she studied workers who were
9 exposed for twenty years, from '45 to '65.

10 Q Right.

11 A That doesn't mean that all the people stopped
12 working in 1965.

13 Q Correct.

14 A Some may have worked up to 1972 and died, but
15 she had a cut-off period of anybody who worked for six
16 months during that period of '45 to '65 --

17 Q Correct?

18 A -- were included.

19 Q Correct.

20 A That was where the eighty-nine workers she
21 studied.

22 Q Correct.

23 A So my -- now what she's saying if that's the
24 study period then this PCB exposure levels during this
25 study time refers to 1945 to 1965.

1 Q Right, and she states there was no industrial
2 hygiene monitoring data available to quantify the PCB
3 exposure levels. Is that consistent with your
4 recollection of what was done at the East St. Louis plant
5 that there was no monitoring data?

6 A No, that isn't what she says at all. She
7 says it wasn't available to her. We did have some
8 monitoring there, we did not have regular monitoring in
9 1945. I'm not sure how good our PCB analysis of air was.
10 But we did have, not routine analysis but we had
11 monitoring analysis at the PCB department. Whether those
12 records were available to Zack in 1977, I don't -- they
13 obviously weren't. Whether she asked for them and they
14 weren't there or whether I don't know, but that does not
15 by any matter of means state that we didn't monitor at
16 that time.

17 Q When did you begin to monitor for PCB levels?

18 A Well, we didn't monitor it on a routine basis
19 until sometime after I left. During my time we did not --
20 we did random analysis at times and I don't recall the
21 date.

22 Q Describe how you would perform a random
23 analysis at the East St. Louis plant before your departure
24 from Monsanto in 1974?

25 A You would go in with an industrial hygiene

1 gadget called an impinger that had a solution that would
2 dissolve a PCB and you would pump air in at a certain rate
3 until you get a certain level of air whether that was a
4 certain quantity of air, whether it was six cubic meters
5 or ten cubic meters, then you would analyze it and see
6 what you had with it, what you had there.

7 Q With what frequency was that done before
8 1974?

9 A Pretty irregular. I don't know the
10 frequency.

11 Q Was that data recorded?

12 A Well, sure, it was recorded someplace.

13 Q Was it reported to the plant manager?

14 A Whether it was reported to the plant manager
15 or the doctor or the safety department I don't know.

16 Q Do you recall any of that data, any of the
17 numbers?

18 A No, but remember at that particular time we
19 had a level that was decided on, if it were 1254 it was
20 under one cubic -- one milligram per cubic meter, .5
21 rather, and if it were 1242 it could be under the
22 allowable concentration at that time.

23 Q Which was what for 1242?

24 A One milligram per cubic meter.

25 Q Was this data recorded and filed in the

1 medical department?

2 A Yes. We did have it, yes.

3 Q Was it ever expunged from the records?

4 A Well, I don't think expunged, that has a
5 connotation that I believe, removed.

6 Q Well, was it ever discarded, or --

7 A We had at Monsanto what we called a record
8 retention system. It really is a record destruction
9 system. Every five years you go through relevant data, I
10 mean files and discard material that isn't relevant. So
11 back in the days of the seventies some things were
12 discarded because we'd be up to our neck in paperwork.

13 So if it isn't available now I'm sure it was
14 discarded sometime either during my tenure or in the
15 fifteen years since I've been there. I've never seen it
16 since I've been back. I mean back as a -- on these cases,
17 not back working for Monsanto.

18 Q I understand. After your departure in '72,
19 '74, monitoring became more routine?

20 A Yes.

21 Q Can you explain the difference between the
22 random monitoring and the routine monitoring?

23 A Yes. The routine monitoring was at a
24 definite time, they did more of them.

25 Q Did you ever see any of those results?

1 A No, but I have talked to people about it, but
2 I don't recall seeing it.

3 Q In the East St. Louis plant where PCB's were
4 manufactured what chemicals did they monitor on a routine
5 basis of '74?

6 A I don't know.

7 Q Do you know if they checked for chemicals
8 other than PCB's in the PCB manufacturing section?

9 A Well, first of all I'm not -- I can't place
10 in my own mind exactly where the PCB department was as to
11 other departments, but sometime after 1975 the OSHA and
12 put out standards of workplace levels and so whenever
13 there was a standard it is my impression that the company
14 took monitoring levels on that, but again I cannot answer
15 your question as to how many other chemicals they
16 monitored for, they did not monitor. I'm sure they did
17 not monitor the PCB for any particular hazard it presented
18 but there was a standard for it and they wanted to follow
19 the standard.

20 Q Who conducted the random testing before 1974?

21 A Either Wheeler I believe would be the one.

22 Q Is he still with Monsanto?

23 A No, he retired ten years ago.

24 Q Did you ever discuss those results with him?

25 A He probably told me about them. I mean, I

1 don't know what you mean by discussing.

2 Q Did you ever discuss the results as to
3 whether they were at a level that exceeded what you
4 thought was appropriate or safe?

5 A Well, again, when you say appropriate or safe
6 it depends, a standard is for an eight hour day for your
7 life time so if you exceed a standard for one or two days
8 or a week, that's still safe. You have to take the figure
9 in relationship to what a standard is, and standard is a
10 lifetime of forty hours a week and if it's twice that
11 standard for a week it doesn't make a bit of difference.

12 Q Are there standards which apply to a single
13 day which are considered --

14 MR. CARNEY: Talking about today or --

15 Q (By Mr. McCrea) -- safe or unsafe?

16 MR. McCREA: No.

17 Q (By Mr. McCrea) Before 1974 did you have in
18 addition to the standard for exposure over a lifetime did
19 you have maximum allowable contamination standards?

20 A Concentrations?

21 Q Concentrations.

22 A Well, that's the same as the threshold limit
23 value. I mean, it's just a little different. Some
24 standards had been proposed that allow a set, a limit on
25 fifteen minute exaggerated exposure, I do not know when

1 those came in. They were not very current before 1974.

2 Q Doctor, the authors of this study of the
3 workers at the East St. Louis plant describe a number of
4 studies that were conducted throughout the world in the
5 first several pages and I will draw your attention to page
6 eleven which is the reference page for the cited studies,
7 and with regard to references one through twenty-five,
8 with which of those references are you familiar? Which
9 have you read, of which do you have a working knowledge?

10 A You mean without -- off-the-cuff without
11 looking at the reports?

12 Q Right. Are you able to discuss any of those
13 studied based upon your having read them in the past, and
14 tell us about them?

15 A Well, let's start off with number one; I know
16 that one. That was chloracne from the use of PCB's as a
17 heat transfer agent that leaked or not -- Yes, leaked and
18 these people had four or five cases of chloracne, some
19 didn't even know they had chloracne till they saw the
20 doctor.

21 Q Where was that incident?

22 A New England some place. The man was at Yale
23 that wrote it. So I think it was in --

24 Q When you say some of them didn't even know
25 they had chloracne until they saw the doctor, can you

1 explain that?

2 A Yes, they had a few blackheads and they
3 didn't pay any attention to them and they went to the
4 doctor because the doctor wanted to see everybody who was
5 exposed and the doctor had seen people with demonstrable
6 chloracne and he looked at these people with a few
7 blackheads and said I think you got chloracne.

8 Q So did that establish that a few blackheads
9 was chloracne?

10 A Not in my mind, but it did in his.

11 Q So you disagree with that?

12 A Well, no, I don't disagree with him, but
13 here's a man that's got people working in the same
14 environment with people with frank chloracne but if a man
15 walks in the street with a few blackheads and had never
16 even heard of PCB's that doesn't mean he's got chloracne.

17 Q Did this article establish that there were
18 workers who didn't know they had chloracne until they went
19 to the doctor, the doctor looked at them, found a few
20 blackheads and determined it was chloracne?

21 A In his mind he thought it was chloracne.
22 Whether he determined it, I do not believe he took
23 biopsies of these people.

24 Q Do you dispute that finding?

25 A I can't dispute it because I haven't seen the

1 people.

2 Q All right. What is your opinion of that
3 finding?

4 A Well, maybe they did, maybe they didn't.
5 Whatever it was was pretty minor.

6 Q If I called you in 1958 from the Bloomington
7 Westinghouse plant and asked you if workers could have
8 chloracne and not know and if chloracne could consist of a
9 few blackheads what would your answer be?

10 A I would have to see the worker. I don't
11 believe I could make a telephone diagnosis.

12 Q If I asked you in 1958 if a worker could have
13 chloracne and not know it what would your -- just a
14 second -- What would your answer be?

15 MR. CARNEY: I'm going to object to it.

16 A That would be very unusual. That would be
17 very unusual, I would say.

18 Q (By Mr. McCrea) The next article, Doctor?

19 A This next article is an epidemiological study
20 of Yusho, poisoning caused by the ingestion that's taken
21 by mouth of rice oil contaminated with a commercial brand
22 of polychlorinated biphenyls, the Japanese Kanechlor and
23 the PCB that was contaminated with benzofuran and
24 chlorinated quaterphenyls.

25 Q And the third article?

1 A That's also by the Japanese -- That's a
2 Chinese episode of Yucheng, I presume, Formosa. That's
3 China.

4 MR. CARNEY: Taiwan.

5 THE WITNESS: Taiwan.

6 Q (By Mr. McCrea) Doctor, would you go to page
7 three where those articles are referenced, specifically
8 paragraph three on page three?

9 A Yes, sir.

10 Q And let me read that into the record. The
11 first two sentences, "Accidental ingestion of rice oil
12 contaminated with PCB's has resulted in several outbreaks
13 of common symptomatology, reported from Japan,"
14 parentheses, quote, "Yusho," quote, "disease and Taiwan,"
15 parenthesis, "Yucheng," quote, "disease," Parentheses.
16 The most common acute symptoms observed were
17 hyperpigmentation and acne-like lesions, discharge from
18 the eyes, neuroendocrine disturbances, emesis and
19 diarrhea. Doctor, did all of those individuals who had
20 neuroendocrine disturbances have chloracne?

21 A In the first place, I don't know what she
22 means by neuroendocrine disturbances. I really don't know
23 what she means by that, and I cannot say from those two
24 pages you gave, two para -- sentences whether they did
25 have chloracne but it is my impression that the vast

1 majority of the people had chloracne, the vast majority.

2 Q That's your impression?

3 A Well, I could get the article and look it up,
4 but that's my opinion that he did, yes.

5 Q Do you know any author who has made the
6 statement that all individuals who suffered in Yusho and
7 Taiwan had chloracne?

8 A I can't answer that without a pretty
9 extensive search through the literature but chloracne has
10 been recognized by many authors and in many papers
11 chloracne has been recognized as a hallmark of PCB -- of
12 PCB effects, it's the hallmark of it.

13 Q Doctor, what is the term emesis?

14 A Vomiting.

15 Q Vomiting?

16 A Vomiting.

17 Q And the next sentence, "There was a
18 dose-response relationship between the amount of oil
19 ingested and the proportion of persons reporting
20 symptoms," is that self-explanatory?

21 A I would think so. It just means that the
22 more oil you ate the more people had symptoms.

23 Q "After six years many of the patients still
24 reported such symptoms as headache, stomach pain, numbness
25 of the extremities, arthralgia and respiratory symptoms."

1 Did you read that?

2 A Yes.

3 MR. CARNEY: Let me object here. You're
4 reading from a summery of some literature and then you're
5 just reading pieces of this summery of the literature in
6 the record and I don't see any purpose to your just
7 reading isolated sections of a summary of literature when
8 we ought to have the literature itself so the witness can
9 look at this literature that you are referring to in
10 context rather than pull out, not only pulling out a
11 sentence from the literature but pulling out a sentence
12 from the summary of the literature which I don't think is
13 appropriate and I object to it.

14 Q (By Mr. McCrea) Doctor, what is arthralgia?

15 A Pain in the joint, joints.

16 Q All right, Doctor, the next two articles back
17 on page eleven, number -- I would believe we went through
18 3, No. 4, have you read that one?

19 A At some time in the past I have.

20 Q No. 5?

21 A That was a determination that of the
22 chlorinated dibenzofurans in Kanaclor which is a Japanese
23 PCB's.

24 Q Do you recall having read that article?

25 A I've read articles that showed the

1 determination; whether I read this particular one I don't
2 recall.

3 Q No. 6; do you recall having read that?

4 A I don't recall the individual ones, Mr.
5 McCrea. There were about fifty or sixty articles on Yusho
6 and Yucheng in the years from 1972 to 19 -- up to now, and
7 so I can't -- I may very well have seen it. I'm not
8 certain I read it.

9 Q Could you go to page four?

10 A Yes, sir.

11 Q Can you read the last sentence in paragraph 1
12 which states, "Chloracne, dermatitis, mild liver function
13 abnormality" --

14 A Wait a minute. We're on page four?

15 Q Page four, paragraph one?

16 A Last sentence in paragraph one?

17 Q The first full paragraph?

18 A Oh, the first one.

19 Q Begins, "The Yusho incident" --

20 A Oh, the first sentence in paragraph two.

21 Q Fair enough. The last sentence in paragraph
22 two, "Chloracne, dermatitis, mild liver function
23 abnormalities and increased triglycerides levels were
24 reported with some consistency from these studies." What
25 is dermatitis?

1 MR. CARNEY: Let me object to your -- again
2 you are now reading a summery from an article that is I
3 assume available and then asking and I think in this
4 particular case the doctor hasn't even indicated that he's
5 sure that he's read the article. You're not showing him
6 the article, you're just reading him a one sentence
7 summery out of an article and I think without showing the
8 doctor what the article that the summery comes from so he
9 can --

10 THE WITNESS: This is the article, this
11 particular one is the article in question. This is from
12 Zack's article.

13 MR. CARNEY: Oh, this is from Zack's, I'm
14 not --

15 MR. McCREA: The article is "A Retrospective
16 Mortality Study of Polychlorinated Biphenyls Manufacturing
17 Workers, by Zack and Musch, Monsanto Company Department of
18 Medicine and Environmental Health." This is your study.

19 MR. CARNEY: It's not my study.

20 MR. McCREA: Well, Monsanto's study.

21 MR. CARNEY: All I'm saying is I'm trying to
22 look over your shoulder because you don't have an extra
23 copy for me. I thought you were reading from the summary
24 but if that's the original article then I withdraw the
25 objection.

1 MR. McCREA: All right.

2 Q (By Mr. McCrea) Doctor, what is dermatitis?

3 A Dermatitis is an inflammatory or a condition
4 of the skin.

5 Q Is it your testimony that all individuals who
6 would have dermatitis associated with PCB's would also
7 have chloracne?

8 A No. I never said that.

9 Q Can you have dermatitis associated with PCB's
10 and not have chloracne?

11 A Sure. PCB acts as a paint remover, you put
12 it on, your skin will get red.

13 Q Can you have mild liver function
14 abnormalities would chloracne?

15 A It depends on what you mean by mild liver
16 function abnormalities. If by that you mean a transient
17 or very minor alteration in one or two of the enzymes you
18 may have it, but then you have to decide where these
19 enzyme changes came from. Here we're talking about people
20 who ate Japanese PCB oil, it was contaminated. If you are
21 talking about a mild liver abnormality without chloracne
22 you have to check where did this person get this mild
23 liver abnormality. Did he ever have hepatitis from eating
24 shellfish in his life. Did he take three drinks alcohol
25 in the last two days? You have to differentiate where he

1 got it from.

2 Q Are these symptoms related to industrial
3 exposures?

4 A And I might also add, extend my last
5 question, amplify my last answer, I mean. If a person has
6 an acute episode of adverse effects from PCB's he can get
7 mild liver abnormalities because he would -- these would
8 occur long -- It takes some time for chloracne to show up.
9 If a person were exposed to a leaking trans -- heat
10 transfer unit, hot stuff came out and he breathed it for
11 eight hours, he could develop liver abnormalities.

12 He would not development chloracne within
13 twenty-four or forty-eight hours, but he would develop
14 liver abnormalities. But I have to repeat chloracne is I
15 think accepted by all the workers, the majority of the
16 workers in the field as the hallmark of PCB adverse
17 effects.

18 Q Could a worker have increased triglycerides
19 as a result of exposure to PCB's and not have chloracne,
20 is your answer the same?

21 A No. He could have it because he's too fat
22 and also I think it's been disproved since 1977 when she
23 wrote this, '77 or '78 because she's carried this study up
24 until the deaths in 1977, followed through '77 so it's
25 after probably '78; triglyceride is a fat. PCB is soluble

1 in fat.

2 So if you have exposure to PCB you will get -- if
3 you have triglycerides for any reason you will get a
4 higher level of PCB's in your blood because a PCB is fat
5 soluble in triglycerides. So you could get increased
6 triglycerides from any number of causes without chloracne.

7 Q What is the consequence to the human body of
8 inused triglycerides?

9 A Depends how much. None, but some it's like
10 too much cholesterol. If you're obese it may have adverse
11 effects down the road.

12 Q Doctor, I'd like to go back to page 3?

13 A Three?

14 Q Yeah, and the symptom of arthralgia,
15 a-r-t-h-r-a-l-g-i-a. Did the Yusho and Taiwan poisoning
16 result in reports of pain in joints?

17 A I don't know. I mean, I'm not taking Zack's
18 word for this. I'd have to read the results and see how
19 many -- you have a thousand people in Yusho itself and I
20 don't know how many in Yucheng. Certainly some of them
21 may have pains in their joints, but the significance of
22 it, I'd have to read the articles.

23 Q Can you explain the mechanism by which the
24 ingestion of the PCB oil in Yusho and Taiwan could cause
25 arthralgia?

1 A No, sir, I couldn't.

2 Q Have you ever conducted any investigation as
3 to the mechanism by which those substances cause
4 arthralgia?

5 MR. CARNEY: Well, let me object. I think
6 you're assuming facts that aren't in evidence and that's
7 that there is a cause and effect relationship in your
8 question.

9 Q (By Mr. McCrea) Have you ever done any
10 investigation as to that particular complaint in Yusho in
11 Japan and the relationship to PCB's and how that was
12 discussed?

13 MR. CARNEY: Are you talking about now an
14 investigation about the Japanese PCB's that were
15 contaminated with the furans?

16 MR. McCREA: Right.

17 A I have never had any Japanese PCB's that were
18 contaminated with furans and only way you would test
19 arthralgia, see the if the person has arthralgia is give
20 people it; because you can't tell whether a dog or rat has
21 pain in his joints.

22 Q (By Mr. McCrea) Did you ever ask a single
23 worker in the East St. Louis plant if he had pain in his
24 joints?

25 A I might very well have, I don't recall it. I

1 can't tell you positively; but let me tell you when you do
2 an examination of workers in an industrial setting they
3 are far from reticent about giving voice to a symptom. If
4 they have symptoms they tell you.

5 Q Dr. Kelly, are you familiar with the study at
6 the Bloomington, Indiana capacitor plant where thirty-nine
7 percent of the workers exposed to PCB's complained of
8 joint pain?

9 A What is the study?

10 Q Are you familiar with the study?

11 A Well, show it to me. I don't know it.

12 MR. CARNEY: I'm going to object. There's
13 thousands of studies or at least hundreds, let me put it
14 that way.

15 Q (By Mr. McCrea) The study in which Dr.
16 Raymond Suskind oversaw the morbidity epidemiological
17 survey of the Bloomington workers using the Yusho symptoms
18 as a guideline in which Dr. Alexander Blair Smith found
19 that thirty-nine percent of the active workers in if
20 Bloomington Westinghouse plant complained of joint pain.

21 MR. CARNEY: Would you -- Do you have that
22 study? I'm going to object to claiming that you have a
23 study that Dr. Suskind -- Is it a Dr. Suskind study?

24 MR. McCREA: Dr. Suskind oversaw the project
25 which was carried out by Dr. Alexander Blair Smith.

1 MR. CARNEY: Wait a minute, I don't know --

2 MR. McCREA: Just a second.

3 Q (By Mr. McCrea) Have you ever heard of that
4 study?

5 A Wait, just a minute, has it been published?

6 Q No?

7 A Well, how would I know about it?

8 Q Well, this report wasn't published and I got
9 it.

10 A Yes, it was published.

11 Q Where?

12 MR. CARNEY: Let me object. You -- number
13 one apparently it was published according to Dr. Kelly and
14 number two, you've asked for hundreds and thousands of
15 documents from Monsanto and we've produced documents; so
16 you have had of the advantage through this lawsuit of
17 getting these Monsanto documents. Here you're asking
18 about an unpublished study that you don't have and are not
19 willing to show the doctor if you do have. I'm going to
20 object to it.

21 Q (By Mr. McCrea) All right, number one, let
22 me read you a letter dated February 27, 1985?

23 A Wait, what did you say? Let me read you
24 what?

25 Q A letter dated February 27, 1985 from Terry

1 L. Heet, Monsanto, 800 North Lindbergh Boulevard, St.
2 Louis, Missouri to David P. Brown, NIOSH, Robert A. Taft
3 Laboratories, 4676 Columbia Parkway, Cincinnati, Ohio.

4 "Dear David: Enclosed is a photocopy of the report
5 on mortality of PCB workers at the Monsanto plant in
6 Sauget, Illinois by Judith Zack and David Musch. As far
7 as I know this is is final report, although the report was
8 never published in the scientific literature."

9 A What date is that?

10 Q February 27, 1985?

11 A Well, I would be very, very surprised if I am
12 wrong in my statement, I was certainly -- My impression is
13 the report has been.

14 Q And I will represent to you that this report
15 has not been published in the scientific literature and
16 that we did not get it from Monsanto, that we got it by
17 freedom of information request to the Center of Disease
18 Control in Atlanta, Georgia.

19 MR. CARNEY: Well, I'm going to object, Mr.
20 McCrea, you're testifying and making speeches. You can
21 ask questions but you're not under oath. You're not a
22 witness in this case, Mr. McCrea, and now you're trying to
23 make these speeches. If you have a question you can ask a
24 question but to make a speech where you're reading from
25 documents or claiming that you got documents from a

1 certain place, I don't have the opportunity of
2 cross-examining you as to where you got the documents.
3 I'm not saying you're misleading anybody, but I think it's
4 inappropriate for you to make these speeches not under
5 oath about where you got certain documents.

6 Q (By Mr. McCrea) Would you turn to the --

7 A Well, can I finish my --

8 MR. CARNEY: Yes.

9 A I said I would be extremely surprised if I am
10 wrong but I'm going to see you again on Friday and I will
11 check to see if I can find -- it would be easy enough to
12 find tomorrow whether the Zack report was published. If
13 it was published I'll give you the citation; if it wasn't
14 I'll admit that I was confused.

15 Q (By Mr. McCrea) All right. We know at least
16 as the February 27, 1985, if you can find that?

17 A Well, no, we don't know that. We know that
18 fellow didn't find it.

19 Q No, it says as far as I know.

20 A As far as he knows, well --

21 Q Just a second. "As far as I know this is the
22 final report," comma, "although the report was never
23 published in the scientific literature."

24 A May I see that.

25 Q It's right in your stack.

1 A In what stack?

2 Q In what I gave you.

3 A In the Zack report?

4 Q Right, it's part of it.

5 A What page?

6 Q Well, it comes right after -- It's right
7 before the final report.

8 A Oh, I see. Oh, I see. Well, I'll be
9 extremely surprised but I'll look it up.

10 Q Now, Doctor, you asked me about unpublished
11 reports. I would be the first to agree that it's very
12 difficult to get ahold of an unpublished report, but you
13 do not, do you have -- Have you ever tried to get
14 unpublished reports?

15 MR. CARNEY: In what area, what type of
16 reports?

17 MR. McCREA: On PCB health effects.

18 MR. CARNEY: From who?

19 MR. McCREA: From Centers for Disease
20 Control.

21 MR. CARNEY: What particular time?

22 A I don't think I have.

23 Q (By Mr. McCrea) All right. But at any rate
24 you are not familiar by any means available to you with
25 the data that thirty-nine percent of the active workers at

1 the Bloomington Westinghouse plant complained of joint
2 pain or arthralgia?

3 MR. CARNEY: I'm going to object to that
4 question. Here you're asking him about a report that you
5 haven't identified as to date, as to the -- where it was
6 published, if it was published.

7 MR. McCREA: Didn't we already state it
8 wasn't published?

9 MR. CARNEY: You haven't said who put it out,
10 what organization.

11 MR. McCREA: Alexander Blair Smith, NIOSH,
12 Centers for Disease Control under the guidance and
13 auspices of Raymond Suskind.

14 MR. CARNEY: When was it published?

15 MR. McCREA: It was never brought out.

16 MR. CARNEY: When was it prepared?

17 MR. McCREA: It was prepared about 1979,
18 1980.

19 MR. CARNEY: Do you have a copy of it you
20 could show?

21 MR. McCREA: Yes, I do.

22 MR. CARNEY: Well, it would seem to me that
23 you are asking somebody if they have ever seen a report
24 and if you have a copy I think it would be very simple for
25 the jury to see if he knows by showing him the documents.

1 MR. McCREA: I'll be happy to show him the
2 report, and but I'm also stating that there are a number
3 of unpublished reports.

4 MR. CARNEY: And he may have seen it or he
5 may not have. I think if you're going to want to find out
6 if he's seen it --

7 A I can simplify this by saying I've never seen
8 it.

9 Q (By Mr. McCrea) Or heard of it?

10 A Or heard of it.

11 MR. McCREA: Break.

12 (Whereupon, a short break was taken.)

13 Q Dr. Kelly, would you please turn to page
14 eight of the Zack Musch study?

15 A Yes, sir.

16 Q And the first full paragraph states, "This
17 investigation dealt with the mortality experienced in the
18 cohort of eighty-nine male workers involved for at least
19 six months in the production of PCB's between January 31,
20 1945 and December 31, 1965. The only cause of mortality
21 which showed a statistically significant excess in
22 observed deaths was circulatory diseases exclusive of
23 arteriosclerotic heart disease." Can you interpret that
24 for us?

25 A Interpret the whole sentence?

1 Q Yes, sir.

2 A She's stated she found more deaths in this
3 group of circulatory diseases exclusive of high blood
4 pressure disease. Arteriosclerotic disease is known as
5 hardening of the arteries.

6 Q What does the phrase statistically
7 significant mean?

8 A Well, this will take a little explanation.
9 If you have time, I'll be happy to do it.

10 Q Explain it to the jury if you could.

11 A Fine. Whenever one's study carries out an
12 epidemiological study there are four main rules that have
13 to be observed. One, the condition has to be -- the study
14 has to be reproducible, repeat -- you have to be able to
15 repeat it the same way. In other words, if you find high
16 blood pressure in one case, diabetes in another case but
17 no high blood pressure, tumors of the stomach in a third
18 but no high blood pressure, or no diabetes they aren't
19 reproducible. So the condition has to be reproducible.

20 Secondly, there must be a dose response. In other
21 words, if you're studying a worker group of people who
22 work ten years should have more of a condition than the
23 people who work two years. If you find an excess of brain
24 tumors in people who work two years and don't find it in
25 people who work ten years that is a big flaw in an

1 epidemiological study.

2 The third, there has to be a dose response -- or
3 no, the third would be there would be no confounders in
4 it. Now confounders is a term that really means obscures
5 the results. If you were studying deaths from heart
6 disease and don't pay any attention to obesity, that's a
7 confounder that will throw out your study and a fourth is
8 it has to be a significant excess.

9 Now this is to answer your question; there are
10 statistical methods for showing whether there's a
11 statistical significant excess, statistically significant.
12 That means if you had a group of twenty people and three
13 people had the condition and you had the control group of
14 twenty people and one person had the condition on the
15 surface it might look like you've got three times as much
16 illness here as you do here but that also could occur by
17 chance and there are statistical ways of evaluating these
18 figures.

19 I'm not a statistician so I won't bore you with
20 that but there are ways, and they generally have what they
21 call a P factor which means the probability that this
22 might be due to chance is a certain percent, five percent,
23 twelve percent or something of that sort. Now to put a
24 figure on it I would have to say it has to be run by a
25 statistician to see if these eight cases or whatever he

1 had, she had, was statistically significant. Well she
2 says they were, so I'll take her word for it. Does that
3 answer your question?

4 Q And how do you interpret that for the jury
5 with respect to these workers dying of circulatory
6 diseases who were exposed to PCB's, what's the
7 significance of that for the jury?

8 A Well, that's the question; because we were
9 having workers who died from these illnesses but two of
10 them had rheumatic fever and rheumatic fever by no stretch
11 of the imagination can be connected with PCB exposure.
12 The other one was cerebrovascular disease, to the best of
13 my knowledge was an infected veins in the leg. She had
14 phlebitis like Nixon had, I mean the employee had
15 phlebitis in the lower legs, like Nixon had. That is no
16 relationship.

17 What she is saying is the statistically significant
18 excess, but you have to look at the cases and see what
19 other causes there are for the excess. Just because
20 there's an excess of deaths doesn't mean it's caused by
21 PCB's and occurred to PCB workers and that's what she
22 says.

23 Q Do you know if anyone in the scientific or
24 medical community has ruled out any of the deaths caused
25 by the circulatory disease as not being related to PCB?

1 A Well, I think I'll have to turn that question
2 around; I've never seen anybody in any scientific
3 literature say that rheumatic fever or phlebitis was
4 caused by PCB's.

5 Q With respect to this study do you know if
6 anyone has suggested that those deaths of the workers in
7 the East St. Louis plant resulting from circulatory
8 disease were not caused or contributed to by their
9 exposure to PCB's?

10 A Well, I'm sure there are an awful lot -- I
11 mean, I can't give you the names, but she supposes one
12 would postulate that there may be a relationship, she's
13 got an awful lot of factors if there. She doesn't say
14 that it's caused by PCB's. She goes on to say a great
15 deal of things about the lipids, about the triglycerides
16 associated with the heart disease; but it's been proven
17 that -- accepted by the scientific community that high
18 triglycerides are not caused by PCB. That's an
19 association with high PCB's in the blood.

20 So I don't take this as gospel at all. I mean, if
21 she has an excess of -- How many did she have? Eight I
22 belief. Let me look. She had nine other diseases of the
23 circulatory system, expected four, 3.98. Two of these
24 were rheumatic fever, one was phlebitis. That would bring
25 it down to seven, and that's not statistically

1 significant.

2 Q Where do you see the two with rheumatic
3 fever?

4 A Well, I checked with her, I checked the raw
5 data. I know it was two had rheumatic fever.

6 Q And that was one of the questions which the
7 Monsanto attorneys asked our plaintiffs, correct?

8 MR. CARNEY: I'm going to object. I don't
9 think Dr. Kelly was at the depositions of the plaintiffs
10 and he already testified he never saw the depositions, so
11 I don't know how --

12 A I don't know what you mean by that sentence,
13 by that question, Mr. McCrea?

14 Q (By Mr. McCrea) Yesterday, when I read you a
15 list of signs and symptoms which I took from the
16 depositions in which the Monsanto attorneys questioned our
17 plaintiffs, one of the health conditions was rheumatic
18 fever, which they asked our plaintiffs?

19 A I don't know if they asked them. I think
20 there were a hundred and twenty questions or something
21 that allegedly were asked.

22 MR. CARNEY: Yeah. Dr. Kelly doesn't know
23 what questions were asked, and you are claiming that
24 rheumatic fever was caused by PCB exposure.

25 MR. MCCREA: Am I claiming?

1 MR. CARNEY: Yes.

2 MR. McCREA: I would not think that PCB
3 exposure would be good for a person who had rheumatic
4 fever and it could contribute to morbidity and/or
5 mortality?

6 MR. CARNEY: So PCB's could cause rheumatic
7 fever?

8 MR. McCREA: Did I say that?

9 MR. CARNEY: No. I'm asking you, is that
10 what you're saying?

11 MR. McCREA: No, I'm not saying that, I'm
12 asking the doctor. Number one, I'm not a doctor, you're
13 not a doctor --

14 THE WITNESS: Is there a question on the
15 board right now?

16 MR. McCREA: No, we're moving very slowly.

17 THE WITNESS: That's all right.

18 Q (By Mr. McCrea) Doctor, you interpreted data
19 supporting this report. You actually went to the files of
20 Monsanto and got data that doesn't appear on the exhibit?

21 A That's correct.

22 Q Do you have that data with you?

23 A No, I don't.

24 Q Could you bring it with you Friday?

25 A I doubt it, but --

1 Q I would ask you to bring its with you Friday
2 so that you may fully amplify all the --

3 A Well --

4 Q Just a minute --

5 MR. CARNEY: Just a minute. Let him finish
6 the question and I'm going to make an objection.

7 Q (By Mr. McCrea) So that you may show us the
8 data to which you're referring so that we may use that
9 data to develop further questions. If that courtesy would
10 be extended it would be appreciated.

11 MR. CARNEY: Well, you know, I'm going to
12 instruct the doctor just not to answer that at this point
13 and indicate that you have not -- you have had this case
14 pending for a number of years and you have not asked for
15 this data and you've had the right to ask for this data
16 and now to have Dr. Kelly who's retired from the company
17 and has been for fifteen years to go back in and try to
18 find some data, when you haven't given the courtesy of
19 asking for it in the last two or three years when you
20 could have I think is highly improper.

21 MR. MCCREA: I asked the doctor a question, he
22 gave me an answer. His answer was based on data he
23 reviewed at Monsanto Company. I'm asking him to supply
24 the data which he reviewed to support his answer. I
25 didn't know he reviewed the data until he told me ten

1 minutes ago. How can I ask something about which I have
2 no knowledge?

3 MR. CARNEY: You have the report you say for
4 at least a year and you know that there's data, backup
5 data for the report like there would be for any report.

6 MR. McCREA: I don't know that there's any
7 data other than what's in here.

8 MR. CARNEY: You think that was just a
9 made-up report?

10 MR. McCREA: I assume that when they have
11 these umpteen pages of data that that's it. I didn't know
12 that they had broken these categories down and that that
13 information is on file at Monsanto. They might have lots
14 of other information there that we'd be interested in.

15 Q (By Mr. McCrea) Doctor, all I'm asking you
16 to do is give them a call and ask them if they can make
17 that data available to you and bring that with you Friday?

18 MR. CARNEY: Well, I'm going to instruct the
19 doctor not to respond to these requests that you are
20 making at the last minute. You have been asking questions
21 of Dr. Kelly over a period of a week and a half and I
22 think this is is third day you've indicated that you
23 aren't able to --

24 MR. McCREA: Mr. Carney, what does that have
25 to do with the request?

1 MR. CARNEY: Well, I think you are being a
2 little bit unreasonable here after three days of asking
3 Dr. Kelly questions, and I asked you to continue the
4 deposition this afternoon and you're not going to do that.
5 I asked you to continue the deposition last week when we
6 had the -- to get, to not impose on Dr. Kelly any further
7 and you're bringing him back now a third time so you can
8 go back and regroup and ask more questions, and now you're
9 asking for documents into the third day of your cross
10 examination. I think it's improper and I'd like to
11 conclude this deposition. We're in the third day of your
12 examination.

13 THE WITNESS: This is a little --

14 MR. CARNEY: And I would think -- I'd like to
15 just say one other thing, that we're talking about death
16 certificates and those are public records that you have
17 access to as well as Dr. Kelly. Probably better access to
18 them.

19 MR. McCREA: Not if I don't --

20 THE WITNESS: I know you instructed me not to
21 answer --

22 MR. McCREA: Not if I don't know their
23 names.

24 THE WITNESS: You instructed me not to
25 answer, but this may simplify it, but at the break I went

1 out to call the epidemiology department to find out
2 whether the Zack study was published or not. All of them
3 are out of the office at a convention. So I'm afraid I
4 won't be able to do it.

5 MR. McCREA: Well, I appreciate you're doing
6 it.

7 THE WITNESS: Well, how can I? They are all
8 gone.

9 MR. McCREA: Oh, you can't; but I appreciate
10 the fact that you made the call.

11 THE WITNESS: Yeah, okay.

12 MR. McCREA: I'd like to certify the request
13 made to Dr. Kelly that he bring the data to which he made
14 reference in order that we may examine that data to
15 cross-examine the doctor.

16 Q (By Mr. McCrea) Dr. Kelly, what other data
17 did you review other than the cause of death from
18 rheumatic fever for the two individuals?

19 A Well, that's all I say that I reviewed. This
20 was the one, I called Bill Gaffey, he was also an
21 epidemiologist who is no longer with the company, and I
22 said what were these eight cases that we had and he told
23 me one was a phlebitis, two were rheumatic fever and I
24 don't know what the other one was, I think one was a
25 stroke.

1 Q Do you have the names of these eighty-nine
2 people who died?

3 A No, sir, I don't.

4 Q Your counsel suggested that I could go down
5 and get their death certificates. Do you know how anyone
6 could do that if you don't know their names?

7 A You'd have to ask Counsel.

8 Q How do I do that, Tom?

9 MR. CARNEY: Well, why don't you ask Dr.
10 Kelly.

11 MR. MCCREA: He said to ask you.

12 MR. CARNEY: Well, as I understand it I'm not
13 under oath. As I understand it the deposition is Dr.
14 Kelly, if you would focus on that maybe you could finish
15 this deposition.

16 A Well, I would say maybe you could call
17 over --

18 Q (By Mr. McCrea) Call over?

19 A Call Zack, wherever she is.

20 Q You don't know the names of those folks?

21 A Oh, no, I don't.

22 Q This study, the results of the study are in
23 tables attached to the narrative, is that correct?

24 A That's correct.

25 Q And there are two reports, do you understand

1 that the document which I gave you includes the draft and
2 then it includes the final report, the first half of the
3 document, Dr. Kelly, is the draft?

4 A Uh-huh.

5 Q The second half is the final report, are you
6 with me on that?

7 A Yes, uh-huh.

8 Q Can you go to the final report; do you have
9 that?

10 A Yes.

11 Q There's a reference to page two, is there
12 not, to Monroe County, Indiana, second paragraph?

13 A Yes.

14 Q Can you interpret that for us?

15 A Well, it says that Monroe County Board of
16 Health conducted biochemical tests among Bloomington
17 Indiana, residents exposed to PCB's. Serum levels of GGT,
18 that's a liver enzyme, and plasma triglyceride levels were
19 found to show a direct relationship to serum PCB's.

20 Q Can you explain that to the jury in terms
21 they can understand?

22 A Well, they found that people who had higher
23 PCB levels have higher enzyme levels and higher
24 triglycerides. How much higher I can't explain, whether
25 they were abnormal values I can't explain because it

1 doesn't say.

2 Q This report, they calculated the number of
3 deaths they would expect in an average group of workers,
4 is that a fair way to state it?

5 A Wait a minute, back -- Now we're away from
6 Indiana, we're back on Zack?

7 Q We're back on the mortality study.

8 MR. CARNEY: Which page?

9 MR. MCCREA: The tables at the end of the
10 final report.

11 Q (By Mr. McCrea) Statistically, Dr. Kelly,
12 the authors of this study made a prediction as to how many
13 deaths should occur in this group of eighty-nine workers,
14 is that a fair way to state it?

15 A No, it isn't.

16 Q Can you explain it?

17 A Well, yes. They used standard mortality
18 tables to say what, if they carried out this study in the
19 way usual epidemiological studies are carried out they
20 would have standard mortality which means that certain
21 people, people of a certain age, certain sex would be
22 expected to die of this illness, whether these things
23 were -- they used as a control on males of the United
24 States, males in Illinois, other males in the chemical
25 company, other males in St. Charles County -- St. Clair

1 County, I don't know what you used as a control.

2 Q You have no reason to doubt the accuracy of
3 their format?

4 MR. CARNEY: Well, let me object, I don't
5 know what you mean by accuracy of their format. He just
6 testified that they're a control group. You could use
7 males of the United States, males of St. Clair County,
8 males of other chemical workers at Monsanto, and he
9 doesn't know what the control group is, so I don't
10 understand your question, it's vague.

11 Q (By Mr. McCrea) Do you have any reason to
12 believe that the protocol used by Zack and Musch was not
13 done pursuant to acceptable scientific standards?

14 A Well, I just don't know if it was, frankly,
15 because I do not know what she used for the controls. In
16 the Gaffey study of all the employees when they used the
17 controls for the United States they showed an excessive
18 lung cancer. When they idea a control the people in the
19 neighboring county, St. Clair County there was no
20 excessive lung cancer. So I think it depends on an
21 epidemiological study who your control group is.

22 Q Doctor, do you feel qualified to comment on
23 this mortality study?

24 A Yes, I do.

25 Q And do you find any flaws in the study from

1 an epidemiological standpoint based upon your education,
2 your training and your knowledge?

3 A Yes, I do. I find flaws in the fact she
4 stated that there was an increase in statistically
5 significant increase in non-arteriosclerotic heart disease
6 and she tried to make some assumptions that these may be
7 related to PCB exposure, when some of the things have
8 never, ever been considered to be associated with PCB
9 exposure, namely rheumatic heart disease and phlebitis or
10 inflammation of the veins in the lower legs, inflammation
11 of varicose veins, certainly those are flaws.

12 Q Any other flaws?

13 A Well, I'm not sure about what her control
14 group was.

15 Q Any other flaws?

16 MR. CARNEY: You want the doctor to read the
17 study?

18 MR. McCREA: No, only to tell us what flaws
19 there are in the report.

20 MR. CARNEY: Off the top of my head without
21 reading it?

22 MR. McCREA: He's familiar with it.

23 Q (By Mr. McCrea) Doctor, you're familiar with
24 this study?

25 A Beg your pardon?

1 Q You're familiar with this study?

2 A Well, I am familiar with it, but I haven't
3 gone into detail.

4 Q You have been asked about it in other
5 depositions?

6 A Yes, but not in those particular terms.
7 It says here general mortality studies were made in
8 comparison to the general United States population. I
9 think that's a flaw. If you've got a bunch of industrial
10 workers and you're in an industrial community where
11 there's smog and God knows what else you have got a
12 different mortality rate than you do in the standard
13 United States population.

14 Q What effect does smog and everything else
15 have on the mortality rate?

16 A Well, I think it's obvious that city dwellers
17 seem to have a higher incidence of lung diseases and a
18 higher incidence of mortality than people in less
19 contaminated areas.

20 Q All right. Any other flaws?

21 A Well --

22 MR. CARNEY: I'm going to object again to the
23 question because I think you're, you know, unless you give
24 the doctor a chance to read the report, you know, may or
25 may not contain information about confounding factors such

1 as smoking for example. We know that smokers have higher
2 death rates, and I think in order to answer that question
3 I don't mind you asking it to get his recollection. I
4 know he's read the article, but I don't think he's put it
5 to memory so that he has that kind of detail about a
6 multi-page -- you have got a quarter of an inch thick
7 report that he's looking at.

8 Q (By Mr. McCrea) Doctor, is it your opinion
9 based on medical probability that the smog from an
10 industrial area contributes to a higher incidence of lung
11 disease; is that what you're saying?

12 A Well, yes, but let me clarify something, that
13 you are picking small bits out of here, you neglected to
14 mention that on the last page of this report the author
15 stated, "The high S.M.R" --, that's standard mortality
16 rate for white males -- "is for the most part explained by
17 the excess of deaths from circulatory disease exclusive
18 of arteriosclerotic heart disease. This cause of death
19 category concludes deaths from rheumatic heart disease,
20 cerebrovascular disease and other forms of heart disease
21 all of which are unlikely to be related to exposure in the
22 workplace." And that's what the author says and that's
23 what I said before was that I did not believe that it was
24 related to the work.

25 Q Well, then you agree with the author?

1 A I agree there, certainly yes. I didn't
2 realize that she had come to this conclusion until I read
3 this last bit.

4 MR. CARNEY: Again I think that just points
5 out you're asking the doctor to read a sentence out of a
6 thirty page report or however long it was without giving
7 him the opportunity to review it. When you ask in that
8 kind of detail I think it's inappropriate to just ask him
9 to read a sentence without having a chance to review the
10 article. Turns out what he said earlier his testimony the
11 author happens to agree with.

12 Q (By Mr. McCrea) What were the number of
13 expected deaths?

14 A Twenty-three.

15 Q 22.88?

16 A Yes, that's twenty-three.

17 Q How many people died?

18 A Zero.

19 Q How many more deaths were there than expected
20 than, 7.12.

21 A 7.12. Remember again we're saying this, we
22 are using all standard mortality rate for all males in the
23 United States.

24 Q Not the St. Louis area?

25 A Huh?

1 Q Not the St. Louis area?

2 A Or the St. Charles area, that's correct.

3 Q St. Charles?

4 MR. CARNEY: Well, St. Clair.

5 A St. Clair.

6 Q (By Mr. McCrea) St. Clair area?

7 A Right.

8 Q You have given us your explanation as to why
9 those rates are higher?

10 A Yes, and also she did not -- there may be
11 other confounders in this. What I said about the four
12 rules of epidemiology, I don't think she had corrected for
13 smoking in here at all, she's not corrected for
14 alcoholism, she's not corrected for obesity.

15 Q Are there smokers in the general population
16 of the United States?

17 A Yes.

18 Q Are there people that abuse alcohol in the
19 general population?

20 A Yes.

21 Q Are there people that are obese in the
22 general population in the United States?

23 A Yes.

24 Q Is there any indication that there were more
25 smokers or more abuse of alcohol or and more obesity in

1 the people in the plant than there were in the general
2 population of the United States?

3 A Well, you're asking for a flaw and I said you
4 have to rule out those confounders. So if she is talking
5 about diseases of the respiratory system where she has got
6 four as opposed to 1.53. If she hasn't ruled out smoking
7 and compared smoking in this group with an average amount
8 of people, of males in the United States, that's a big
9 flaw.

10 Q All right. Doctor, can you go to table 4?

11 A That's where I read this last one from.

12 Q And the S.M.R. for all causes of death was
13 one point, was 131, is that correct?

14 A That's correct.

15 Q So that would mean it was 131 percent
16 increase or a 31 percent increase of observed deaths
17 compared to what they thought they would find?

18 A Well, that's correct. Now again, if you
19 notice there's an asterisk on all other diseases of the
20 circulatory system, that means that scientifically
21 significant, the others are not.

22 Q Yeah, the others are not?

23 A Under 131, that could be explained by any
24 number of factors including chance, a 131 S.M.R. over 100
25 is not statistically significant.

1 Q Is it suggestive?

2 A No, I don't think so.

3 Q What does suggestive mean in epidemiology?

4 A I don't know if they use that term, I don't
5 know. I'm not an epidemiologist.

6 Q Could it be probable?

7 A Huh?

8 Q Could it be probable?

9 A No, I don't think so. Could occur by chance,
10 could occur by a lot of reasons, but she only picks one
11 thing as scientifically or as statistically significant,
12 the others she didn't.

13 Q There were 4.46 expected malignant neoplasms
14 and eight people died of that.

15 Q What is malignant neoplasm?

16 A It's a cancer.

17 Q So in this study that number was almost
18 double?

19 A Yes, sir, but again, there are confounders.
20 She did not check if for smoking and she did not say that
21 this was statistically significant. That's the point I
22 made earlier.

23 Q If it was twenty-one points higher would it
24 be statistically significant?

25 A That I don't know, but if it were

1 statistically significant she would have put an asterisk
2 on there and said it was. But I can't say whether
3 twenty -- if we had instead of eight if she had twelve
4 would that be significant? I don't know, but according to
5 her, her figures shows that this is not statistically
6 significant and also she did not check her smoking and the
7 majority of these cancers were lung cancers.

8 Q Diseases of the circulatory system, expected
9 11.17 and observed 16, is that correct?

10 A Yes, sir.

11 Q Diseases of the respiratory system were about
12 the same, digestive system, slight increase, all other
13 diseases, about the same, external cause of death, what's
14 that mean, like somebody gets in a car wreck?

15 A Maybe you're shot or a car accident.

16 Q They expected 2.38 and there was only one.
17 Now that wouldn't have anything to do with PCB's, would
18 it?

19 A No of course not, but it shows that, I don't
20 know. I mean, external cause of death, if a man is killed
21 in a holdup or it's an auto accident on the way back from
22 work that has very little to do with PCB exposure.

23 Q On the S.M.R. the numbers that did exceed a
24 hundred are one, two, three, four, five, six, seven,
25 eight, nine, ten. The numbers that are less than a

1 hundred are one, two, three, four, five, six, correct?

2 A Well, correct; but it doesn't mean a thing.
3 When I say correct, I mean you added them up correctly but
4 it doesn't mean a thing.

5 Q Now if this report --

6 MR. CARNEY: Just a minute, you're
7 interrupting.

8 A It doesn't mean a thing because the only
9 thing that is statistically significant is the increase in
10 all other disease. The circulatory disease --

11 Q (By Mr. McCrea) Dr. Kelly, if I -- Excuse
12 me.

13 MR. CARNEY: Just a minute.

14 Q (By Mr. McCrea) Were you finished?

15 A No, because if you have -- take this, we have
16 one case of a death from genitourinary it's kidney and
17 bladder, expected half a death, so we have got a figure of
18 196 but from epidemiological and scientific point of view
19 that proves nothing so the fact that you have added these
20 up over a hundred proves nothing.

21 MR. CARNEY: I assume you don't think, Mr.
22 McCrea, that the fact that there were six or seven
23 diseases where it was less than expected that that means
24 PCB was actually a benefit with regard to those diseases?

25 MR. MCCREA: No, that's -- you're the people

1 that subscribe to that, that PCB's are a health cure.

2 MR. CARNEY: I don't think that -- I tend to
3 agree with Dr. Kelly that having one death for more or
4 less or any amounts that are not statistically
5 significant, I wouldn't make any point one way or another
6 about those. I couldn't say that PCB's are a benefit or a
7 harm based on that study. So I would agree with Dr.
8 Kelly.

9 MR. McCREA: Well, we may have you testify.

10 MR. CARNEY: Well, if you want to take my
11 deposition, you're welcome.

12 Q (By Mr. McCrea) Dr. Kelly, did you report,
13 did Monsanto report this information to its workers?

14 A I don't know, this was finished in what,
15 19 -- 1977, so I don't know.

16 Q Now Dr. Zack and Mr.--

17 A She isn't a doctor.

18 Q She's a what, master, has her master's
19 degree?

20 A Let's see what it says. Master of public
21 health.

22 Q And she was hired by Monsanto to do this work
23 so they felt she was --

24 A Just a moment. She was hired by Monsanto
25 after I left. Doing this work was part of her duties.

1 She was not hired by Monsanto to do this epidemiological
2 study. I don't know when she was hired, it was sometime
3 after 1974 and when she started this study I don't know,
4 but I do not believe she was hired to do this work.

5 Q Was she competent?

6 A I don't know her at all.

7 Q Has anybody at Monsanto suggested that she
8 was not competent?

9 MR. CARNEY: I'm going to object. There's no
10 foundation that Dr. Kelly knows about her since she was
11 hired after he retired.

12 Q (By Mr. McCrea) Have you heard anyone
13 suggest that she was not competent?

14 A But the same -- Well, I can't answer that.
15 I'm not sure that I ever heard anybody say that she was
16 the best epidemiologist west of the Mississippi.

17 Q Would you turn to page ten of the draft
18 report, the last sentence. The last sentence states and
19 this sentence, this was part of the report dated -- I
20 don't see a date -- I don't know when the draft report was
21 prepared, but the last sentence states, "A future study of
22 this cohort could evaluate the mortality of workers
23 involved from the initial through the final year of PCB
24 production and thus have more power to detect any possible
25 hazards of PCB exposure." Did Monsanto do another study?

1 A Well, first of all to answer the question, I
2 don't know.

3 Q All right. Thank you.

4 A But relate me say that if you read any
5 epidemiological study that's almost standard boilerplate,
6 "Let's do a further study down the road and see if we find
7 out anything else." It's not unique to this study.

8 Q Doctor, your interpretation of the study for
9 the jury is what?

10 MR. CARNEY: I'm sorry, what?

11 Q (By Mr. McCrea) Your interpretation of this
12 mortality study for the jury is what?

13 A It's that --

14 MR. CARNEY: I'm gong to object to the form.

15 THE WITNESS: Sorry.

16 MR. CARNEY: Go ahead.

17 A That it showed no scientific statistical
18 evidence of any illness associated with work with PCB.

19 Q (By Mr. McCrea) All right. Doctor, let's
20 move to the exhibits and if your counsel could hand you
21 the exhibits which are numbered pages 1 through 261 and
22 we'll have the court reporter mark that as a single
23 exhibit and then if Counsel and I can agree to reference
24 the various documents by exhibit number and page numbers.

25 MR. CARNEY: That's agreeable.

1 (Whereupon, Defendant's Deposition Exhibit No. 6
2 was marked for identification.)

3 Q (By Mr. McCrea) Doctor, what is the exhibit
4 number on there?

5 A Six.

6 Q Doctor, the court reporter has marked a stack
7 of documents with Plaintiff's Exhibit No. 6; do you have
8 that in front of you?

9 A Yes.

10 Q And does that show pages numbered 1 through
11 261 on the bottom of the entire stack?

12 A Yes, sir.

13 Q Doctor, you have had those documents for a
14 couple of days. Are there -- Have you had a chance to
15 look through them or not?

16 A Well, I skimmed them, I really haven't gone
17 through word by word.

18 MR. CARNEY: Let me just mention that
19 yesterday was the first time that you gave these documents
20 to me. I did not give these to the doctor to have
21 overnight and I think he thumbed through them during a
22 break for maybe five minutes. So he hasn't had a chance
23 to read them more than a five minute just thumbing
24 through.

25 Q (By Mr. McCrea) Doctor, would you turn to

1 the first document which was page one?

2 A Yes, sir.

3 Q Can you identify the document?

4 A It's a material safety data sheet form
5 submitted by the -- of the United States Department of
6 Labor, presumably filled by Monsanto Company on Inerteen
7 100 dash 2 -- dash 42.

8 Q Will you turn to page two at the bottom and
9 give us the date of the preparation of this document?

10 A 1/26/72.

11 Q Doctor, what is a material safety data sheet?

12 A It gives information about the safe handling
13 of various materials.

14 Q Did you ever suggest on any labels which you
15 used at Monsanto that the worker should read the material
16 safety data sheet before working with the particular
17 chemical?

18 A No, sir. I have never seen that type of
19 information on any label; no matter what company's product
20 it was.

21 Q If I called you in 1972 and asked you if I as
22 a worker at the Bloomington Westinghouse plant should read
23 and understand the material safety data sheet before
24 working with Inerteen 100 dash 42 in order to secure my
25 health, what would your answer be?

1 A I would say, "You are working at the
2 Bloomington plant, of the Westinghouse Electric Company?"

3 Q Yes, sir?

4 A "And you have foremen there and you have
5 manufacturing people who have information of their own and
6 information they received from us concerning the safety of
7 working with PCB's." I would say ask your foreman about
8 it.

9 Q And if I told you my foreman doesn't know
10 anything what would you tell me?

11 A Go to the plant manager.

12 Q And if I told you he can't answer my
13 questions?

14 A I would say have the plant manager call me.

15 Q If I asked you to send me a material safety
16 data sheet, would you do it?

17 A Yes.

18 Q What does it mean form number OSHA dash 20 at
19 the upper righthand corner?

20 A Haven't the slightest idea.

21 Q Why is an emergency telephone number printed
22 on Section 1?

23 A In case there's a spill or some -- these
24 safety data sheets have been used primarily and were
25 originally designed for use during the transportation of

1 materials and they were used in case there was a truck
2 extent or something like that and there's a whole bunch of
3 drums spilled and that's why they have all this other
4 data, not only health data but fire and explosion, what to
5 do about spills, leaks and precautions.

6 Q It's your testimony that material safety data
7 sheets were intended for the people who transport the
8 chemicals?

9 A Oh, I said primarily.

10 Q Primarily, and the number 314 694-1000, who
11 would answer that phone?

12 A Oh, the telephone you mean.

13 Q Correct.

14 A Well, that depends when it came in. I mean,
15 if it came in at nighttime, the night watchman would do
16 it. If you said we have got a fire here, he's got a list,
17 fires, explosions, here's the people you call.

18 Q And there were people?

19 A Yes, there were people -- if he said we've
20 got a person here who wanted to know about the toxicity of
21 this particular product, it would come to the group, in
22 the medical department. We had our own people, a list of
23 those with the night foreman and if it came in in the
24 daytime it would come to our, the medical department,
25 unless it was a fire.

1 Q Did you have people with specialized
2 knowledge to answer questions with regard to potential
3 problems from Inerteen 100 dash 42?

4 A Well, yes. We didn't have specialized
5 knowledge about fire and explosion, that was outside our
6 realm. We certainly didn't have specialized knowledge
7 about what you would do to get the stuff out of the
8 ground, whether you dig it up or put kitty litter on it or
9 God knows what, but we certainly had expertise as far as
10 what safety precautions should be used in cleaning it up.

11 Q Your testimony was you didn't have
12 specialized knowledge with respect to fire and what to do
13 if it got in the ground?

14 MR. CARNEY: Are you talking about Dr. Kelly
15 or Monsanto?

16 MR. McCREA: Monsanto.

17 A Oh, Monsanto did. I said the medical
18 department was responsible for the health and safe
19 handling. We had people in the manufacturing group that
20 would be available and the transportation group that would
21 be available to tell them how to clean it up.

22 Q (By Mr. McCrea) So there were various people
23 with specialized knowledge who could answer questions
24 regarding the use and/or emergencies involving Inerteen
25 100 dash 42?

1 A Oh, yes.

2 Q What is Inerteen 100 dash 42?

3 A Inerteen is a Westinghouse product that
4 consists of PCB's and seventy percent and a certain amount
5 of trichlorobenzene . I don't know which PCB it is,
6 whether it's 1248, 1252 and I believe the trichlorobenzene
7 is around thirty percent. I don't know what 42 means,
8 whether that's 42 percent trichlorobenzene, but it is a
9 significant amount of trichlorobenzene in it.

10 Q It says chemical family, chlorinated
11 aromatic? What is chlorinated aromatic?

12 A Well, it's a -- an aromatic chemical is one
13 that has the benzene ring in it. Chlorinated means it has
14 the chlorine molecule on it, chlorine atom on it.

15 Q Do you list the hazardous ingredients of
16 Inerteen 100 dash 42?

17 A We list the thing as a whole.

18 Q That doesn't tell you what's in Inerteen 100
19 dash 42, does it?

20 A No, it did not.

21 Q Why not?

22 A I don't see why you need to tell the
23 ingredients. You tell them what to do and what the
24 hazards are.

25 Q Well, it's got a section, Section 2,

1 hazardous ingredients, were there hazardous ingredients in
2 Inerteen 100 dash 42?

3 A Yes.

4 Q And but you don't know what they are today?

5 A What do you mean I don't know what they are
6 today? Sure I know what they are today.

7 Q What were they?

8 A PCB's and trichlorobenzene.

9 Q What does it mean TLV, under hazardous
10 ingredients, it has a column TLV?

11 A Threshold limit value.

12 Q Explain to the jury.

13 A The threshold limit value is a figure that
14 shows the amount of the material that can be at the safe
15 level of a material that can be in the air in an eight
16 hour day over a worker's lifetime.

17 Q If you exceeded that level by four or five
18 times for one day would that be a problem?

19 A No. Are you assuming that here is a truck
20 spill on Interstate 70 --

21 Q No, in a plant, in a plant. That doesn't
22 apply to a truck spill, does it?

23 A Yeah, sure it does.

24 Q TLV?

25 A The man isn't going to be taking a TLV when

1 he's got a truck leak out on Highway 70.

2 Q That applies to the person using it?

3 A That's correct, but it also applies primarily
4 as I said to transportation, that was what this -- the
5 genesis of this. That's what these things started with,
6 the Department of Labor, not OSHA, not NIOSH.

7 Q And if you exceeded the TLV by three or four
8 times for one day for a week or a month would that be
9 problem?

10 A I don't think so.

11 Q And if Westinghouse called you on January 26,
12 1972 and asked you if you exceeded the TLV by three or
13 four or ten times for a one one day period your answer
14 would have been the same?

15 A Yes, I would say get it under control but I
16 don't think you're going to have any trouble; because
17 there are reports of people, places where they have
18 exceeded it for a considerable period of time with no ill
19 effects.

20 Q And if I called you from Westinghouse and
21 asked you that same question, Dr. Kelly, are there reports
22 of people who were exposed to excessive levels of PCB and
23 trichlorobenzene and would your answer be yes, there have
24 been and they suffered no ill effects?

25 MR. CARNEY: Well, let me object to the form

1 of the question. When you ask about excessive levels you
2 have not defined that. So it's a vague question.

3 A Yes, I'd say what levels?

4 Q (By Mr. McCrea) Four or five times the TLV?

5 A For how long?

6 Q A week.

7 A I'd say that wasn't going to bother anybody.

8 Q Ten times the TLV for a month?

9 A I would say you better -- there have been --
10 I would say there have been no reports of any ill effects
11 in the electrical industry. In 1972 you're calling me I
12 will say there have been no reports of any illness in the
13 electric industry from using PCB or we're talking about
14 here Pyrenol. We certainly do not recommend that you
15 exceed the TLV ten times for a month but there have been
16 no reports of ill effects. You certainly should -- well
17 that's it.

18 Q By stating to the caller that there have been
19 been no reports of ill effects that indicates that in all
20 of the industry situations with all of the exposure there
21 were no problems?

22 A No, it doesn't at all. I said there have
23 been no reported ill effects.

24 Q And you would have communicated that in 1972
25 and intended the caller to rely on that statement?

1 A I would tell the caller -- he asked me, if --
2 Let me get this very definite. You've told me that this
3 caller has said we're going ten times the maximum
4 allowable concentration for a month, what do you think is
5 liable to happen or is this all right?

6 Q Correct.

7 A I would say one, no, it isn't all right, you
8 should get back, you should police up the thing so that
9 you get back under the allowable concentration. If you
10 ask me then I would say as far as I know there are reports
11 in the literature that shows people who have worked in
12 exposures over the TLV for longer periods than a month and
13 have showed nothing with the exception of some foreign
14 places where they have showed chloracne, but we do not
15 recommend that you keep doing this.

16 Q If I called you in 1972 and I say, "Dr.
17 Kelly, we just tested our manufacturing area and we found
18 out that for the last six months the ambient air levels
19 have exceeded the TLV by three or four times and we have
20 workers complaining, complaining of lassitude, or loss of
21 appetite and loss of libido, but they do not have any
22 chloracne, should we be concerned?"

23 A I would say yes, you should be concerned
24 because you have exceeded the TLV and you should examine
25 the workers to see if they have any demonstrable physical

1 effects.

2 Q I have said Dr. Kelly these workers are
3 complaining of lassitude, loss of appetite and loss of
4 libido, but -- and we know they have had a heavy exposure
5 but -- or at least it's about two times the TLV but none
6 of them have chloracne. Dr. Kelly, in your opinion, based
7 on your experience with Monsanto do you feel there is a
8 causal relationship between their exposure and those
9 symptoms?

10 A No.

11 MR. CARNEY: I'm going to object. Are we
12 talking about what type of plant? I don't think he
13 mentioned PCB's but I'm assuming that you are talking
14 about a plant with PCB's where they are exceeding the
15 levels and I think he has said two times --

16 A Well, I'd say these people do not have
17 chloracne. You have examined them I presume?

18 Q (By Mr. McCrea) Yes.

19 A And they have no other findings?

20 Q Yes.

21 A They have no other findings, physical
22 examination is negative, laboratory examination is
23 negative, I would say I would -- if these were negative
24 and they have no chloracne I do not believe that these
25 symptoms were a result of their exposure at work.

1 Q Thank you, Dr. Kelly. Section 3, physical
2 data; can you briefly explain that to the jury?

3 A Well, I don't know what there is to explain.
4 The physical data means is it a solid, is it a liquid, is
5 it a gas, what's the specific gravity, is it soluble in
6 water, what's its vapor pressure, does it have an odor?

7 Q So it's odorless oil?

8 A Colorless oil, it says.

9 Q Colorless?

10 A It says aromatic odor.

11 Q Aromatic odor, sorry, I couldn't read that on
12 my copy. So that just tells you those things?

13 A Yes.

14 Q Fire and explosion hazard data, section 4,
15 flash point COC 180 degrees C. What does that mean?

16 A Well, again, I'm not a fire and explosion
17 expert. Flash point means at what temperature does this
18 material explode, I believe. I can't answer that, that's
19 an fire question, it gets a little involved. I don't know
20 what C.O.C., that's a type of test that they do; but 180
21 degrees C is a pretty high temperature inasmuch as a
22 hundred degrees C is boiling water, so you've got to get
23 it up there before it ex-- before it catches on fire. I
24 can't -- I can't explain it any more than that.

25 Q Special fire fighting procedures. It says

1 where respiratory protection when fighting fires, where
2 exposure to vapors or gases is possible, why? Why is that
3 in there, Doctor?

4 A Why is it in it? Because we want them to
5 wear a respirator around a fire where this is burning.

6 Q And what are the concerns?

7 A Well, I don't think you want to inhale the
8 product of combustion of any fire.

9 Q But Doctor, this material safety data sheet
10 doesn't concern anything but Inerteen 100 dash 42?

11 A Well, I know that, but if Inerteen is burning
12 and you've got a lot of fumes coming off you want to wear
13 respiratory protection. If you got a bunch of clothes and
14 papers burning in the garage, I'd advice the same thing.
15 You don't want to be around a fire where you can inhale a
16 lot of fumes, that's not good for you.

17 Q All right, sir. Next it says and I can't
18 read the small print --

19 A "Highly toxic gases, chloride" --

20 Q Above that is what I am talking about. It
21 says something fire and explosion hazards?

22 A Oh, I can't read it, I --

23 Q All right. At any rate, it says, "Highly
24 toxic gases, chloride and chlorine could be evolved in
25 fires of this product." Is that a correct statement?

1 A Yes, sir.

2 Q The next page, section 5, "Health Hazard
3 Data," and it says, "Threshold limit value, not
4 available." You've already defined the threshold limit
5 value, why was it not available?

6 A The mixture.

7 Q Why was there no, why were there no numbers
8 for the threshold limit value?

9 A Because it hasn't been run on a mixture, it
10 hasn't been set by the government hygienist group on the
11 mixture. They had set it for trichlorobenzene.

12 Q What was it?

13 A And I presume they had set it for --

14 Q PCB?

15 A The PCB.

16 Q But not the combination?

17 A Not the combination.

18 Q All right. It says effects of overexposure,
19 what is overexposure, what does that mean?

20 A If you get too much -- I don't know if I can
21 define exposure, you get either inhalation or absorption
22 through your skin, that's the exposure and you get too
23 much.

24 Q All right. Break time.

25 (Whereupon, a short break was taken.)

1 Q Dr. Kelly, back on the record after a short
2 break.

3 A Yes, sir.

4 Q Under section 5, Health Hazard Data, which is
5 page two, Exhibit 7?

6 A Yes, sir, what --

7 Q What's the exhibit number?

8 A Six.

9 Q Of Exhibit 6, there is a box under section 5,
10 health hazard data and the first heading you explained
11 threshold limit value, the next one is effects of over
12 exposure. Can you as the medical director of Monsanto
13 Company give us a working definition of overexposure for
14 Inerteen 100 dash 42?

15 A No, sir.

16 Q If I called you up on January 26, 1972 and
17 informed you that I was a worker at the Bloomington
18 Westinghouse plant and I would like to you to define
19 overexposure for this product you could not do it?

20 A Well, I couldn't do it as a matter of
21 figures. I would tell him how to avoid overexposure which
22 I believe is what the man would want.

23 Q If I asked you for a definition of
24 overexposure could you do that?

25 A Well, I would say tell me what you're doing

1 and I will tell you whether you're overexposed or not.
2 Remember this overexposure was not my definition, that's
3 government's definition, that's Department of Labor.
4 Maybe you should call them and ask what's overexposure.

5 Q But Monsanto is answering and supplying the
6 information in that box, correct?

7 A Yes, sir.

8 Q TLV has a definition, correct?

9 A Yes, sir.

10 Q But there is not a working definition for the
11 common man of overexposure, he says under what conditions
12 is there overexposure, you couldn't tell him?

13 A Well, I guess I could tell him. I would say
14 if you're breathing the material at elevated temperature
15 and if you're breathing material at amounts over the
16 accepted TLV for the ingredient of this material and if
17 you're getting your clothes repeatedly or continuously
18 soaked and contaminated with the clothing, that's
19 overexposure.

20 Q If he asked you for a definition of
21 overexposure on a long term basis could you give him the
22 same answer?

23 MR. CARNEY: Are you talking about safety
24 data sheet?

25 MR. McCREA: No.

1 Q (By Mr. McCrea) If a worker called in 1972
2 and asked you to define over exposure to Inerteen 100 dash
3 42 over a period of ten years could you have given him a
4 definition?

5 A Well, I wouldn't be able to tell him what,
6 tell him what his working conditions were over ten years.
7 I mean, if he would explain his working conditions to me I
8 could tell him whether that was overexposure or not.

9 Q If he said he defected the odor of Inerteen
10 every day he was in the plant every day for ten years,
11 maybe not all day but during portions of the day and he
12 asked you, "Doctor, do you think that amounted to
13 overexposure and should I be medically monitored?" What
14 would you tell him?

15 MR. CARNEY: Objection to the form.

16 A No. This' not overexposure, the threshold
17 limit value is much higher than the odor threshold.

18 Q (By Mr. McCrea) The threshold limit value is
19 much higher --

20 A You can smell it. You can smell it well
21 below the threshold limit value.

22 Q If he said that, "I worked in the plant for
23 six years and once a week we would open the vapor flume
24 and this is the Muncie transformer plant, my eyes would
25 burn, my nose would drain, my throat would burn," do you

1 think that was overexposure, Doctor?

2 A Well, I'd have to ask him how much. How long
3 were you in there? How long did the eyes burn? How long
4 did your nose burn? How long did your skin itch?

5 Q Thirty minutes a day once a week for four or
6 five years.

7 A I would have to see it for myself. I would
8 not be able to answer whether exposure in a plant based on
9 a telephone description of somebody's job, I would not be
10 able to answer that.

11 Q If a worker called you and stated that he had
12 headaches twenty-five percent of the time that he was
13 working in the area with PCB's would you think that was
14 overexposure?

15 MR. CARNEY: I'm going to object, I don't
16 think you've given enough facts. Describe the conditions,
17 describe the other chemicals, describe the severity of the
18 headaches. I think there's a whole myriad of facts that
19 you'd have to give to be able to answer the question.

20 A I wouldn't answer them. I would say, "Look,
21 I don't know what the cause of your headaches are. What
22 you should do is go and see your plant physician and ask
23 him to find out what the cause of your exposure is" -- I
24 mean, "what the cause of your headaches is, and whether or
25 not exposure to PCB has caused these headaches." I would

1 say, "We do not have headaches in our workers, but I don't
2 know what the situation you're working in is."

3 Q (By Mr. McCrea) It would be your response
4 then that you don't know if headaches can be a symptom of
5 exposure to PCB's?

6 A That isn't what I said. I said I do not know
7 if you're headaches are coming from your PCB exposure.

8 Q Well, if he said he works in PCB's and that's
9 all he works in and he experienced headaches, would you
10 consider that as a sign of overexposure?

11 A No. I would not, because there are a myriad
12 of causes of headaches, ranging from brain tumors to
13 constipation.

14 Q You understand we're talking about a
15 worker --

16 A Yes, a worker --

17 Q -- with PCB's?

18 A -- working with PCB and he says, "I have got
19 headaches, am I overexposed to PCB?"

20 Q The answer would be no?

21 A I would say, "You're not giving me enough
22 facts. I don't know whether there are other causes, other
23 conditions that may be giving your headaches. I do not
24 know what the conditions of your presumed overexposure is.
25 I don't know if you're overexposed."

1 Q If he called you and said that he's
2 experienced nausea?

3 A I would certainly not make a diagnosis over
4 the phone on an interstate telephone call.

5 Q But he's just asking for your advice and he
6 wants to know could that be an indication of overexposure,
7 what would your answer be?

8 A I don't believe it would.

9 Q He said he's experienced vomiting, what would
10 your answer be?

11 MR. CARNEY: You're asking -- first of all, I
12 think the Doctor said he wouldn't make a diagnosis. He
13 told you how elaborate his examinations are, and now
14 you're asking him to say if somebody calls him up and says
15 they have had vomiting and he worked with PCB's --

16 MR. McCREA: He just want his advice as to
17 whether or not that would be an overexposure to PCB.

18 A My advice would be get yourself examined and
19 find out. I can't tell him whether that's an indication
20 or not, barring everything else, no, I wouldn't dream of
21 doing that.

22 Q (By Mr. McCrea) If he said he's experiencing
23 loss of weight, and he wants to know if that could be a
24 sign of overexposure, what would you say?

25 A I would say find out what the cause of your

1 loss of weight was.

2 Q He said he experienced edema, what would your
3 answer be?

4 A Edema where?

5 Q I don't know?

6 A Well, I sure wouldn't know either.

7 Q He says he experienced abdominal pain and he
8 wants to know if that could be a sign of overexposure,
9 what would be that be?

10 A I would say you better get your abdominal
11 pain diagnosed.

12 Q Dr. Kelly, would you read the effects of
13 overexposure as published by Monsanto Company?

14 A Yes, sir. Skin irritation, in the form of
15 chloracne, systemic intoxication leads to nausea,
16 vomiting, loss of weight, edema and abdominal pain.

17 Q Emergency and first aid procedures?

18 A Yes, sir. May I add something to that
19 effects of overexposure? You realize we are talking here
20 about acute overexposures, we are talking here about the
21 individuals who inhaled the material at elevated
22 temperatures from the heat transfer units. We are talking
23 here also about a safety data sheet that's supposed to,
24 was originally designed to cover transportation accidents
25 where there's a fire and what we could expect if you had

1 overexposure at fire, you would get, you may get systemic
2 intoxication, which would lead to nausea, vomiting, loss
3 of weight, edema and abdominal pain.

4 Q Doctor, where does it say the effects of
5 overexposure from a fire in Section 5, Health Hazard Data?
6 Where does it say the that?

7 A It doesn't state that at all. You're trying
8 to cover all the bases in two lines.

9 Q I want to ask you where it states --

10 A It doesn't state it.

11 Q Is it your --

12 MR. CARNEY: On this page or on the prior
13 page? It talks about fire right in the section
14 immediately adjacent to it.

15 MR. McCREA: I understand that. I'm asking
16 the doctor where in Section 5 it suggests or implies that
17 the overexposure is the result of a fire as he just
18 testified.

19 A No, it does not.

20 Q (By Mr. McCrea) It says effects of
21 overexposure, period, correct?

22 A Is that right?

23 Q There's no --

24 MR. CARNEY: I don't see any period.

25 MR. McCREA: Well, I didn't mean, Tom, a

1 period like that, (indicating). What I meant was effects
2 of overexposure, period, no more information.

3 MR. CARNEY: Well, there's some words below
4 that. I thought I was trying to be accurate.

5 A What is your question, Mr. McCrea?

6 Q (By Mr. McCrea) My question is that nausea,
7 vomiting, loss of weight, edema and abdominal pain
8 according to you in your testimony would not be signs of
9 overexposure; yet on the material safety data sheet
10 published by the company for whom you worked during the
11 time period you worked they're all listed as effects of
12 overexposure; how do you explain that?

13 A Well, I'll explain it very easily. I wrote
14 and I put this dope because those symptoms did occur from
15 overexposure from inhaling the material at elevated
16 temperatures.

17 Q Where do you get the information that nausea
18 resulted from exposure to inhaling the materials at
19 elevated temperatures?

20 A In the article by Dr. Spoyer about the three
21 people that inhaled the material in a jury rigged heat
22 transfer unit where they were exposed for one to three
23 days of the material leaking at elevated temperatures
24 where they had nausea, vomiting, loss of weight, edema and
25 some abdominal pain due to an enlarged liver.

1 Q Now you wrote this and you mentioned edema
2 but you don't explain where it is. Can you tell us now
3 where the edema occurred?

4 A No, I don't.

5 Q But you wrote it?

6 A I wrote it eighteen years ago and I don't
7 know where the edema was.

8 Q Do you appear down at the bottom under any of
9 the initials JAG, HOH, GTG, WVP?

10 A No, sir, I'm REK. I'm not on any of those.

11 Q But you did write this?

12 A Yes, I wrote that part, I wrote the health
13 hazard data certainly.

14 Q What is meant by edema?

15 A Swelling.

16 Q Where?

17 A Any place, you have edema under the eyelids,
18 you have an edema of the legs from heart disease, you get
19 edema a lot of places.

20 Q What areas of the body can be affected by
21 edema from overexposure to Inerteen 100 dash 42?

22 MR. CARNEY: Objection to the form of the
23 question.

24 A I don't know. It's never been reported to my
25 knowledge.

1 Q (By Mr. McCrea) I thought you put this down
2 as a result of your report?

3 A Yes, but one of the ingredients of Inerteen
4 was a PCB which was used in the heat transfer unit.

5 Q You included edema as an effect of
6 overexposure based on a report which you read, where did
7 the edema occur in that report?

8 A I don't remember where it occurred; but I
9 really don't know what difference it makes. If they did
10 have swelling any place, it wouldn't make much difference
11 whether it was swelling under the eyes or in the legs.

12 Q How do you explain the abdominal pain as a
13 result of overexposure to PCB's or Inerteen 100 dash 42?

14 A Involvement with the liver.

15 Q And what involvement with the liver causes
16 the pain?

17 A Swelling of the capsule of the liver.

18 Q How do you explain loss of weight as a result
19 of overexposure to Inerteen 100 dash 42?

20 A If they are nauseated and they are vomiting
21 and their liver isn't working well, at subpar
22 functioning you could have loss of weight.

23 Q How do you explain edema?

24 A I can only explain it if the liver were so
25 swollen that it would press on the veins leading into it

1 which would give an edema, but that doesn't seem a very
2 prominent to me. I -- if I remember writing this in 1980,
3 1990 I probably wouldn't put edema in. I'd put the others
4 in.

5 Q Emergency and first aid procedures under
6 Section 5, Health Hazard Data again, page two, states
7 "Remove from exposure, remove contaminated clothing, wash
8 contacted area with large amounts of water and soap, refer
9 to physician." Define contaminated clothing. Did you
10 write this portion?

11 A Yes.

12 Q Define what you mean by that.

13 A Contaminated clothing is wearing apparel that
14 has something on it that you don't want.

15 Q It says refer to a physician. Do you -- did
16 Monsanto have a method in place wherein they educated
17 local doctors on the effects of overexposure to PCB's and
18 what the local doctor should do?

19 MR. CARNEY: Let me object to the form of the
20 question, it's compound.

21 A Well, to answer your question, no, we did
22 not. We did have numbers that any physician could call us
23 and ask for information about the first aid or further
24 treatment of workers and as I said in my thirty-eight
25 years with Monsanto I probably had less than five calls.

1 Q (By Mr. McCrea) A doctor calls you in 1972
2 and he says, "Dr. Kelly, I'm Dr. Smith in Bloomington,
3 Indiana. I have a worker from the Westinghouse plant who
4 has skin irritation in the form of chloracne, systemic
5 intoxication which led to nausea, vomiting, loss of
6 weight, edema and abdominal pain. What should I do for
7 him?" What's your answer?

8 A Remove him from any exposure to PCB. Here we
9 have a man who has exposure, sufficient to give him
10 chloracne, sufficient to give him deranged liver function.
11 Remove him from exposure, send him to a dermatologist for
12 the treatment of the chloracne, give him a high
13 carbohydrate diet for his liver, follow him closely and
14 call the plant and say, "I have this man who has what I
15 have diagnosed as a condition resulting from PCB. I think
16 you ought to look into this matter." And then I would
17 call the plant myself if I had gotten that call.

18 Q If he asked you if there were any other signs
19 or symptoms that he should check for what would you tell
20 him? What would you have told him in 1972?

21 A I wouldn't have told him anything. He told
22 me everything he needed, he had liver problems and he had
23 skin problems. And --

24 Q If he asked you if he should check --

25 MR. CARNEY: Just a minute.

1 A He had liver problems and he had skin
2 problems, they are treating the whole individual. He
3 doesn't care what other symptoms he has. He wants the man
4 to get well, so he's treating his liver and he's treating
5 his skin.

6 Q (By Mr. McCrea) If he asked you to be on the
7 lookout for any other consequences to his health what
8 would you tell him?

9 A I'd say check on any possible peripheral
10 neuritis.

11 Q Anything else?

12 A No. I'd probably also say you ought to
13 report this case because that would be the first in the
14 literature.

15 Q If he mentioned he had joint pain and he
16 wanted to know if that was a cause of the exposure ha
17 would your answer have been in 1972?

18 A Same as today. I don't believe it's related.

19 Q If he said he had loss of libido, what would
20 your answer be in '72?

21 A I would check out other causes.

22 Q If he said he had lassitude what would your
23 answer have been?

24 A Well, I'd say if you have got loss of weight
25 and you have liver problems you could very well have

1 lassitude.

2 Q Let said he was irritable, would you have
3 related that to the exposure?

4 A I don't know. I mean, it all depends, you'd
5 have to tell me more about the situation. Just irritable,
6 how long, when? But I think you're a little unrealistic
7 because the doctor would be call me about the man's
8 medical condition at the present time. He would not be
9 interested in the symptoms. He'd be interested in is
10 there anything else of a major condition that I could
11 expect and I would give him the only other one that I
12 would think would be important.

13 Q If he asked you if there were any medications
14 which he should got give to the person, what would you
15 tell him?

16 A I would say don't let him take any alcohol.

17 Q Why?

18 A Because alcohol has an effect on the liver.
19 If you drink alcohol you destroy some liver cells.

20 Q Is that particularly true if a person's been
21 exposed to PCB's?

22 A No. But it's true of everybody in the United
23 States.

24 Q If he said he wanted to go out and have
25 something to drink would you tell him no, you shouldn't

1 because of PCB exposure?

2 A I'd say not because of the PCB exposure; I'd
3 say you presumably have a liver problem. If you have a
4 liver problem you don't want to add any other problems to
5 it and alcohol is one of them.

6 Q And would that hold true for a person who has
7 a mild liver problem?

8 A What is meant by mild.

9 MR. CARNEY: Objection to the form.

10 Q (By Mr. McCrea) What is meant by mild is
11 what we discussed in the Zack article as reported in the
12 City of Bloomington, Indiana which stated in 1976 the
13 Monroe County Board of Health conducted biochemical tests
14 among Bloomington, Indiana residents exposed to PCB's
15 serum levels of gamma glutino --

16 A GGT.

17 Q GGT, and plasma triglyceride levels were
18 found to show a direct relationship to serum PCB levels.
19 If that doctor called you and said, "Dr. Kelly," and said
20 "This individual has elevated GGT and plasma and
21 triglyceride should he drink alcohol?" What is your
22 answer?

23 A First of all you have made several earlier
24 comments about the Zack article in this question and when
25 I answered the question you said liver problems. Zack did

1 not say these people has liver problems. She said they
2 had -- that the levels of GGT and the triglycerides were
3 proportional to the PCB levels.

4 Q Correct.

5 A She didn't say they were increased as I saw
6 them.

7 Q That's true.

8 A So if this man said this person has high
9 triglycerides and I said that doesn't bother me,
10 particularly alcohol bringing up high tri -- gives you
11 high triglycerides anyway. I'd say as far as the GGT is
12 concerned I'd say how high is it, and if it's elevated
13 twice as much I'd say he shouldn't take alcohol until it
14 comes down.

15 Q All right, sir. Any other medications that
16 you would advise the doctor not to administer to this
17 individual with these symptoms which Monsanto has listed
18 under its Health Hazard Data, January 26, 1972 for
19 Inerteen 100 dash 42?

20 A I'd have to remember what medications were
21 being used in 1972. I mean, there may have been some and
22 I am more familiar with them but I can't answer that right
23 now.

24 Q You stated that you had less than five calls
25 from doctors, can you recall any of them?

1 MR. CARNEY: I don't think that was his
2 testimony.

3 MR. McCREA: He said during the time that he
4 was medical director at Monsanto he probably had less than
5 five calls from physicians.

6 MR. CARNEY: I don't know what he said -- I
7 think he had a total of five calls with regard to problems
8 with PCB's. I don't think they were all from doctors, as
9 I recall.

10 A No, one was a call that I initiated myself to
11 the Indiana one.

12 Q (By Mr. McCrea) To the whom?

13 A The Indiana one, where the heat transfer
14 outfit.

15 Q Indiana?

16 A It was Indiana, in Indiana, it was written up
17 by Dr. Spoyer, the Department of Industrial Hygiene or
18 Public Health of Indiana. Another one was this, a
19 thermometer company someplace in New England where the
20 people had some of the women had chloracne from dipping
21 their hands into the material, that was the first call I
22 had so I wanted to see it because I wanted to see what
23 they were doing and I said why don't you use some sort of
24 a gimmick that you don't have to put your hands in there
25 and it went away. That was number two.

1 The third was from some company, I believe it was
2 the Crown Chemical Company in the East someplace where the
3 man said again we had an exposure but -- he didn't, again,
4 but he said, "We had an exposure of people inhaling hot
5 PCB's from a heat transfer unit . These people are -- have
6 some nausea. They do have" -- I don't know if he said
7 they had vomiting or not. "What do you think?" I said
8 "Well. Obviously, correct the situation, get them out of
9 there and watch for liver involvement," and I followed it
10 up in a week or so and he said, "Yes, they did show some
11 slight jaundice." Followed up in couple months and they
12 were all well. I conditions -- so I said less than five,
13 I don't recall any others. Those are the three. I never
14 got a call from anybody in Bloomington, Indiana.

15 Q Reactivity data, hazardous decomposition
16 products, it lists CO, can't read it.

17 A Yes, carbon monoxide, carbon dioxide, smoke,
18 soot, chloride and chlorine.

19 Q And that was the information known in '72?

20 A That's correct.

21 Q Would you now list furans?

22 A I think we would, yes, if we were making it
23 still.

24 Q Would you list anything else?

25 A Well, in this Inerteen we would probably list

1 dioxin.

2 Q Anything else?

3 A No, sir.

4 Q Spill or leak procedures, do you know what is
5 meant by an improved chemical landfill?

6 A Sure. It's a landfill that's approved by
7 government authorities.

8 Q Did Monsanto dispose of its PCB's in an
9 approved chemical landfill in 1972?

10 A I think they burned it in the incinerator we
11 had over at the East St. Louis plant.

12 Q Did they ever use landfills?

13 A I don't know whether they did or not. They
14 may very well have, I don't know.

15 Q Do you know where your PCB's were disposed?

16 A No, I don't.

17 Q Were there PCB's that were disposed from 1936
18 to 1974?

19 A Is that a question?

20 Q Yes.

21 A What was the question?

22 Q Were there PCB's that were disposed by
23 Monsanto from 1936 to 1976?

24 A Yes, I am sure there were.

25 Q But you don't know when you started, you

1 don't know anything about that?

2 A No, I don't know when landfills were first
3 approved.

4 Q Under special protection information,
5 respiratory protection, Bureau of Mines approved
6 respirator for organic vapors, if I called you in 1972 and
7 I said, "Dr. Kelly, when should I as a worker wear a
8 Bureau of Mines approved respirator for organic vapors for
9 Inerteen 100 dash 42? What would you tell me?

10 A I'd say you have to tell me what you're doing
11 and I'll tell you whether you need a respirator at that
12 time.

13 Q If I told you I was working an F-30 near the
14 capacitor impregnation tanks?

15 A I'd say I do not know what the levels would
16 be at that capacitor impregnator plant. I believe you
17 will have to ask your plant safety man about that. I said
18 we recommended against inhaling of fumes at elevated
19 temperatures.

20 Q And if I ask -- Go ahead, excuse me.

21 A And I don't know if there was a TLV located
22 at that particular time because remember now we're talking
23 about capacitors, we're not talking about Inerteen.
24 There's a transformer fluid, it's not used in capacitors.

25 Q If I asked you for the best guidelines

1 available as to when I should wear a Bureau of Mines
2 approved respirator based on this information in your
3 material safety data safety sheet what would you tell me?

4 MR. CARNEY: Other than what he's already
5 said?

6 MR. McCREA: Correct.

7 A I don't know. I don't think I have anything
8 to add to it.

9 Q (By Mr. McCrea) What are the best
10 guidelines, what can you tell me?

11 A Well, if the material is used at elevated
12 temperatures for more than a short time and I couldn't
13 quantify a short time because I don't know how long he's
14 working and I'd say he ought to put a respirator on. If
15 you're in doubt put one on.

16 Q Did you ever issue a warning to that effect?

17 A We told them to avoid inhalation of the fumes
18 at elevated temperatures and when they are in confined
19 spaces and there are any number of ways that you can do
20 that. One is not go in there, No. 2 is wear a respirator,
21 No. 3 is have changes of air and No. 4, would be a kind of
22 vacuum, a collection of the fluid, of the material.

23 Q Did you ever issue a warning that workers
24 should wear a Bureau of Mines approved respirator when
25 working with Inerteen 100 dash 42 at elevated

1 temperatures?

2 MR. CARNEY: Objection. He just answered
3 that question, you're getting awfully repetitive.

4 MR. McCREA: I did not get an answer.

5 MR. CARNEY: I think he did answer. You
6 didn't like his answer. He said he didn't did warn about
7 elevated temperature and there's a number of ways you can
8 do that. He didn't spell out all the ways.

9 MR. McCREA: I agree that was the answer.
10 I'm asking did he ever warn a worker that he should wear a
11 Bureau of Mines approved respirator when working with
12 Inerteen 100 dash 42 at elevated temperatures?

13 A I don't remember ever talking to a worker.

14 Q (By Mr. McCrea) Did you ever put it in
15 writing?

16 A I said avoid it. I left this to the users.

17 Q Did you ever put it in writing?

18 MR. CARNEY: Are you talking about --

19 MR. McCREA: Just a second. Just a second
20 please.

21 Q (By Mr. McCrea) Did you ever put in writing
22 a warning that a worker should use a Bureau of Mines
23 approved respirator when working with Inerteen 100 dash 42
24 at elevated temperatures?

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

1 Q Under Section 8, special protection
2 information, local exhaust for vapors. If a worker called
3 you and asked you under what conditions a local exhaust
4 should be used for vapors, what would you tell him in '72?

5 A I would say, "I can't give you a general
6 statement on this. I don't know in the first place
7 whether local exhaust could be available for your
8 particular application and other modalities must be used."
9 I would also say I don't know -- Well, I would say, "I
10 think you will have to ask the manufacturing people in
11 your group as to where this should be done." This says if
12 this local exhaust needed; yes, it's needed if there are
13 vapors around there, but I can't define how much vapors is
14 at somebody's plant.

15 Q If I asked to you define that, could you?

16 A How much is too much?

17 Q Yes, sir.

18 A No, sir. I can't define how much is too
19 much. Too much is what will give you harm.

20 MR. CARNEY: I didn't get a chance to object
21 but I'm going to object to the form of the question,
22 because it's vague.

23 Q (By Mr. McCrea) Special Precautions, Avoid
24 Skin and Eye Contact. If I asked you in 1972 to tell me
25 why I should avoid skin and eye contact and what is meant

1 by that, what would your answer have been?

2 A There is two questions now, lets' separate
3 them, will you?

4 Q If I asked you why to tell me why I should
5 avoid skin contact?

6 A Because the material may be harmful. If you
7 get enough of it on you and it gets absorbed.

8 Q Did you ever issue a warning that PCB's go
9 through the skin and can poison the body?

10 MR. CARNEY: Let me object to the form of the
11 question. It contains undefined terms. A warning to who?

12 MR. McCREA: To the workers.

13 A I said I gave the warning to avoid the skin
14 contact, on a gasoline truck; it says avoid smoking, it
15 doesn't say this is going to blow up if you smoke around
16 here. I mean, to answer your question, no, I did not, in
17 those words, but I said, avoid skin, repeated or
18 continuous skin contact, that's certainly --

19 Q (By Mr. McCrea) That could mean everything
20 from irritation to poisoning of the body with PCB's?

21 A Was that a question?

22 Q Yeah. Did you tell them why to avoid skin
23 contact?

24 A No, but if you tell a person what to avoid,
25 you are avoiding any illness. You don't have to tell them

1 what illness is it he's avoiding.

2 Q But if the worker thinks it's going to result
3 in a little skin irritation it may not bother him. If he
4 knows it's going to poison his body it could.

5 A Well, I don't agree with that because we have
6 had these warnings for forty years and we've had no
7 trouble, no report of illnesses.

8 Q We'll debate that as another day, Doctor?

9 A I cannot hear that.

10 Q We'll debate that at another day.

11 A That's fine.

12 Q Special precautions, eye contact, why should
13 you avoid eye contacts, why should you avoid PCB's in the
14 eye?

15 A The same reason you'd avoid putting
16 turpentine in your eye, it's irritating to your eye.

17 Q Is that all?

18 A That's all.

19 Q Can it be absorbed through the eye into the
20 body?

21 A A drop of it, sure, it would be, but that
22 would be of no consequence. It's the local effect you're
23 worried about.

24 Q Avoid inhalation of vapors. What's the
25 reason for that?

1 A Because you're getting absorption of the
2 material through your lungs.

3 Q All right. Doctor, turn to page three. Can
4 you identify for us what Capacitor 21 is under Section 1?

5 A No, I can't.

6 Q Did you prepare this?

7 A Yes, sir.

8 MR. CARNEY: Are you talking about the entire
9 document?

10 A No. The health hazard, the data.

11 Q (By Mr. McCrea) You prepared the data?

12 A Yes, I gave the data to J.T.G., who was Jack
13 T. Garret, who was in our department and he put this in,
14 he was also the environmentalist in our department.

15 Q Okay.

16 A At the time I prepared that I knew what
17 Capacitor 21 was.

18 Q Can you go to Page 5? Can you tell us under
19 Section 1 in the material safety data sheet what Inerteen
20 PPO is?

21 A It's a transformer fluid that contains some
22 PCB, I don't know which one and a certain amount of I
23 believe trichlorobenzene. I'm not a hundred percent
24 certain.

25 Q Can you go the page 7? Can you tell us what

1 Inerteen 54201 KJ is?

2 A I would not know what the other thing outside
3 of it does contain PCB's.

4 Q Can you go to page 9? Can you tell us what
5 Aroclor 1242 is?

6 A That's a PCB chlorinated to 32 percent.

7 Q Anything else other than PCB?

8 A No, sir.

9 Q And can you go the health effects, excuse me,
10 can you go to Section 5, Health Hazard Data. Is that
11 precisely and identically the same as the health hazard
12 data for Inerteen 100 dash 42?

13 A Yes, sir.

14 Q And you prepared that information?

15 A Yes, sir.

16 Q And give it to Mr. Garrett?

17 A Uh-huh.

18 Q And he put it on the sheet?

19 A Yes, sir, or he gave it to the person that
20 made the final editing of it.

21 Q Please turn to Page eleven, what an Aroclor
22 1016, MCS if I am reading that correctly, 1016?

23 A That is an Aroclor, a PCB chlorinated to
24 fifteen percent, and I think MCS was a phrase used when it
25 was used for other than electrical uses.

1 Q It's chlorinated to sixteen percent?

2 A That's correct.

3 Q And the same effects of overexposure appear
4 but the second line, Emergency and First Aid procedures is
5 blank; is that a fair statement?

6 A Yes.

7 Q As to what appears in Section 5, Health
8 Hazard Data, page 12?

9 A Yes, sir. 1016 as I recall was a more or
10 less an experimental product that was never used widely at
11 all, if at all, in the industry.

12 Q But it was on the market on the date of
13 January 25, '72?

14 A No, I can't say it was on the market. They
15 may have shipped out experimental quantities or they may
16 never have shipped any, I don't know.

17 Q All right. Next page, thirteen. Can you
18 identify this exhibit, Dr. Kelly, which is titled Monsanto
19 Product Specification, Monsanto Industrial Chemical
20 Company, date effective June 10, 1975 which would be after
21 your departure from Monsanto?

22 A Yes, sir. I can identify it not anymore than
23 what you just said, its a product specification of 1016.

24 Q All right. Sir. Page fourteen, can you
25 identify this Monsanto document which at the top has

1 Monsanto, Monsanto Company Corporate Medical Department,
2 Toxicity Information, Toxicity Information on Aroclor with
3 looks like a trademark sign, 1016, capacitor dielectric?

4 A Well, it's just what you said.

5 Q Have you seen this document before?

6 A No, I haven't. This I believe also occurred
7 after I left.

8 Q Under the sixth paragraph it says, "Aroclor
9 1016 has a negligible vapor pressure at room temperature
10 around it is not expected to present a significant vapor
11 inhalation hazard under ambient conditions." Does that
12 mean it doesn't evaporate?

13 A That's right, ambient means the air in this
14 room.

15 Q It says, "However, precautions should be
16 observed to avoid inhalation of increased vapor
17 concentrations, which may occur if Aroclor 1016 is used at
18 elevated temperatures." Is that --

19 A Is that a question.

20 Q No. It states that, correct?

21 A Yes.

22 Q Why is that stated?

23 A That reason if you heat it up, more comes off
24 and you shouldn't breath the fumes.

25 Q Under the last paragraph, environmental

1 hazards, it states, "During the past several years
2 evidence has accumulated to indicate the polychlorinated
3 biphenyls are widely dispersed throughout the environment
4 and that they can have adverse ecological and
5 toxicological effects. Do you agree with that statement?

6 A Yes, but remember we have got to define what
7 is meant by toxicological effects. Toxicological
8 effects on shrimp, toxicological effects on birds?

9 Q Does that -- Would you define that for us?
10 What is meant in that paragraph when Monsanto states
11 toxicological effects?

12 MR. CARNEY: Let me object to the question.
13 I think this document is dated 11/4/1975, at least that's
14 the date that appears at the bottom of the left-hand side
15 and I think there is no foundation that Dr. Kelly wrote
16 this or even saw this document. He may be able to answer
17 your question but if you're asking him to say what does
18 some words mean where he didn't author them might be
19 asking for speculation.

20 A I have an answer. This is under
21 environmental hazards?

22 Q (By Mr. McCrea) Yes, sir.

23 A At that particular time in 1975 the
24 environmental hazards were to avian species which were
25 birds because they will lay eggs with thin egg shells and

1 when they would try to nest on these eggs there would
2 obviously be no progeny, no chicks. It was also had
3 toxicological effects on lower marine organisms, shrimp
4 and species below the shrimp so that's what they meant by
5 adverse ecological, it's bad for the peregrine falcon, the
6 bald eagle and the toxicological effects on the bald eagle
7 and peregrine falcon. You had to read that in context
8 with environmental hazards what you're talking about.
9 They are not talking about people there.

10 Q Was there a risk to people as a result of the
11 environmental contamination by PCB's?

12 A No, sir. There was none.

13 Q Is it your opinion today based on all of the
14 knowledge which you have from Monsanto Company and your
15 sixteen years of experience since last working for them
16 that there is no risks to humans from environmental
17 contamination by PCB's?

18 A Yes, and you could add to that all the
19 government publications and all the government writers and
20 all the scientific community have stated there's no risk
21 to humans from the PCB's that are presently from the
22 environment.

23 Q Is it your opinion today that there is no
24 risk to humans from the presence of furans in the
25 environment?

1 A Yes.

2 Q Is it your opinion today that there's no risk
3 to humans from the presence of dioxins in the environment?

4 A Well, it depends on what you mean by
5 environment. If you spill a bunch of material that
6 contains dioxin in somebody's backyard that's one thing,
7 but if you take the general public throughout the United
8 States there's no risk but there may be isolated cases
9 where there's spillage of dioxins that could put people at
10 risk.

11 Q If I called you today and asked you if you
12 know of any particular environmental situation which
13 presents a risk to the health of humans from PCB's, furans
14 or dioxins what would your answer be?

15 MR. CARNEY: I'm going to object to the
16 question, it's compound, you have lumped three things
17 together that are totally -- that are dissimilar and so I
18 object to the form.

19 MR. McCREA: I agree but I did it to save
20 time.

21 MR. CARNEY: Well, I think that's a --

22 Q (By Mr. McCrea) If I called you today, Dr.
23 Kelly, and I asked you if you know of any particular
24 situation involving PCB and contamination of the
25 environment which presents a risk to human health what

1 would your answer be?

2 A My answer would be if you were asking me I do
3 not know of any. If you're asking people in the
4 government --

5 Q I'm asking you --

6 A Yes, but you're calling me and I have got to
7 give you my answer. I'm not going to answer yes or no to
8 the people calling me. I'm going to explain what the
9 situation is; and I'm going for explain that dioxin is not
10 only a toxicological problem, it's a medical problem. I
11 would also say that the government has paid three hundred
12 million dollars to buy out or clean out Times Beach
13 because of the problem there although there have been no
14 cases of any illnesses to individuals at Times Beach, so I
15 would have to explain to them that here is my opinion,
16 here is what your elected representative's opinion is.

17 Q All right, sir, fair enough.

18 MR. CARNEY: When we were talking about
19 dioxin, they are not PCB's.

20 A Yes, dioxin.

21 Q (By Mr. McCrea) We started with PCB's. If I
22 called you --

23 A Yes, but wait, PCB's and dioxin are a hundred
24 percent different and there is no dioxin in PCB.

25 Q (By Mr. McCrea) Yes, I understand. Dr.

1 Kelly, if I called you today and I asked you if you know
2 of any use of an electrical equipment that presents a risk
3 of contamination of the environment that could cause
4 problems to human health and I'm talking about electrical
5 equipment containing PCB's or PCB's and trichlorobenzenes,
6 whatever, what would your answer be?

7 MR. CARNEY: I'm going to object to the form
8 of the question, it's vague.

9 A Is there any use? Do you use use or
10 misuse --

11 Q (By Mr. McCrea) Use.

12 A Use?

13 Q Not misuse, use.

14 A I would say that the only risk would be in a
15 transformer that could be effected by a fire and there
16 were no precautions to prevent the spread of that material
17 throughout the buildings. There is a risk there, there's
18 a risk that would involve expensive cleanups. I would say
19 that the risk to human health in those particular building
20 occupants and in the fire department personnel has been
21 minimal, did not show any harm to those workers in the
22 building or in the people that take care of the fire.

23 Q Are you talking about specific instances like
24 Binghamton?

25 A Yes, Binghamton, yes or One Market Plaza.

1 But I haven't finished yet, have I?

2 Q No, I don't think so.

3 A No, I don't think so. So I would say you
4 have to qualify what you mean by risks. There are
5 certainly a financial risk and there is a possibility of a
6 medical risk.

7 Q And how long have you known that there's a
8 possibility of a medical risk to an individual as a result
9 of a transformer burning and contaminating a building?

10 A '81 or '82.

11 Q And how did that information come to you?

12 A It's in the newspapers, eventually it was
13 written up in some scientific articles.

14 Q If a worker from the Bloomington Westinghouse
15 plant called you and informed you that for fifteen years
16 he worked in the plant and the carousel which was used to
17 test capacitors after they had been manufactured would
18 have explosions on an almost daily basis, sometimes
19 several times day, sometimes maybe none for a few days and
20 that when these explosions would occur in the Bloomington
21 Westinghouse plant fumes would permeated the plant and
22 that he was exposed to these fumes for a period of fifteen
23 years, and he wanted to know if he should be medically
24 monitored for adverse -- for possible health problems,
25 what would you tell him?

1 MR. CARNEY: I'm going to object again. I
2 don't think you've given enough facts in your question.
3 Dr. Kelly is not familiar with the Bloomington plant. You
4 don't indicate on what the exhaust facilities were, what
5 the area was, whether the explosions were caused any fumes
6 and burning of PCB's, to what extent, and a whole myriad
7 of things. So I'm not sure it's possible to answer
8 without all the facts.

9 You can try to answer it again?

10 A Well, I would tell him in the first place,
11 yes, I think you ought to be examined. I would say no
12 amount of exposure can give you a disease you don't have,
13 and so if he doesn't have anything the exposure was not
14 sufficient to cause it obviously because it wasn't there.
15 I would say also I am not in a position to evaluate the
16 extent of your exposure. This is something that you
17 should talk to your manufacturing people about, I don't
18 know these conditions and I can't give you an expert
19 advice on it.

20 Q (By Mr. McCrea) If he asked you to recommend
21 doctor who has expertise in the toxicological effects of
22 PCB's, who would you recommend?

23 A What year is he calling me.

24 Q He's calling you today.

25 A Today, and he's in Bloomington?

1 Q Correct.

2 A I'd have to look it up. I'd have to look it
3 up in the journal -- I mean in the Directories of the
4 Industrial Medical, Occupational Medical Association, see
5 who's in Indiana. I'd have to look up people who were
6 certified in occupational medicine and see who's certified
7 around Bloomington.

8 Q He also informed you that he has made inquiry
9 of the Old Monroe Medical Society which includes all of
10 the physicians that were in Bloomington and there's not
11 one physician with expertise in the toxicological
12 properties and possible adverse effects of PCB's and he
13 wants your advice as to a doctor?

14 A Well, I would say then go to the best
15 internist in Bloomington and find out if something is
16 wrong with you. If he had to just call me.

17 Q If he asked you to recommended a medical
18 protocol, in other words, the tests and clinical
19 evaluation that should be performed, what would you
20 recommend?

21 A I would recommend --

22 MR. CARNEY: I'm going to object. We're
23 talking about something so unrealistic, a Bloomington
24 worker or any non-medical person can go for a medical
25 protocol would be highly unlikely. We're getting off into

1 never-neverland here.

2 A I would tell him to have the doctor you
3 select call me after you see me and I'll be happy to
4 discuss the case with you, and tell me if I have any
5 further suggestions on tests he wants to run I will tell
6 him.

7 Q (By Mr. McCrea) He wants to know what tests
8 should be run?

9 A Well, I'm not going to tell him. I'm not
10 treating him. I'm not going to tell him to go to a doctor
11 and say, "Look, this doctor three hundred miles away said
12 this is what you should do to me." The doctor would say
13 go to that fellow then.

14 Q If he asked you for treatment what would you
15 do?

16 A I'd say no, I don't treat you. I diagnosis
17 people, but I don't treat.

18 Q If he came to you and gave you the history
19 which we have recited, what medical protocol would you,
20 Dr. Kelly, institute for this individual?

21 A I would do a complete history and physical
22 examination, non-occupational as well as occupational
23 examination. I would do a complete examination including
24 neurological and dermatological examination. I would run
25 a battery of clinical tests, the S.M.A. 21 with special

1 reference to liver enzymes.

2 MR. CARNEY: Let me have just -- We've got
3 one minute left on the tape and before we cut out on this
4 tape I think we have to -- we have agreed to continue this
5 deposition on Friday, the day after tomorrow at 8:30 and
6 you agree that you will finish in one more day?

7 MR. McCREA: You're going to bring the lists
8 of all the cases until which he's testified which we have
9 requested, correct?

10 MR. CARNEY: I don't -- as I have indicated
11 to you I don't think there is any such list.

12 MR. McCREA: Have you made inquiry?

13 MR. CARNEY: I have not made inquiry, but all
14 I'm saying is you have never requested it in the three
15 years -- Are we going to go on Friday or not and are you
16 going to complete on Friday?

17 MR. McCREA: I don't, Tom --

18 MR. CARNEY: You represented to me the last,
19 two days ago or last week that you would need one more
20 day. We have now gone a day and a half. Are you saying
21 now in two and a half days we can finish or not?

22 MR. McCREA: It might take more than one
23 day. Are you, can you do Kowan's in less than four?

24 MR. CARNEY: That would be my estimate, yes.
25 But I --

1 MR. McCREA: It might take more than one day
2 and I would like for you to bring with you the list of
3 cases in which Dr. Kelly has testified. I also would like
4 for Dr. Kelly to bring the raw data which he reviewed
5 relative to --

6 THE WITNESS: I didn't review it. I said I
7 called Bill Gaffey and asked him.

8 MR. McCREA: Okay, that takes care of that.
9 Break.

10 (Whereupon, a short break was taken.)

11 MR. McCREA: But I'll represent that we'll
12 finish on Saturday.

13 MR. CARNEY: And you will finish on Saturday?

14 THE WITNESS: Well, I'm not representing that
15 I am going to be hanging around all next week.

16 MR. McCREA: But we'll go on Friday?

17 MR. CARNEY: Go on Friday and if necessary go
18 on Saturday.

19 MR. McCREA: Absolutely.

20 (Deposition continued.)

1 COURT MEMO

2 IN THE CIRCUIT COURT OF THE CITY OF ST. LOUIS

3 STATE OF MISSOURI

4
5 Glenn Brown, et al, vs. Monsanto Company

6 862-00694

7
8 CERTIFICATE OF OFFICER AND

9 STATEMENT OF DEPOSITION CHARGES

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15 IN WITNESS WHEREOF, I have hereunto set

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17 Commission expires

18 _____

19 Notary Public

Transcript Word Index

[& - 81]

&		19		20		5	
&	2:24,27 121:17 122:3,12	1	27:11 65:21 66:10 68:22 106:4,19	1907	2:15	5	9:8,19 12:11 17:20 26:20 79:2 80:4,9 87:5,16 91:6 106:18 107:10 108:7
1	27:11 65:21 66:10 68:22 106:4,19	1.53.	59:6	1936	13:17 99:17,23	515	1:25 122:13
1/26/72	67:10	10	108:20	1945	12:25 14:13,17 15:25 16:9 39:20	54201	107:1
100	2:24 59:24 67:7,24 70:3,25 71:2,16,18 72:2 78:10 80:14 82:2 89:21 90:13,19 96:19 100:9 101:25 102:12 102:23 107:12	1016	107:22,22 108:9,23 109:3,9 109:17	1954	9:13	6	27:3 66:1,7 80:9
11.17	61:9	11/4/1975	110:13	1958	23:6,12	6/13/1990	121:13
119	2:27	12	108:8	196	62:18	600	121:18 122:4
1242	17:21,23 107:5	1248	71:6	1965	12:25 13:8 14:13,17 15:12 15:25 39:20	621-2571	1:27
1252	71:6	1254	17:19	1972	15:14 27:6 67:21 73:12 74:11,24 75:16 80:16 82:1 92:1,20 93:17 96:18,21 99:9 100:6 103:24	63101	1:26 2:24 122:14
13	1:15 2:12	131	59:13,15,23,24	1974	16:24 17:8 19:20 20:17 21:1 64:3 99:18	63105	121:19 122:5
148	7:22	1506	1:25	1975	19:11 108:20 110:23	65	13:3 14:14 15:9,16
16	61:9	17	7:23	1976	95:12 99:23	694-1000	69:10
1751	12:4	180	77:15,20	1977	13:17 14:18 16:12 30:22,24 63:15	7	80:5 106:25
2	67:7 71:25	2.38	61:16	1979	38:17	7.12.	57:20,21
20	68:18	21	106:4,17 118:25	1980	7:22 38:18 91:2	70	72:20 73:1
22.88	57:15	25	108:13	1981	7:10 8:5	700	122:13
26	73:11 80:16 96:18	261	65:21 66:11	1982	8:12	72	18:18 93:20 98:19 103:4 108:13
27	34:22,25 35:10 36:16	3	26:18 31:12 77:1 101:21	1985	34:22,25 35:10 36:16	74	10:18 18:19 19:5
3	43:23	30	100:13	1986	8:3	77	14:14,14 30:23,24
3.98.	43:23	31	39:19,20 59:16	1988	8:23	78	30:23,25
314	1:27 69:10	32	107:6	1990	1:15 2:13 91:3	8	103:1
35	13:2	36	14:14	4	26:18 59:10 77:14 101:21	8:30	119:5
37	7:23	387	8:13	4.46	60:13	800	35:1
4	26:18 59:10 77:14 101:21	45	13:3 14:14,14 15:9,16	46	1:19	81	115:10
4.46	60:13	4676	35:3	47402	2:28		

82 115:10	accurate 12:19 13:4 88:4	ahead 65:16 100:20	answer (cont.) 84:20 85:7,10 86:3 91:21
86 7:25	acne 24:17	ahold 37:12	92:7 93:17,20,23 95:22
862-00694 1:6 2:6 121:6	active 33:19 37:25	aid 86:17 91:5,23 108:4	96:22 102:4,5,6,9 104:1,16
9	acts 29:11	air 16:9 17:2,3,4 72:15 75:18	110:16,20 112:14 113:1,2,7
9 107:4	acute 24:16 30:6 86:20	101:21 109:13	113:7 114:6 116:7,9
95 10:17	add 30:4 86:18 95:4 101:8	al 1:4 2:4 121:5	answered 95:25 102:2
96 10:17	111:18	alcohol 29:24 58:18,25 94:16,18,19	answering 81:5
a	added 62:3,19	95:5,21 96:10,13	anticipated 122:9
abdominal 86:7,10,16 87:3 88:7,25	addition 20:18	alcoholism 58:14	anybody 15:15 36:3 43:2 64:7,15
90:12 92:6	address 12:4,5,10 121:14	alexander 33:18,25 38:11	74:7 98:14
abient 75:18	adjacent 87:14	allegedly 44:21	anymore 108:22
able 21:12 40:14 47:23 49:4	administer 96:16	allow 20:24	anyway 96:11
82:5 83:8,10,19 110:16	admit 36:14	allowable 17:22 20:19 75:4,9	apparel 91:13
abnormal 51:25	advantage 34:16	alteration 29:17	apparently 34:13
abnormalities 27:23 29:14,16 30:7,11,14	adverse 8:2,18 30:6,16 31:10 110:4	alterations 8:19	appear 45:20 89:8 108:3
abnormality 27:13 29:21,23	111:5 115:24 117:12	ambient 109:11,13	appeared 10:16
absolutely 120:19	advice 78:14 85:5,16,18 116:19	american 7:22 8:3	appears 108:7 110:14
absorbed 104:7 105:19	117:13	amount 25:18 59:7 71:4,9 72:14	appetite 75:21 76:3
absorption 79:21 106:1	advise 96:16	106:22 116:12	application 103:8
abstract 7:19 14:11	afraid 49:3	amounted 82:12	applies 73:2,3
abuse 58:18,25	afternoon 2:14 48:4	amounts 63:4 81:15 91:8	apply 20:12 72:22
acceptable 53:13	age 3:12 52:21	amplify 1:21 30:5 46:2	appreciate 49:5,9
accepted 30:15 43:17 81:16	agency 4:24	analyses 5:7	appreciated 46:10
access 48:17,17	agent 21:17	analysis 16:9,10,11,20,23	appropriate 14:23 20:4,5 26:13
accident 61:15,21	ago 19:23 47:1 89:6 119:19	analyze 17:5	approved 11:2 99:6,9 100:3,5,8 101:2
accidental 24:11	agree 5:4 37:11 56:25 57:1,11	animal 9:3	101:24 102:11,23
accidents 86:24	63:3,7 65:23 102:9 105:5	answer 5:15 19:14 23:9,14 25:8	archives 8:6
accumulated 110:2	110:5 112:19 119:6	30:5,20 41:9 42:3 46:12,22	area 37:15 56:10 57:24 58:1,2,6
accuracy 53:2,5	agreeable 65:25	46:22,24 48:21,25 56:2	75:17 83:13 91:8 116:5
	agreed 3:1 119:4	64:14 65:1 67:25 68:12	areas 55:19 89:20
		69:11 70:2,23 73:13,23	aroclor 107:5,21,23 109:2,8,17
		77:18 81:22 83:8,10,19,20	

[aromatic - briefly]

aromatic 71:11,11,12 77:10,11	attorneys 44:7,16	based (cont.) 111:13	bits 56:13
arteries 40:5	august 8:23	bases 87:8	blackheads 22:2,7,8,15,20 23:9
arteriosclerotic 39:23 40:4 54:5 56:18	auspices 38:13	basis 16:18 19:5 81:21 115:18	bladder 62:17
arthralgia 25:25 26:14 31:14,25 32:4 32:19,19 38:2	author 25:5 56:14,22,25 57:11 110:18	battery 118:25	blair 33:18,25 38:11
article 22:17 23:18,19,25 25:3 26:24 28:2,5,6,7,8,10,11,12 28:15,24 56:4 57:10 88:20 95:11,24	authorities 99:7	beach 113:12,14	blank 108:5
articles 24:7 26:16,25 27:5 31:22 115:13	authors 13:16 14:3 21:2 25:10 52:12	beg 54:25	blood 31:4 40:3,16,17,18 43:19
asked 6:15 16:13 23:7,12 34:14 37:10 44:7,18,19,21,23 46:14,21 48:3,5 55:4 67:21 68:15 73:12,21 75:1 80:23 81:20 82:2,12 92:18,24 93:6 94:13 100:25 103:3,15 103:24 104:4 112:11,23 114:1 116:20 117:17 118:14 120:7	auto 61:21	beginning 13:15	bloomington 2:28 6:23,25 7:1,1,2,6,10 7:11 23:6 33:6,17,20 38:1 51:16 67:22 68:2 80:17 92:2 95:12,14 98:14 115:14 115:20 116:3,25 117:7,10 117:15,23
asking 28:3 34:17 38:4,23 45:9,12 46:19,23 47:15,20 48:2,9 56:3 57:5 59:3 85:5,11,14 87:15 102:10 110:17,19 113:2,3,5	available 10:15 12:15 13:7,24 16:2,7 16:12 18:13 28:3 37:24 47:17 70:20,21 79:4,5 101:1 103:7	begins 27:19	blow 104:15
associated 8:17 29:6,9 43:16 54:8 65:18	average 52:3 59:7	behalf 1:14 2:12 121:12	board 45:15 51:15 95:13
association 43:19 117:4	avian 110:24	belief 43:22	body 31:7 89:20 104:9,20 105:4 105:20
assume 28:3 47:10 62:21	avoid 80:21 101:17 102:16 103:23,25 104:5,13,14,17 104:22,24 105:13,13,15,24 109:16	believe 18:5 19:21 22:22 23:11 26:17 53:12 56:23 64:4 71:6 76:24 77:18 80:22 85:8 93:18 98:1 100:16 106:23 109:6	boilerplate 65:5
assuming 32:6 72:19 76:13	avoiding 104:25 105:1	benzene 71:13	boiling 77:22
assumptions 54:6	awful 43:10,13	benzofuran 23:23	bore 41:19
asterisk 59:19 61:1	awfully 102:3	best 5:2 42:12 64:16 100:25 101:9 117:14	bother 74:7 96:9 105:3
ate 25:22 29:20	b	better 48:17 74:9 86:10	bottom 12:14 66:11 67:8 89:8 110:14
atlanta 35:18	back 12:24 18:11,16,16,17 26:16 31:12 46:17 48:7,8 52:5,6,7 61:21 75:8,9 80:1	big 40:25 59:8	boulevard 35:1
atom 71:14	backup 47:4	bill 49:20 120:7	box 80:9 81:6
attached 50:23	backyard 112:6	billion 7:23	brain 40:23 84:12
attention 21:5 22:3 41:6	bad 111:5	binghamton 114:24,25	brand 23:21
	baker 7:20	biochemical 8:18 51:16 95:13	break 39:11,12 48:25 66:22 79:24 79:25 80:2 120:9,10
	bald 111:6,6	biopsies 22:23	breath 109:24
	barring 85:20	biphenyls 23:22 28:16 110:3	breathed 30:10
	based 21:13 46:22 54:1 56:9 63:7 76:6 83:8 90:6 101:2	birds 110:8,25	breathing 3:23 81:14,15
		bit 20:11 48:2 57:3	briefly 77:2

[bring - circulatory]

bring 1:20 43:24 45:24 46:1 47:17 49:13 119:7 120:2,4	caller 74:18,25 75:1,3	carries 40:11	certify 49:12
bringing 48:7 96:10	calling 13:11 74:11 113:6,8 116:23 116:24	case 28:4 35:22 40:16,16 46:13 62:16 68:23 69:1 93:13 118:4	chance 41:17,22 55:24 57:9 59:24 60:9 66:14,22 103:20
british 8:12	calls 85:14 91:25 92:1 96:24 97:5,7	cases 18:16 21:18 41:25 42:18 49:22 112:8 113:14 119:8 120:3	changed 6:21 12:1
broadway 2:24	cancer 8:4,7,25 53:18,20 60:16	catches 77:23	changes 8:21 29:19 101:21
broken 47:12	cancers 8:9 61:7,7	categories 47:12	charges 121:9 122:9,10
brought 38:15	capacitor 7:7 8:13 33:6 100:14,16 106:4,17 109:3	category 56:19	charles 52:25 58:2,3
brown 1:4 2:4 7:9 8:5 35:2 121:5	capacitors 100:23,24 115:17	causal 76:8	chatted 6:14
building 114:19,22 115:9	capsule 90:17	cause 1:6 2:6 15:2 31:24 32:3,7 39:20 45:6 49:17 56:18 61:13,20 83:21,23,24 85:25 93:16 114:3 116:14	check 29:22 36:11 60:20 61:6 92:19,24 93:9,21
buildings 114:17	car 61:14,15	caused 8:25 23:20 42:20,24 43:4,8 43:14,18 44:24 83:25 116:5	checked 4:19,19 19:7 44:4,4
bulletin 7:25	carbohydrate 92:13	causes 31:6 42:19 59:12 84:12,22 90:15 93:21	chemical 5:6 52:24 53:8 67:17 71:10 71:12 98:2 99:5,9 108:19
bunch 55:9 69:2 78:13 112:5	carbon 98:17,17	caution 14:9	chemicals 19:4,7,15 69:8 83:17
bureau 7:20 100:5,8 101:1,24 102:11,22	cards 7:13	cells 94:19	chicks 111:2
burn 82:25,25 83:3,4	care 93:3 114:22 120:8	center 7:20 8:11 35:17	china 24:3
burned 99:10	carney 2:23 10:5,10 13:10 14:6,19 20:14 23:15 24:4 26:3 28:1 28:13,19,21 32:5,13 33:12 33:21 34:1,12 35:19 36:8 37:15,18,21 38:3,9,14,16 38:19,22 39:4 44:8,22 45:1 45:6,9 46:5,11 47:3,8,18,24 48:1,14 50:9,12 52:8 53:4 54:16,20 55:22 57:4 58:4 62:6,13,21 63:2,10 64:9 65:10,14,16,25 66:18 70:14 73:25 76:11 81:23 82:15 83:15 85:11 87:12,24 88:3 89:22 91:19 92:25 95:9 97:1,6 101:4 102:2,5,18 103:20 104:10 106:8 110:12 112:15,21 113:18 114:7 116:1 117:22 119:2 119:10,13,18,24 120:13,17 121:16 122:2	centers 37:19 38:12	chinese 24:2
burning 78:5,11,14 115:9 116:6	carondelet 121:18 122:4	cerebrovascular 42:12 56:20	chloracne 9:3,4 21:16,18,19,25 22:6,7 22:9,14,16,18,20,21 23:8,8 23:13 24:20,25 25:1,7,9,11 27:12,22 29:7,10,14,21 30:8,12,14,19 31:6 75:14 75:22 76:6,17,24 86:15 92:4,10,12 97:20
business 122:11	carousel 115:16	certain 5:25 6:2 17:2,3,4 27:8 36:1 36:5 41:22 52:20,21,21 71:4 106:22,24	chloride 78:19,24 98:18
buy 113:12	carried 30:23 33:25 52:18,19	certainly 5:14 10:17 31:20 35:12 54:11 57:1 70:6,9 74:14,16 85:3 89:13 104:18 115:5	chlorinated 23:24 26:22 71:10,11,13 107:6,23 108:1
byproduct 5:13 6:8		certificate 121:8	chlorine 71:14,14 78:24 98:18
c		certificates 10:2 12:24 14:18 48:16 50:5	cholesterol 31:10
c.o.c. 77:20		certification 1:18	cincinnati 35:3
calculated 52:2		certified 2:16 3:4 117:6,6	circuit 1:1 2:1 121:2
call 6:15,21 13:13 14:7 41:21 47:16 49:1,10 50:16,18,19 68:14 69:17 81:4 85:4 91:22 92:14,17,17 94:7 97:10,21 98:14 117:16 118:3			circulatory 39:22 40:3 42:5,25 43:7,23 56:17 59:20 61:8 62:10
called 6:13 17:1 18:7 23:6 49:20 67:21 73:11,20 75:16 80:16 82:1 83:11 85:1 95:19 100:6 103:2 112:11,22 113:22 114:1 115:15 120:7			

[citation - convincing]

citation 36:13	comments 95:24	conclude 48:11	constipation 84:13
cited 21:6	commercial 23:21	concludes 56:19	construct 5:6
citizens 7:6	commission 122:17	conclusion 57:2	contact 3:23 103:24,25 104:5,14,18 104:23 105:12
city 1:1 2:1 7:3 55:16 95:12 121:2	common 24:13,16 81:11	conclusive 8:24	contacted 91:8
claiming 33:22 35:25 44:23,25	communicable 8:11	condition 29:3 40:13,19,22 41:13,14 92:15 94:8,10	contacts 105:13
clair 52:25 53:7,19 58:4,5,6	communicated 74:24	conditions 3:19 5:18,25 6:2 44:17 81:11 82:6,7 83:16 84:23 84:24 98:12 103:3 109:11 116:18	contain 55:25 107:3
clarify 56:12	communitronics 2:15	conduct 5:12	containing 114:5
clean 70:21 113:12	community 42:24 43:17 55:10 111:20	conducted 5:15 9:25 19:20 21:4 32:2 51:16 95:13	contains 104:11 106:21 112:6
cleaning 70:10	company 1:7 2:7 4:12 11:20 13:18 19:13 28:17 46:16,23 49:21	confined 3:24 101:18	contaminant 5:7
cleanups 114:18	company's 67:19	confounders 41:3,4 58:11 59:4 60:19	contaminated 6:7,11 23:21,23 24:12 29:20 32:15,18 55:19 81:18 91:7,9,13
clinical 8:18 117:18 118:25	compared 59:7,17	confounding 55:25	contaminating 115:9
close 8:16	comparison 55:8	confused 12:21 36:14	contamination 20:19 111:11,17 112:24 114:3
closely 92:13	competent 64:5,8,13	connected 42:11	context 26:10 111:7
clothes 78:13 81:17	complained 33:7,20 38:1	connotation 18:5	continue 48:3,5 119:4
clothing 81:18 91:7,9,13	complaining 75:20,20 76:3	consequence 31:7 105:22	continued 3:3 120:20
coc 77:15	complaint 32:10	consequences 93:7	continuous 3:23 104:18
cohort 39:18 64:22	complete 118:21,23 119:16	consider 3:19 84:10	continuously 81:17
collection 101:22	compound 91:20 112:16	considerable 73:18	contracted 4:7
colorless 77:8,9	con 4:23	considerably 12:18 14:2	contribute 45:4
columbia 35:3	concentration 17:22 75:4,9	considered 20:13 54:8	contributed 43:8
column 72:10	concern 78:10	consist 23:8	contributes 56:10
combination 79:16,17	concerned 75:22,23 96:12	consistency 27:24	control 7:21 8:12 35:18 37:20 38:12 41:13 52:23 53:1,6,9 53:18,21 54:13 73:15
combined 6:3	concerning 68:6	consistent 16:3	controls 53:15,17
combustion 78:8	concerns 78:6	consists 71:4	convention 49:3
coming 78:12 84:7			convincing 9:5
comma 9:4 36:22			
comment 53:22			

[copies - died]

copies 4:22	cut 15:15 119:3	deaths 15:2,2 30:24 39:22 40:2	deposition (cont.) 120:20 121:9,11
copy 28:23 38:19,24 77:12	d	41:5 42:20,24 43:6 52:3,13 56:17,19 57:13,19 59:16	depositions 44:9,10,16 55:5
corner 68:19	daily 115:18	debate 105:8,10	deranged 92:10
cornfeld 2:24	dash 67:7,7,24 68:18 70:3,25 71:2,16,19 72:2 78:10 80:14 82:2 89:21 90:13,19 96:19 100:9 101:25 102:12 102:23 107:12	december 39:20	dermatitis 27:12,22,25 29:2,3,6,9
corporate 109:1	data 4:15 9:3 12:15 13:5,23 14:4 16:2 17:11,16,25 18:9 37:25 44:5 45:18,20,22 46:8,9,15,15,18,22,24,25 47:4,5,7,11,17 49:13,14,16 67:4,11,16,23 68:16,24 69:4,4,6 77:2,4,14 78:9 79:3 80:4,10 81:24 86:23 87:5 88:9 89:13 91:6 96:18 98:15 101:3 106:10,11,12 106:19 107:10,12 108:8 120:4	decide 29:18	dermatological 118:24
correct 10:4 15:3,13,17,19,22 44:7 45:21 50:23,24 58:2 59:13 59:14,18 61:9 62:1,2,3 69:13 73:3 75:6 78:25 81:6 81:8 87:21 96:4 98:8,20 101:6 108:2 109:20 117:1 119:9	date 16:5,21 35:9 38:5 64:20 67:9 108:12,20 110:14	decided 17:19	dermatologist 92:11
corrected 58:12,13,14	dated 34:22,25 64:19 110:13	decomposition 98:15	describe 3:18 16:22 21:3 83:16,17 83:17
correctly 62:3 107:22	dates 14:21	defected 82:9	description 83:9
counsel 3:2,2 50:4,7 65:20,23	david 2:26 11:18 35:2,4,6	defendant 1:8,14 2:8,12,26 3:3 121:12	designed 68:25 86:24
counsels 6:16	day 2:14 20:6,13 47:22 48:9,11 72:16,18 73:8,13 82:10,10 82:11,11 83:5 105:8,10 115:19 119:5,6,20,20,23 120:1 122:16	defendant's 66:1	despite 9:2
county 51:12,15 52:25 53:1,7,19 53:19 95:13	days 18:11 20:7 29:25 48:2 66:14 88:23 115:19 119:19 119:21	define 79:21 80:18 82:2 91:9,12 103:13,15,18 110:6,9	destroy 94:19
couple 66:14 98:11	daytime 69:24	defined 74:2 79:4	destruction 18:8
course 61:19 122:10	deal 43:15	definite 18:24 75:2	detail 55:3 56:5 57:8
court 1:1 2:1 65:22 66:6 121:1,2	dealt 39:17	definition 4:1 80:13,23 81:2,3,8,10,20 82:4	detect 64:24
courtesy 46:9,18	death 10:2 12:24 14:18,18 48:15 49:17 50:5 56:2,18 59:12 61:13,20 62:16,17 63:3	degree 63:19	determination 26:21 27:1
cover 86:24 87:8		degrees 77:15,21,22	determine 5:7,12,22 15:1,5
crea 3:15		delivery 122:8	determined 22:20,22
cross 36:2 48:9 49:15		demonstrable 9:5 22:5 75:25	develop 30:11,13 46:9
crown 98:2		department 11:21,24 12:2,2,5,19 14:2 16:11 17:15 18:1 19:10 28:17 49:1 67:5 69:22,24 70:18 73:6 81:3 97:17 106:13,14 109:1 114:20	development 30:12
cubic 17:4,5,20,20,24		departments 19:11	devoted 10:2
cuff 21:10		departure 16:23 18:18 108:21	diabetes 40:16,18
cure 63:1		depends 20:6 29:15 31:9 53:20 69:14 94:4 112:4	diagnosed 86:11 92:15
current 21:1		deposes 3:13	diagnosis 23:11 85:3,12 118:16
custody 121:14		deposition 1:13 2:11 3:3 9:8 48:4,5,11 50:13,15 63:11 66:1 119:5	diarrhea 24:19
			dibenzofurans 26:22
			die 52:22
			died 15:14 42:9 50:2 57:17 60:14

[dielectric - electric]

dielectric 109:3	diseases 39:22 40:3 42:6 43:22 55:17 59:5,19 61:8,11,13 62:23,24	dope 88:14	easy 11:13 36:11
diet 92:13	dispersed 110:3	dose 25:18 40:20 41:2	eating 29:23
difference 18:21 20:11 90:9,10	dispose 99:8	double 60:18	ecological 110:4 111:5
different 14:21 20:23 55:12 113:24	disposed 99:15,17,22	doubt 6:12 45:25 53:2 101:15	edema 86:2,4,16 87:3 88:7,24 89:1 89:3,7,14,17,18,19,21 90:5 90:7,23 91:1,3 92:6
differentiate 29:25	disproved 30:22	dr 3:16,18 4:9,18 6:22 9:10 10:14 13:13,16 14:8 15:5 33:5,15,18,23,23,24,25 34:13 39:13 44:9,22 46:16 47:21 48:3,6,17 49:13,16 50:9,13 51:3 52:11 62:11 63:3,7,12,16 64:10 70:14 73:21 75:16 76:2,6 77:1 80:1 86:12 88:20 92:2,2 95:19 97:17 100:7 108:18 110:15 112:22 113:25 116:3 118:20 120:3,4	editing 107:20
difficult 37:12	dispute 22:24,25	draft 51:1,3 64:17,20	editor 11:4
dig 70:8	dissimilar 112:17	drain 82:25	educated 91:16
digest 8:23	dissolve 17:2	draw 21:5	education 54:1
digestive 61:12	distributed 11:3	dream 85:20	effect 32:7 55:14 90:5 94:18 101:16 105:22
dioxide 98:17	disturbances 24:18,20,22	drink 94:19,25 95:21	effected 114:15
dioxin 6:8,11 99:1 112:6 113:9,19 113:20,23,24	doctor 4:1 17:15 21:2,20,25 22:4,4 22:5,19,19 23:18 24:6,19 25:13 26:14,16 28:4,8 29:2 31:12 34:19 37:10 45:12,12 45:13,18 46:12,21 47:15,19 49:15 53:22 54:16,23 55:24 56:8 57:5 59:10 63:17 65:8 65:19 66:3,6,13,20,25 67:11 78:3,9 82:12 83:1 85:12 87:4,16 91:18 92:1 94:7 95:19 96:16 105:8 106:3 116:21 117:13 118:2 118:10,11,12	drinks 29:24	effective 108:20
dioxins 5:7,10,13,18,22,24 6:2 112:3,9,14	doctors 91:17 96:25 97:8	drop 105:21	effects 8:1,2 9:5 25:12 30:6,17 31:11 37:17 73:19,24 74:10 74:16,19,23 76:1 79:18 80:11 86:12,19 87:4,20 88:1,11 91:17 107:9 108:3 110:5,7,8,8,11 111:3,6 116:21 117:12
dipping 97:20	document 51:1,3 67:1,3,9 106:9 108:25 109:5 110:13,16	drums 69:3	egg 110:25
direct 8:1 51:19 95:18	documents 34:15,15,17 35:25,25 36:2 36:5 38:25 48:9 65:24 66:7 66:13,19	due 41:22 88:25	eggs 110:25 111:1
director 80:12 97:4	dog 32:20	duties 63:25	eight 2:13 20:6 30:11,13 39:14 41:25 43:21 49:22 60:14 61:3,25 72:15 91:24
directories 117:3	doing 49:5 63:25 75:15 80:25 85:21 97:23 100:10	dwellers 55:16	eighteen 89:6
disagree 22:11,12	dollars 113:12	dying 42:5	eighty 14:11 15:20 39:18 50:1 52:13
discard 18:10	domain 11:3,7	e	
discarded 18:6,12,14	donahue 2:23	eagle 111:6,6	either 7:6 10:11 18:14 19:21 79:21 86:6
discharge 24:17		earlier 57:10 60:22 95:23	elaborate 85:13
discuss 19:24 20:2 21:12 118:4		easily 10:23 88:13	elected 113:16
discussed 8:22 32:12 95:11		east 9:15 10:6,13 13:19 14:16 16:4,23 19:3 21:3 32:23 43:7 98:2 99:11	electric 68:2 74:13
discussing 20:1			
disease 7:20 8:11,11 24:14,15 35:17 37:19 38:12 39:23 40:4,4 41:6 42:12,25 43:8 43:16 54:5,9 56:11,17,18 56:19,20,20 62:10,10 89:18 116:12			

[electrical - factors]

electrical 74:11 107:25 114:2,4	eppenberger 2:23 121:17 122:3	exception 75:13	explosions 69:17 115:18,20 116:5
elevated 3:24 81:14 86:21 88:15,19 88:23 95:20 96:12 100:18 101:11,18,25 102:7,12,24 109:18	equipment 114:2,5	excess 39:21 40:23 41:8,11 42:18 42:19,20 43:21 56:17	exposed 3:22 7:2 10:1 14:11 15:3,6 15:9 22:5 30:9 33:7 42:6 51:17 73:22 88:22 94:21 95:14 115:22
eleven 21:6 26:17 107:21	establish 22:8,17	excessive 53:17,20 73:22 74:1	exposure 3:21 4:2 7:21 8:8,17 9:3,4 12:16,17 13:24 14:1 15:24 16:3 20:18,25 30:19 31:2 42:11 43:9 44:24 45:3 54:7 54:9 56:21 61:22 64:25 74:20 76:4,8,25 78:2 79:21 79:22 80:12 82:2 83:8,23 83:25 84:5,7 88:18 91:7 92:8,9,11 93:16 94:3 95:1,2 98:3,4 116:12,13,16
emergencies 70:24	established 12:17 13:25	exclusive 39:22 40:3 56:17	exposures 30:3 75:12
emergency 68:21 86:17 91:5 108:4	estimate 119:24	excuse 62:11 100:20 107:9	expunged 18:3,4
emesis 24:18 25:13	et 1:4 2:4 121:5	exhaust 103:2,3,7,12 116:4	extend 30:4
emmet 1:13 2:11 3:11 121:11	evaluate 64:22 116:15	exhibit 9:8,19,20 45:20 65:23,24 66:1,3,7 80:5,7,9 108:18	extended 46:10
employed 11:15,16 14:16	evaluating 41:17	exhibits 65:20,21	extensive 25:9
employee 42:14	evaluation 117:19	expect 52:3 86:25 94:11	extent 69:2 116:6,16
employees 53:16	evaporate 109:12	expected 43:23 52:22 57:13,19 60:13 61:8,16 62:17,23 109:10	external 61:13,20
enclosed 35:4	eventually 115:12	expensive 114:18	extra 28:22
england 21:22 97:19	everybody 22:4 94:22	experience 76:7 111:15	extremely 36:9 37:9
enlarged 88:25	evidence 8:25 32:6 65:18 110:2	experienced 39:17 84:9 85:2,9 86:2,7	extremities 25:25
entire 66:11 106:8	evolved 78:24	experiencing 85:22	eye 103:24,25 105:12,13,14,16 105:16,19
environment 22:14 110:3 111:22,25 112:3,5,25 114:3	ex 77:23	experimental 108:10,15	eyelids 89:17
environmental 8:6,23 11:21,25 12:2,6 28:18 109:25 110:21,24 111:8,11,16 112:12	exactly 19:10	expert 77:17 116:18	eyes 24:18 82:24 83:3 90:11
environmentalist 106:14	exaggerated 20:25	expertise 70:9 116:21 117:11	f
enzyme 8:21 29:19 51:18,23	examination 3:14 33:2 48:10,12 76:22 76:22 118:22,23,23,24	expires 122:17	facilities 116:4
enzymes 29:17 119:1	examinations 85:13	explain 18:21 22:1 31:23 40:10 51:20,24,25 52:16 72:12 77:2,3,24 82:7 88:12,13 89:2 90:12,18,23,24 113:8 113:9,15	fact 5:10 12:17 14:1 49:10 54:3 62:19,22
epa 5:9,16	examine 49:14,15 75:24	explained 56:16 59:23 80:10	factor 41:21
epidemiological 6:23 7:5,12 8:15 9:11 23:19 33:16 40:12 41:1 52:19 53:21 54:1 62:18 64:1 65:5	examined 2:12 3:12 76:17 85:18 116:11	explode 77:18	factors 43:13 55:25 59:24
epidemiologist 49:21 60:5 64:16	examining 36:2	explosion 69:4 70:5 77:14,16 78:21	
epidemiology 7:20,22 49:1 58:12 60:3	example 56:1		
episode 24:2 30:6	exceed 20:7 61:23 74:15		
	exceeded 20:3 72:17 73:7,12,18 75:19,24		
	exceeding 76:14		

[facts - genitourinary]

facts 32:6 83:16,18 84:22 116:2 116:8	final 35:7 36:22 37:7 51:2,5,8 52:10 64:23 107:20	folks 50:20	friday 1:20 36:10 45:24 46:1 47:17 119:5,15,16 120:16 120:17
fair 27:21 52:4,14 108:5 113:17	financial 115:5	follow 19:18 92:13	front 66:8
falcon 111:5,7	find 11:13 36:11,12,16,18 39:5 40:15,23,24 46:18 49:1 53:25 54:3 59:17 65:6 83:23 85:19,25 117:15	followed 30:24 98:9,11	full 27:17 39:16
familiar 21:8 33:5,10 37:24 54:22 54:23 55:1,2 96:22 116:3	finding 22:24 23:3	footnoted 12:9	fully 1:21 46:2
family 71:10	findings 7:24 76:19,21	foreign 75:13	fumes 3:23 78:12,16 100:18 101:17 109:24 115:21,22 116:5
far 5:17 12:19 33:3 35:6 36:19 36:20,21 70:9 75:10 96:11	fine 4:20 40:11 105:11	foreman 68:7,9 69:23	function 27:12,22 29:13,16 92:10
fat 30:21,25 31:1,4	finish 36:7 46:5 50:14 119:6,21 120:12,13	foremen 68:4	functioning 90:22
favor 122:1	finished 62:14 63:14 115:1	forenoon 2:13	furans 32:15,18 98:21 111:24 112:13
fda 5:1	fire 69:4,16,25 70:5,12 77:14 77:16,19,23,25 78:5,8,15 78:21 86:25 87:1,5,13,17 114:15,20,22	forget 6:16	further 46:9 48:6 65:6 91:23 118:5
february 34:22,25 35:10 36:16	fires 69:17 78:1,25	form 65:14 67:4 68:18 73:25 82:15 86:14 89:22 91:19 92:4 95:9 103:21 104:10 112:18 114:7	future 64:21
feel 53:22 76:7	firm 2:23 121:14	format 53:3,5	g
fellow 36:18 118:13	first 10:15 19:9 21:5 24:11,21 27:17,18,20 37:11 39:16 51:2 65:1 66:19 67:1 80:10 85:11 86:17 91:5,23 93:13 95:23 97:21 100:2 103:6 108:4 116:10	formosa 24:2	gadget 17:1
felt 63:23	five 2:14 18:9 21:7,18 41:22 61:24 62:1 66:22,23 72:17 74:4 83:6,12 91:25 96:24 97:5,7 98:12	forms 56:20	gaffey 9:14 49:20 53:16 120:7
fever 42:10,10 43:3,24 44:3,5,18 44:24 45:4,7 49:18,23	flash 77:15,17	forty 20:10 30:13 105:6	gamma 95:15
fewer 8:8	flaw 40:25 55:9 59:3,9	found 5:10 8:6,8 10:23 22:19 33:18 40:2 51:19,22 75:17 95:18	garage 78:14
field 30:16	flaws 53:25 54:3,11,12,15,18 55:20	foundation 64:10 110:15	garret 106:13
fifteen 18:15 20:25 46:17 107:24 115:15,22	fluid 5:21 6:3 100:24 101:22 106:21	four 21:18 27:9,14,15 30:13 40:12 43:23 58:11 59:6 61:24 62:1 72:17 73:7,13 74:4 75:19 83:5 119:23	garrett 107:16
fifty 27:5	flume 82:23	fourteen 108:24	gas 77:5
fighting 77:25 78:1	focus 50:14	fourth 12:13 41:7	gases 78:2,19,24
figure 20:8 41:24 62:17 72:13		fraction 9:16	gasoline 104:14
figures 4:19 41:18 61:5 80:21		frank 22:14	gateway 122:12
file 47:13		frankly 53:14	general 55:7,8 58:15,19,22 59:1 103:5 112:7
filed 17:25		freedom 35:17	generally 41:20
files 18:10 45:19		frequency 17:7,10	genesis 73:5
filled 67:6			genitourinary 62:16

georgia 35:18	gospel 43:20	harm 63:7 103:19 114:21	hereunto 122:15
getting 34:17 81:17 102:3 106:1 117:25	gostasfawn 8:2	harmful 104:6	high 40:3,15,17,18 43:17,19 56:15 77:21 92:12 96:8,10 96:11,12
ggt 51:17 95:16,17,20 96:2,11	gotten 92:17	hazard 19:17 77:14 79:2 80:4,10 87:5 89:13 91:6 96:18 106:10 107:10,11 108:8 109:11	higher 31:4 51:22,23,23,24 55:17 55:18 56:1,10 58:9 60:23 82:17,19
gimmick 97:24	government 4:20,23,24 5:16,16 79:10 99:7 111:19,19 113:4,11	hazardous 71:15 72:1,1,9 98:15	highly 46:20 78:19,23 117:25
give 4:1 6:18 7:19 32:19 36:13 43:11 47:16 55:23 66:20 67:9 80:13 81:21 83:19 91:1 92:9,10,12 94:11,14 103:5,19 107:16 113:7 116:12,18	government's 81:3	hazards 64:25 71:24 78:21 110:1,21 110:24 111:8	highway 73:1
given 46:18 58:8 82:3 83:16 116:2	gravity 77:5	head 54:20	hired 63:22,24 64:1,2,4,11
gives 67:12 96:10	great 43:14	headache 25:24	history 118:18,21
giving 33:3 57:6 84:21,23	ground 70:8,13	headaches 83:12,18,21,24,25 84:1,4,7 84:9,12,19,23	hoh 89:9
glenn 1:4 2:4 121:5	group 40:3,21 41:12,13 52:3,13 53:6,9,21 54:14 59:7 69:21 70:19,20 79:10 103:11	heading 80:10	hold 95:6
glutino 95:15	gtg 89:9	health 8:1,2,5,6,18,21,22 9:5 11:21,25 12:3,6 28:18 37:17 44:17 51:16 63:1,21 67:25 69:4 70:18 79:2 80:4 80:10 87:5 89:12 91:6 93:7 95:13 96:18 97:18 106:10 107:9,10,11 108:7 112:13 112:25 114:4,19 115:24	holdup 61:21
go 12:13 16:25 18:9 24:6 27:9 31:12 46:17 48:8 50:4 51:8 59:10 65:16 68:11 83:22 94:24 100:20 101:20 104:8 106:18,25 107:4,9,10 117:14,24 118:10,13 119:15 120:16,17,17	guess 12:7 81:13	hear 105:9	hot 30:10 98:4
god 55:11 70:9	guidance 38:12	heard 4:22 22:16 34:3 39:9,10 64:12,15	hour 20:6 72:16
goes 12:24 43:14	guideline 33:18	heart 39:23 41:5 43:16 54:5,9 56:18,19,20 89:18	hours 2:13 20:10 30:11,13
going 9:18 13:10 14:19 23:15 33:12,22 34:19 35:19 36:10 38:3 39:5 44:8 46:6,11 47:18 48:4 55:22 64:9 72:25 73:16 74:7 75:3 76:11 83:15 103:21 104:15 105:2,4 112:15 113:7,8,9 114:7 116:1 117:22 118:9 118:10 119:7,15,16 120:15	guidelines 100:25 101:10	heat 5:22 21:17 30:9 86:22 88:21 90:4 97:13 98:5 109:23	huh 51:4,7 57:25 60:7 107:17
gong 65:14	h	heated 6:7	human 31:7 112:25 114:4,19
good 3:16,17 16:9 45:3 78:16	ha 93:16	heating 5:13 6:3,10	humans 9:1,5 111:16,21,24 112:3 112:13
gore 122:12	half 47:21 51:2,5 62:17 119:20 119:21	heavy 76:4	hundred 44:20 61:24 62:1,20 77:22 106:23 113:11,23 118:11
	hallmark 25:11,12 30:16	heet 35:1	hundreds 33:13 34:14
	hand 9:18 65:20 110:14 122:16	helpful 10:8	husch 2:23 121:17 122:3
	handling 67:12 70:19	hepatitis 29:23	hygiene 12:15 13:23 16:2,25 97:17
	hands 97:21,24		hygienist 79:10
	hanging 120:15		hyperpigmentation 24:17
	happen 75:5		i
	happens 57:11		i.b.t. 4:7
	happy 39:1 40:9 118:3		i.e. 4:11
	hardening 40:5		

idea 53:18 68:20	includes 51:1,2 117:9	inflammatory 29:3	interpreted 45:18
identically 107:11	including 8:16 59:24 118:23	information 7:16 11:6 35:17 47:13,14 55:25 63:13 67:12,19 68:5 68:6 81:6 88:2,17 91:23 98:19 100:4 101:2 103:2 107:14 109:2,2 115:11	interrupting 62:7
identification 9:9 66:2	increase 8:4,7,7 54:4,5 59:16,16 61:12 62:9	ingested 25:19	interstate 72:20 85:4
identified 38:5	increased 27:23 30:18 31:5 96:5 109:16	ingestion 23:20 24:11 31:24	intervals 8:10
identify 7:15 9:19 67:3 106:4 108:18,22,25	independent 4:14,18	informed 80:17 115:15 117:8	interviews 12:16 13:25
ieee 7:25	indiana 2:28 33:6 51:12,17 52:6 92:3 95:12,14 97:11,13,15 97:16,16,18 98:14 117:5	ingredient 81:16	intoxication 86:15 87:2 92:5
illinois 13:19 35:6 52:24	indicate 14:15 46:13 110:2 116:4	ingredients 71:15,23 72:1,1,10 90:3	inused 31:8
illness 41:16 52:22 65:18 74:12 104:25 105:1	indicated 28:4 47:22 119:10	inhalation 79:21 101:17 105:24 109:11,16	inversely 8:7
illnesses 42:9 105:7 113:14	indicates 13:12 74:19	inhale 78:7,15	investigation 32:2,10,14 39:17
imagination 42:11	indicating 88:1	inhaled 86:21 88:21	involve 114:18
immediately 87:14	indication 58:24 85:6,19	inhaling 88:15,18 98:4 100:18	involved 4:25 39:18 64:23 77:19
impinger 17:1	indicted 4:5	initial 64:23	involvement 90:14,15 98:9
implies 87:16	indictment 4:11	initials 89:9	involving 70:24 112:24
important 94:12	indictments 4:16	initiated 97:10	irregular 17:9
impose 48:6	individual 27:4 93:2 95:20 96:17 115:8 118:20	inquiry 117:8 119:12,13	irritable 94:2,5
impregnation 100:14	individuals 11:2 24:19 25:6 29:5 49:18 86:21 113:14	inside 14:7,22	irritating 105:16
impregnator 100:16	industrial 3:19 8:3,12 10:24 12:14 13:23 16:1,25 30:2 33:2 55:9,10 56:10 97:17 108:19 117:4	instances 114:23	irritation 86:14 92:4 104:20 105:3
impression 19:13 24:25 25:2 35:12	industry 74:11,13,20 108:11	institute 118:20	isolated 26:7 112:8
improper 46:20 48:10	inerteen 67:6,24 70:3,24 71:2,3,16 71:18 72:2 78:10,11 80:14 82:2,9 89:21 90:3,13,19 96:19 98:25 100:9,23 101:25 102:12,23 106:19 107:1,12	instruct 46:12 47:18	issue 101:16,23 104:8
improved 99:5	infected 42:13	instructed 48:20,24	itch 83:4
inappropriate 36:4 57:8	inflammation 54:10,10	intended 69:7 74:25	iv 1:12
inasmuch 77:21		interested 4:21 47:14 94:9,9	j
inch 56:6		internist 117:15	j.t.g. 106:12
incidence 55:17,18 56:10		interpret 39:23,25 42:4 51:14	jack 106:12
incident 21:21 27:19		interpretation 65:8,11	jag 89:9
incinerator 99:10			january 39:19 73:11 80:16 96:18 108:13
included 9:16 15:18 90:5			japan 24:13 32:11
			japanese 23:22 24:1 26:22 29:20

japanese (cont.) 32:14,17	knew 106:16	lane 12:4	levinskas 4:9,18
jaundice 98:11	know 4:5,12,17,24 5:20,23 6:6,10 6:12,20 7:4,8,9 10:7,19,22 10:25 11:11,14,18 12:7,20 13:7 14:8,13 16:14 17:9,15 19:6,7 20:1,25 21:15,19,24 22:18 23:8,13 24:21,22 25:5 31:17,20 33:11 34:1,7 35:7 36:15,17,19,21 42:23 43:5 44:5,11,12,19 44:22 46:11,25 47:4,6,11 48:20,22 49:24 50:5,6,20 53:1,5,9,14,15 55:23,24 56:1,4 60:4,5,25 61:4,20 63:14,15 64:2,3,6,20 65:2 68:9 69:20 71:5,7 72:4,5,6 75:10 76:4 77:3,19 78:11 79:20 83:21 84:2,4,6,22,24 84:25 85:6,23 86:5,6,8 89:7 89:24 90:9 93:16 94:4 97:6 98:6 99:4,13,14,15,25 100:1,2,15,21 101:7,13 102:25 103:6,9 106:22 107:2 108:16 112:12,23 113:3 114:1 115:23 116:18 118:7	large 91:8	liable 75:5
jenkins 2:24	lassitude 75:20 76:3 93:22 94:1	law 2:23	libido 75:21 76:4 93:19
job 83:9	law 2:23	lawfirm 2:27	life 20:7 29:24
joint 26:15 33:8,20 38:1 93:15	lawful 3:12	lawsuit 34:16	lifetime 20:10,18 72:16
joints 26:15 31:16,21 32:21,24	lay 110:25	lead 87:2	limit 20:22,24 72:11,13 79:3,4,8 80:11 82:17,18,21
jones 7:10 8:5	leading 90:25	leads 86:15	lindbergh 35:1
journal 7:22 8:3,12 10:16,24 117:3	leak 73:1 99:4	leaked 21:17,17	line 12:13 108:4
judith 11:14 12:8 14:23 35:6	leaking 30:9 88:23	leaks 69:5	lines 87:8
june 1:15 2:12 108:20	led 9:4 92:5	left 10:18 12:3 16:19 63:25 102:16 109:7 110:14 119:3	lipa 122:12
jury 38:25 40:10 42:4,7 51:20 65:9,12 72:12 77:2 88:21	known 40:4 98:19 115:7	leg 42:13	lipids 43:15
k	knows 36:20 38:25 55:11 64:10 70:9 105:4	legend 12:4	liquid 77:4
kanacolor 26:22	kowan's 119:23	legs 42:15 54:10 89:18 90:11	list 7:12 44:15 69:16,22 71:15 71:17 98:21,24,25 119:11 120:2
kanechlor 23:22	krummrich 9:15 10:9,10	lesions 24:17	listed 88:11 96:17
keep 75:15	I	lest 27:16	lists 98:16 119:7
kelly 1:13 2:11 3:11,16,18 6:22 9:10 10:14 13:13,16 14:8 15:6 33:5 34:13 39:13 44:9 44:22 46:16 47:21 48:3,6 48:17 49:13,16 50:10,14 51:3 52:11 62:11 63:3,8,12 64:10 70:14 73:21 75:17 76:2,6 77:1 80:1 86:12 92:2 95:19 100:7 108:18 110:15 112:23 114:1 116:3 118:20 120:3,4 121:11	label 67:19	letter 34:22,25	literature 25:9 26:4,5,7,8,9,11,12 35:8,15 36:23 43:3 75:11 93:14
kidney 62:16	labels 67:14	level 17:3,19 20:3 31:4 72:15,17	litter 70:8
killed 61:20	labor 67:6 73:6 81:3	levels 7:23 12:16,18 13:24 14:1 15:24 16:3,17 19:12,14 27:23 51:17,18,23,23 73:22 74:1,3 75:18 76:15 95:15 95:17,18 96:2,3 100:15	little 12:21 20:23 40:8 48:2,13 61:22 77:19 94:6 105:3
kimbrough 8:21	laboratories 35:3		liver 8:7,20 27:12,22 29:13,15 29:21,23 30:7,11,14 51:18 88:25 90:14,15,17,21,24 92:10,13,22 93:1,4,25 94:18,19 95:3,4,7,25 96:1 98:9 119:1
kind 5:18 56:5 57:8 101:21	laboratory 9:2 76:22		ln.1 1:19
kingshighway 2:15	landfill 99:5,6,9		local 91:17,18 103:2,3,7,12 105:22
kitty 70:8	landfills 99:12 100:2		located 100:21
kj 107:1			

[long - mississippi]

long 4:6 30:8 57:6 74:5 81:21 83:2,3,3,4 94:6 101:13 115:7	male 39:18	mccrea (cont.) 45:18 46:7,21 47:6,10,15 47:24 48:19,22 49:5,9,12 49:16 50:11,18 52:9,11 53:11 54:18,22,23 56:8 57:12 58:6 62:11,14,22,25 63:9,12 64:12 65:11,19 66:3,25 70:16,22 74:4 76:18 81:25 82:1,18 84:3 85:16,22 87:15,20,25 88:5 88:6 90:1 92:1 93:6 95:10 97:3,12 101:6,9 102:4,9,14 102:19,21 103:23 104:12 104:19 106:11 110:22 112:19,22 113:21,25 114:11 116:20 118:7 119:7 119:12,17,22 120:1,8,11,16 120:19	medicine (cont.) 28:18 117:6
longer 8:9 49:21 75:12	males 52:23,24,24,25 53:7,7,8 56:16 57:22 59:8	mcs 107:22,24	memo 121:1
look 4:11 14:10 25:3 26:9 28:22 37:9 41:15 42:18 43:22 66:15 83:20 92:16 117:2,2 117:5 118:11	malignant 60:13,15	mean 4:17 10:10 11:1,4 12:22 13:6 14:20 15:11 18:10,16 19:25 20:1,23 21:10 22:16 29:15,16 30:5 31:17 40:7 42:14,20 43:11,20 44:12 53:5 59:15 60:3 61:14,20 62:2,3,4,8 68:18 69:12,14 72:5,9 77:15 79:19 82:7 83:24 87:25 91:12 94:4 96:21 104:16,19 109:12 110:18 112:4 115:4 117:3	memory 56:5
looked 14:17,18 22:6,19	man 21:22 22:13,14 61:20 72:25 80:22 81:11 92:9,14 93:3 96:8 98:3 100:17	meaning 5:16	mention 56:14 66:18
looking 14:16 21:11 56:7	manager 17:13,14 68:11,14	means 8:20 12:22,23 13:1 16:15 24:22,23 25:21 37:24 41:4 41:12,21 52:20 59:20 62:23 71:7,13 77:4,17 109:13	mentioned 6:13 76:13 89:1 93:15
lookout 93:7	man's 94:7	meant 13:14 14:24,24 88:1 89:14 95:8,10 99:5 103:25 110:7 110:10 111:4	met 11:17
looks 4:20 109:3	manufactured 13:18 19:4 115:17	mechanism 31:23 32:3	metabolic 7:21
loss 75:20,21 76:3,3 85:23 86:1 86:16 87:2 88:7,24 90:18 90:22 92:5 93:19,24	manufacturing 8:14 10:13 19:8 28:16 68:5 70:19 75:17 103:10 116:17	medical 10:16 12:1 18:1 42:24 56:9 69:22,24 70:17 80:12 94:8 97:4 109:1 113:10 115:6,8 117:4,4,9,17,24,24 118:19	meter 17:20,24
lot 43:10,13 60:10 78:12,16 89:19	marine 111:3	medically 82:13 115:23	meters 17:4,5
lots 47:13	mark 65:22	medications 94:13 96:15,20	method 91:16
louis 1:1,26 2:1,16,24 9:15 10:6 10:7,13 12:4 13:20 14:17 16:4,23 19:3 21:3 32:23 35:2 43:7 57:24 58:1 99:11 121:2,19 122:5,14	marked 9:9,18 66:2,6	medicine 8:4,12 10:24 11:21 12:2,6	methods 13:17 41:10
lower 42:15 54:10 111:3	market 108:12,14 114:25		mild 27:12,22 29:13,15,21,22 30:7 95:7,8,10
lumped 112:16	master 63:18,20		miles 118:11
lung 53:18,20 55:17 56:10 61:7	master's 63:18		milligram 17:20,24
lungs 106:2	material 18:10 67:4,11,15,23 68:15 69:6 72:14,15 77:18 78:9 81:14,15,16 86:21 88:9,15 88:21,23 97:21 101:3,11,22 104:6 106:2,19 112:5 114:16		million 113:12
m	materials 13:17 67:13 69:1 88:18		mind 6:21 14:7,22 19:10 22:10 22:21 56:3
m.d. 1:13 2:11 3:11 121:11	matter 16:15 67:19 80:20 92:16		mineral 6:6,10
magazine 11:4	maximum 20:19 75:3		mines 100:5,8 101:1,24 102:11,22
main 40:12	mc 3:15		minimal 114:21
major 94:10	mccrea 2:27,27,27 10:12,14 13:15 14:10,15 15:1 20:15,16,17 23:18 24:6 26:14 27:5 28:15,20 29:1,2 32:9,16,22 33:15,24 34:2,3,21 35:20 35:22 36:6,15 37:17,19,23 38:7,11,15,17,21 39:1,9,11 44:13,14,25 45:2,8,11,16		minimum 14:12
majority 25:1,1 30:15 61:7			minnigerode 2:16 3:4
making 35:20 47:20 98:22			minor 23:5 29:17
			minute 20:25 27:14 34:1,5 46:4,5 47:20 52:5 62:6,13 66:23 92:25 119:3
			minutes 47:1 66:22 83:5
			misleading 36:3
			mississippi 64:16

missouri 1:2,26 2:2,16,18 12:5 35:2 121:3 122:14	mouth 23:21	neurological 118:24	obesity 41:6 58:14,25
misuse 114:10,13	move 65:20	neverland 118:1	object 13:10 14:6,19 23:15 26:3 26:13 28:1 32:5 33:12,22 34:12,20 35:19 38:3 44:8 53:4 55:22 64:9 65:14 73:25 76:11 83:15 91:19 103:20,21 104:10 110:12 112:15,18 114:7 116:1 117:22
mixture 79:6,9,11	moving 45:16	new 21:22 97:19	objection 28:25 46:6 82:15 89:22 95:9 102:2
mo 2:24 121:19 122:5	multi 56:6	newspapers 115:12	obscures 41:4
modalities 103:8	muncie 82:24	night 69:15,23	observed 24:16 39:22 40:13 59:16 61:9 109:16
molecule 71:14	musch 9:12 11:18 28:17 35:6 39:14 53:12	nighttime 69:15	obvious 55:16
moment 63:24	myriad 83:18 84:11 116:6	nine 14:11 15:20 33:6,19 37:25 39:18 43:22 50:1 52:13 61:25	obviously 16:13 98:8 111:2 116:14
monitor 16:15,17,18 19:4,16,17	n	ninety 10:18	occupants 114:20
monitored 19:16 82:13 115:24	name 6:17 12:1 121:14	niosh 7:21 35:2 38:11 73:6	occupational 8:15,17,24 10:24 117:4,6 118:22,22
monitoring 12:15 13:5,23 14:4 16:2,5,8 16:8,11 18:19,22,22,23 19:14	names 43:11 48:23 50:1,6,20	nixon 42:14,15	occur 5:11,18 30:8 41:16 52:13 60:9,10 88:14 90:7 109:17 115:20
monoxide 98:17	narrative 50:23	no.2 101:20	occurred 42:21 89:3 90:8 109:6
monroe 51:12,15 95:13 117:9	nausea 85:2 86:15 87:2 88:6,17,24 92:5 98:6	non 54:5 117:24 118:22	occurrence 5:17
monsanto 1:7 2:7 4:7,8,15 5:6,9,12 9:14 10:13 11:15,20,24 12:5 13:4,18 16:24 18:7,17 19:22 28:17 34:15,17 35:1 35:5,16 44:7,16 45:20 46:23 47:13 53:8 63:13,22 63:24 64:1,7,25 67:6,15 70:15,16,17 76:7 80:12 81:5 86:13 91:16,25 96:17 97:4 99:8,23 108:18,19,21 108:25 109:1,1 110:10 111:14 121:5	nauseated 90:20	normal 122:10	o'clock 2:13,14
monsanto's 9:11 28:20	near 100:13	north 35:1	odor 77:6,10,11 82:9,17
month 73:8 74:8,15 75:4,12	necessary 120:17	nose 82:25 83:4	odorless 77:7
months 14:12 15:16 39:19 75:18 98:11	neck 18:12	notary 2:17 3:5 122:19	office 49:3
morbidity 33:16 45:4	need 71:22 100:11 119:19	notice 59:19	officer 121:8
morning 3:16,17	needed 92:22 103:12,12	number 15:2 21:3,15 26:17 31:6 34:12,14,21 39:2 45:12 46:14 52:2 57:12 59:24 60:17 65:24 66:4 68:18,21 69:10 80:7 97:25 101:19 102:7	offices 2:15
mortality 9:13,22 12:23 28:16 35:5 39:17,20 45:5 52:7,17,20 53:23 55:7,12,15,18 56:15 57:22 64:22 65:12	negative 7:24 76:22,23,23	numbness 25:24	oh 27:18,20 28:13 37:8,8 49:9 50:21 69:9,12 70:17 71:1 78:22
	neglected 56:13	o	ohio 35:3
	negligible 109:9	oath 35:21 36:5 50:13	oil 6:7,10 23:21 24:11 25:18
	neighboring 53:19	obese 31:10 58:21	
	neoplasm 60:15		
	neoplasms 60:13		
	nest 111:1		
	neuritis 93:10		
	neuroendocrine 24:18,20,22		

oil (cont.) 25:22 29:20 31:24 77:7,8	overexposure (cont.) 85:6,17,24 86:8,13,19 87:1 87:5,17,21 88:2,9,12,15 89:21 90:6,13,19 91:17 108:3	part 3:13 37:4 56:16 63:25 64:19 89:12	people (cont.) 25:22 29:19 31:19 32:20 40:21,23,24,25 41:12,13,14 50:2 51:22 52:21,21 53:18 55:18 57:17 58:18,21 59:1 59:8 60:14 62:25 68:5 69:7 69:17,18,19,22 70:1,19,22 73:17,22 75:11 76:16 88:21 96:1 97:20 98:4,5 103:10 111:9,10 112:9 113:3,8 114:22 116:17 117:5 118:17
okay 49:11 106:15 120:8	overexposures 86:20	particular 4:11 7:5 17:18 19:17 27:1 28:4,11 32:10 37:21 55:6 67:16 69:21 100:22 103:8 110:23 112:12,23 114:19	percent 9:17 33:7,19 37:25 41:22 41:22,23 59:15,16 71:4,7,8 83:12 106:23 107:6,24 108:1 113:24
old 117:9	overnight 66:21	particularly 94:20 96:10	peregrine 111:5,7
olive 1:25 122:13	oversaw 33:16,24	parts 7:23	perform 4:7 16:22
once 82:23 83:5	p	patients 25:23	performed 117:19
ones 27:4	page 8:13 11:20 12:11,14 14:10 21:5,6 24:6,8 26:17 27:9,14 27:15 31:12 37:5 39:13 51:11 52:8 56:6,14 57:6 64:17 65:24 67:1,8 79:2 80:5 87:12,13 91:6 106:3 106:18,25 107:4,21 108:8 108:17,24	paul 4:5 6:13,15,19,20	period 12:25 13:12,17 14:12 15:6 15:15,16,24 47:21 73:13,18 82:3 87:21,24 88:1,2,11 115:22
one's 40:11	pages 21:5 24:24 47:11 65:21 66:10	pay 22:3 41:6	periodical 11:2
open 82:23	paid 113:11 122:9,10	pcb 4:6 5:1,11,19,21 6:3 7:23 8:1 9:16 12:15,17,18 13:24 14:1,2 15:24 16:2,9,11,17 17:2 19:8,10,17 23:23 25:11,12 29:11,20 30:16,25 31:2,4,24 35:5 37:17 42:11 42:21,25 43:18 44:24 45:2 51:23 54:7,8 61:22 62:24 64:23,25 65:18 71:5 73:22 74:13 79:14,15 83:25 84:7 84:18,19 85:17 90:4 92:8 92:15 95:1,2,18 96:3 106:22 107:6,7,23 112:24 113:24	periods 3:25 75:12
opinion 6:1 23:2 25:4 56:8 76:6 111:13,23 112:2 113:15,16	pain 25:24 26:15 31:16 32:21,23 33:8,20 38:2 86:7,11,16 87:3 88:7,25 90:12,16 92:6 93:15	pcb's 3:20 4:2 5:8,13,17 6:7,11 7:21 8:17,25 9:3,4 10:1,3 13:18 14:12 15:3,7 19:3,8 21:16 22:16 24:12 26:23 29:6,9 30:6,19 31:4 32:11 32:14,17 33:7 39:19 42:6 42:21 43:4,9,14,19 45:6 51:17,19 61:17 63:1,6 68:7 71:4 72:8 76:13,14 83:13 84:5,8,17 85:15 90:13 91:17 94:21 95:14 97:8 98:5 99:8,15,17,22 104:8 104:20 105:13 107:3 111:11,17,21 112:13 113:19,21,23 114:5,5 116:6 116:22 117:12	peripheral 93:9
opportunity 36:1 57:7	pains 31:21	pending 46:14	permeated 115:21
opposed 59:6	paint 29:11	people 5:15 6:25 7:9,23 8:9,9 10:7 12:25 15:11 19:1 21:18 22:5,6,13,14,23 23:1 25:1	perry 122:12
order 49:14 56:2 67:24	papers 25:10 78:14		person 29:22 30:5,9 32:19 41:14 45:3 69:20 73:2 94:14 95:6 96:8 104:24 107:19 117:24 121:14
organic 100:6,8	paperwork 18:12		personnel 12:17 13:25 114:20
organisms 111:3	para 24:24		persons 25:19
organization 38:10	paragraph 13:16 24:8 27:11,15,16,17 27:20,21 39:16 51:12 109:8 109:25 110:10		person's 94:20
original 28:24 121:15 122:1	pardon 54:25		pg 1:19
originally 68:25 86:24	paren 8:15,16		phlebitis 42:14,15 43:3,24 49:23 54:9
osha 19:11 68:18 73:6	parentheses 24:14,15		phone 69:11 85:4
ought 26:8 92:16 93:12 101:14 116:11	parenthesis 24:15		
outbreaks 24:12	parkway 35:3		
outcome 8:18			
outfit 97:14			
outflow 7:2			
outside 70:5 107:2			
overexposed 81:1 84:19,25			
overexposure 79:18,19 80:13,19,21,24 81:2,4,11,12,19,21 82:8,13 82:16 83:1,14 84:10,24			

[photocopy - putting]

photocopy 35:4	polychlorinated 23:22 28:16 110:2	press 90:25	project 33:24
phrase 40:6 107:24	population 7:1 55:8,13 58:15,19,22 59:2	pressure 40:4,16,17,18 77:6 109:9	prolonged 3:25
physical 75:25 76:21 77:1,4 118:21	portion 91:10	presumably 67:6 95:3	prominent 91:2
physician 83:22 91:9,15,22 117:11	portions 82:11	presume 24:2 76:17 79:13	properties 117:12
physicians 97:5 117:10	position 116:15	presumed 84:24	proportion 25:19
picking 56:13	positive 9:2	pretty 7:18 17:9 23:5 25:8 77:21	proportional 96:3
picks 60:10	positively 33:1	prevent 114:16	proposed 20:24
pieces 26:5	possibility 115:5,8	primarily 68:24 69:9,10 73:3	protection 78:1,13 100:4,5 103:1
place 4:3 19:9 21:22 24:21 36:1 89:17 90:10 91:16 103:6 116:10	possible 64:24 78:2 93:9 115:24 116:7 117:12	print 78:18	protocol 53:12 117:18,25 118:19
places 73:17 75:14 89:19	possibly 3:24	printed 11:12 68:21	proven 43:16
plaintiff 2:22 3:2	postulate 43:12	prior 87:12	proves 62:19,20
plaintiffs 1:5 2:5 3:13 44:7,9,17,18	potential 70:2	pro 4:22	public 2:17 3:5 8:5 11:3,7 48:16 63:20 97:18 112:7 122:19
plaintiff's 9:8,19 66:7	power 64:24	probability 41:21 56:9	publication 11:11
plant 7:7 9:15 10:1,6,13 12:17 13:19,25 14:17 16:4,23 17:13,14 19:3 21:3 23:7 32:23 33:6,20 35:5 38:1 43:7 59:1 67:22 68:2,11,14 72:21,21 76:12,14 80:18 82:10,22,24 83:8,22 92:3 92:14,17 99:11 100:16,17 103:14 115:15,16,21,21 116:3	ppo 106:20	probable 60:6,8	publications 111:19
plasma 51:18 95:17,20	precautions 69:5 70:10 103:23 105:12 109:15 114:16	probably 19:25 30:25 48:17 91:3,25 93:12 97:4 98:25	publish 11:2
plaza 114:25 121:18 122:4	precisely 107:11	problem 72:18 73:9 95:3,4,7 113:10 113:10,13	published 8:14 9:14 10:19,20,22 11:9 34:5,8,10,13 35:8,15 36:12 36:13,23 38:6,6,8,14 49:2 86:13 88:10
please 39:13 102:20 107:21	prediction 52:12	problems 70:3 74:21 92:22,23 93:1,2 93:25 95:4,25 96:1 97:7 114:4 115:24	publishing 11:1
point 46:12 59:13 60:21 62:18 63:5 77:15,17	preliminary 6:14	procedures 77:25 86:17 91:5 99:4 108:4	pull 26:10
points 57:4 60:23	preparation 67:9	produce 5:24 6:11	pulling 26:10,11
poison 104:9 105:4	prepare 106:6	produced 2:11 3:12 6:2 7:16 34:15	pump 17:2
poisoning 23:20 31:15 104:20	prepared 38:16,17 64:21 106:11,16 107:14	produces 5:22	purpose 26:6
police 75:8	presence 5:17 111:24 112:3	product 67:19 69:21 71:3 78:8,25 80:19 108:10,19,23	pursuant 53:13
	present 94:8 109:10	production 39:19 64:24	put 19:12 29:11 33:13 38:9 41:23 56:4 61:1 70:8 88:14 90:1 91:3,3 97:24 101:14 101:15 102:14,17,21 106:13 107:18 112:9
	presented 8:24 19:17	products 98:16	putting 105:15
	presently 111:21	progeny 111:2	
	presents 112:13,25 114:2		

[pyrenol - result]

pyrenol 74:14	raymond 33:16 38:13	reference 6:22 21:6 49:14 51:11 65:23 119:1	report 10:15 14:25 15:5 34:8 35:4 35:7,7,13,14 36:12,22,22 37:3,7,12 38:4,23 39:2 45:19 47:3,5,5,9 51:2,5,8 52:2,10 54:19 55:24 56:7 56:14 57:6 62:5 63:12,13 64:18,19,20 90:2,6,7 93:13 105:7
q	reactivity 98:15	referenced 9:23 10:6 24:7	reported 17:13,14 24:13 25:24 27:24 74:23 89:24 95:11
qualifications 8:22	read 21:9,13 24:10 26:1,18,24 26:25 27:1,3,8,11 28:5 31:18,22 34:22,23 44:14 54:16 55:24 56:4 57:2,5,9 59:11 65:4 66:23 67:15,22 77:11 78:18,22 86:12 90:6 98:16 111:7	references 21:7,8	reporter 2:17 3:5 65:22 66:6
qualified 53:22	reading 26:4,5,7 28:2,6,23 35:24 54:21 107:22	referring 7:13 13:22 14:3 26:9 46:8	reporting 1:24 25:19 122:12
qualify 115:4	reads 12:14	refers 15:25	reports 21:11 31:16 37:11,14,16 39:3 50:25 73:17,21 74:10 74:12,16,19 75:10
quantify 4:4 12:15 13:24 16:2 101:13	realize 7:18 57:2 86:19	regard 21:7 62:24 70:2 97:7	represent 35:14 120:11
quantities 108:15	really 12:21 18:8 24:22 41:4 66:16 90:9	regarding 70:24	representative's 113:16
quantity 17:4	realm 14:22 70:6	regroup 48:8	represented 2:22,26 119:18
quarter 56:6	reason 6:18 31:3 53:2,11 105:15 105:25 109:23	regular 16:8	representing 120:14
quaterphenyls 23:24	reasons 60:10	rek 89:10	reproducible 40:14,19,19
question 1:18 13:11 19:15 28:11 30:5 32:8 35:23,24 38:4 41:9 42:3,8 43:1 44:13 45:14 46:6,21 53:10 55:23 56:2 65:1 73:21 74:1,2 77:19 83:19 88:5,6 89:23 91:20,21 95:24,25 99:19,21 102:3 103:21 104:11,16,21 109:19 110:12,17 112:16 114:8 116:2	recall 6:9 16:20 17:16 19:2 26:24 27:2,3,4 32:25 96:25 97:9 98:13 108:9	relate 65:4	request 35:17 47:25 49:12
questioned 44:16	received 68:6	related 7:10 8:8 30:2 42:25 54:7 56:21,24 93:18 94:3	requested 119:9,14
questions 3:15 35:21 44:6,20,23 46:9 47:20 48:3,8 68:13 70:2,23 104:2	recited 118:19	relationship 20:9 25:18 32:7,11 42:16 43:12 51:19 76:8 95:18	requests 47:19
quote 8:1,13,14 9:2 24:14,14,15	recognized 25:10,11	relative 120:5	residents 51:17 95:14
quotes 8:23	recollection 16:4 56:3	relatively 8:2	respect 3:20 42:5 43:5 70:12
r	recommend 74:14 75:15 116:20,22 117:20,21	relevant 18:9,10	respirator 78:5 100:6,8,11 101:2,14 101:20,24 102:11,23
random 16:20,22 18:22 19:20	recommended 100:18 117:17	rely 74:25	respiratory 25:25 59:5 61:11 78:1,13 100:5
ranging 84:12	record 18:7,8 24:10 26:6 80:1	remember 5:1 10:21 12:24 17:18 57:21 81:2 90:8 91:2 96:20 100:22 102:13 110:6	respond 47:19
rat 32:20	recorded 17:11,12,25	repeater 30:14 40:14,15	response 25:18 40:20 41:2 84:3
rate 17:2 37:23 55:12,15 56:16 57:22 78:23	records 13:8 16:12 18:3 48:16	repeated 3:23 104:17	responsible 70:18
rates 56:2 58:9	red 29:12	repeatedly 81:17	result 4:10,15 6:3 11:9 30:19 31:16 76:25 87:17 90:2,13 90:18 105:2 111:10 115:8
raw 44:4 120:4	refer 10:12 91:8,15	repetitive 102:3	

[resulted - simple]

resulted 24:12 88:18	routine 16:10,18 18:19,22,23 19:4	second 11:20 23:14 34:2 36:21 51:5,12 102:19,19 108:4	sheet (cont.) 81:24 86:23 88:9 101:3 106:19 107:18
resulting 43:7 92:15	rule 59:4	secondly 40:20	sheets 68:24 69:7
results 4:22 18:25 19:24 20:2 31:18 41:5 50:22	ruled 42:24 59:6	section 19:8 68:22 71:25,25 77:1 77:14 79:2 80:4,9 87:5,13 87:16 91:6 103:1 106:4,19 107:10 108:7	shellfish 29:24
retention 18:8	rules 40:12 58:12	sections 26:7	shells 110:25
reticent 33:3	run 41:24 79:9 118:5,8,24	secure 67:24	shipped 108:15,16
retired 19:23 46:16 64:11	s	seeing 19:2	short 39:12 79:25 80:1 101:12,13 120:10
retrospective 28:15	s.m.a. 118:25	seen 18:15 22:5,25 27:7 38:23 39:4,6,7 43:2 67:18 109:5	shortcomings 4:11
review 4:6,8,10,15 49:17 57:7,9 120:6	s.m.r. 56:15	select 118:3	shorter 8:10
reviewed 4:9,21 46:23,24,25 49:19 120:4	s.m.r. 59:12,24 61:23	self 25:20	shorthand 2:17 3:4,4
reviewing 4:25	safe 7:25 20:4,5,8,15 67:12 70:18 72:14	send 68:15 92:11	shot 61:15
rheumatic 42:10,10 43:3,24 44:2,5,17 44:24 45:3,6 49:18,23 54:9 56:19	safety 17:15 67:4,11,16,23 68:6 68:15,24 69:6 70:10 78:9 81:23 86:23 88:9 100:17 101:3,3 106:19	sentence 13:22 25:17 26:11,11 27:11 27:16,20,21 28:6 39:25 44:12 57:5,9 64:18,18,19 64:21	shoulder 28:22
rice 23:21 24:11	saturday 120:12,13,18	sentences 24:11,24	show 30:8 33:11 34:19 38:20 39:1 46:7 51:19 66:10 95:18 98:10 114:21
rigged 88:21	sauguet 10:1,7 13:18 35:6	separate 104:2	showed 26:25 39:21 53:17 65:17 75:13,14
right 7:4 10:12 11:6 12:9 15:10 16:1 21:12 23:2 26:16 29:1 32:16 34:21 36:15,25 37:4 37:6,6,23 45:15,17 46:15 55:20 58:7 59:10 65:3,19 75:5,7 78:17,23 79:18,24 87:13,22 96:15,22 106:3 108:17,24 109:13 113:17	save 112:19	serum 51:17,19 95:15,18	showing 28:5,7 38:25 41:10
righthand 68:19	saw 10:20 21:19,25 44:10 96:5 110:16	service 8:6	shown 8:16
ring 71:13	saying 15:23 28:21 36:3 39:7 42:17 45:10,11 56:11 57:21 119:14,20	set 20:24 79:10,11,13 122:15	shows 61:5,19 72:14 75:11
risk 111:10,20,24 112:2,8,10,13 112:25 114:2,14,17,18,19 115:5,6,8	says 3:13 13:6 14:11,24 16:6,7 36:19 42:2,22 51:15 55:7 56:22 63:20 71:10 77:8,10 77:25 78:17,21,23 79:3,18 81:11 84:18 85:14 86:7 87:20 91:15 92:2 103:11 104:14 109:8,15	setting 3:20 33:2	shrimp 110:8 111:3,4
risks 111:16 115:4	scientific 8:25 35:8,15 36:23 42:23 43:2,17 53:13 62:18 65:17 111:20 115:13	seven 43:25 61:24 62:22	side 110:14
road 31:11 65:6	scientifically 5:11 59:20 60:11	seventies 18:11	sign 84:10 85:24 86:8 109:3
robert 35:2	seal 122:16	sewage 7:21	signed 3:6
room 109:9,14	search 25:9	sex 52:21	significance 31:21 42:7
		sheet 67:4,11,16,23 68:16 78:9	significant 4:2 39:21 40:7 41:8,11,11 42:1,17 44:1 54:5 59:21,25 60:11,21,24 61:1,4,6 62:9 63:5 71:9 109:10
			signs 44:15 88:8 92:18
			simple 38:24

[simpler - sufficient]

simpler 10:5	smokers 56:1 58:15,25	spill 68:23 72:20,22 99:4 112:5	statistically (cont.) 43:25 52:11 54:4 59:25
simplify 39:7 48:25	smoking 56:1 58:13 59:6,7 60:20	spillage 112:9	60:11,21,24 61:1,5 62:9
single 20:12 32:22 65:22	61:6 104:14	spilled 69:3	63:4
sir 3:17 4:3 7:4 9:21 12:12	soaked 81:18	spills 69:5	statistician 41:19,25
13:21 24:9 27:10 32:1	soap 91:8	spoyer 88:20 97:17	stipulated 3:1 5:4
39:15 40:1 50:3 60:19	society 117:9	spread 114:16	stomach 25:24 40:17
61:10 66:12 67:2,18 68:3	solid 77:4	st 1:1,26 2:1,15,24 9:15 10:6	stopped 15:11
78:17 79:1 80:3,6,15 81:7,9	soluble 30:25 31:5 77:5	10:7,13 12:4 13:20 14:17	street 1:25 2:28 22:15 122:13
86:14,18 89:10 96:15 99:3	solution 17:1	16:4,23 19:3 21:3 32:23	stretch 42:10
103:17,18 106:7 107:8,13	somebody 14:8 38:23 61:14 85:14	35:1 43:7 52:25,25 53:7,19	stroke 49:25
107:15,19 108:9,22,24	somebody's 83:9 103:14 112:6	57:24 58:1,2,3,4,5,6 99:11	studied 15:8,21 21:13
110:22 111:12 113:17	someplace 17:12 97:19 98:2	121:2,19 122:5,14	studies 4:6 5:12,20 6:6,23 7:5,12
situation 84:2 94:5 98:8 112:12,24	soot 98:18	stack 36:25 37:1 66:6,11	7:15,17,19 8:15,24 9:11
113:9	sorry 65:10,15 77:11	standard 19:13,18,19 20:6,7,9,9,11	21:4,6 27:24 33:13 52:19
situations 74:20	sort 41:23 97:23	20:18 52:17,20 55:12 56:15	55:7
six 14:12 15:15 17:4 25:23	south 2:27	57:22 65:5	study 7:6,10 9:13,22,25 10:2
39:19 61:24 62:1,22 66:5	spaces 3:24 101:19	standards 19:12 20:12,19,24 53:13	12:11,16,22,22,23 13:1,8
75:18 80:8 82:23	special 77:25 100:4 103:1,23	standpoint 54:1	13:25 14:13,20 15:1,24,25
sixteen 108:1 111:15	105:12 118:25	start 21:15	21:2 23:19 28:16,18,19,20
sixth 109:8	specialized 70:1,4,6,12,23	started 64:3 73:5 99:25 113:21	30:23 33:5,9,10,15,22,23
sixty 27:5	species 110:24 111:4	state 1:2 2:2,18 13:16 14:4 16:15	33:23 34:4,18 39:14 40:11
skimmed 66:16	specific 77:5 114:23	38:7 52:4,14 87:7,10 121:3	40:12,13 41:1,7 43:5 49:2
skin 3:23 29:4,12 79:22 83:4	specifically 24:7	stated 5:16 40:2 54:4 56:15 83:11	50:22,22 52:7,12,18 53:16
86:14 92:4,23 93:1,5	specification 108:19,23	95:12 96:24 109:22 111:20	53:21,23,25 54:17,24 55:1
103:24,25 104:5,9,13,17,18	speculate 13:13 14:7,9,22,25	statement 12:19 13:4 25:6 35:12	60:17 63:7 64:2,3,21,25
104:22 105:3	speculation 13:11 110:19	74:25 78:25 103:6 108:5	65:5,6,7,8,12
slight 61:12 98:11	speech 35:24	110:5 121:9	studying 40:21 41:5
slightest 68:20	speeches 35:20,23 36:4	states 8:5 13:23 16:1 27:12 39:16	stuff 30:10 70:7
slowly 45:16	spell 102:8	52:24 53:7,17 55:8,13	subject 5:2
sludge 7:2,22		57:23 58:16,22 59:2,8	submitted 67:5
small 7:19 9:16,17 56:13 78:18		64:18,21 67:5 87:9 91:6	subpar 90:21
smell 82:20,20		94:23 109:20 110:1,10	subscribe 63:1
smith 8:11 33:18,25 38:11 92:2		112:8	substances 32:3
smog 55:11,14 56:9		stating 39:2 74:18	suffered 25:6 73:24
smoke 98:17 104:15		statistical 41:10,11,17 65:17	sufficient 92:9,10 116:14
		statistically 39:21 40:6 41:11 42:1,17	

suggest 64:13 67:14	system 18:8,9 43:23 59:5,20 61:8 61:11,12	temperature (cont.) 109:9	things (cont.) 73:5 77:12 112:16 116:7
suggested 43:6 50:4 64:7	systemic 86:15 87:1 92:4	temperatures 86:22 88:16,19,23 100:19 101:12,18 102:1,12,24 109:18	think 3:22 8:21 10:5,17,19,23 12:1 13:12,15 14:21 18:4 21:23 22:7 25:21 26:12 28:3,7 30:15,22 32:5 36:3 37:22 38:24 39:5 43:1 44:9 44:19 45:2 46:20 47:8,22 48:1,10,14 49:24 53:20 55:9,16,23 56:2,4 57:4,8 58:12 60:2,9 62:21 63:2 66:21 73:10,16 75:4 76:12 76:15 78:7 82:12 83:1,13 83:16,18 85:12 92:15 94:6 94:12 97:1,7,8 98:7,22 99:10 101:7 102:5 103:10 107:24 110:13,15 112:21 115:2,3 116:2,11 119:4,11
suggestions 118:5	t	ten 9:17 13:8 17:5 19:23 40:22 40:25 46:25 61:25 64:17 73:13 74:8,15 75:3 82:3,6 82:10	thinks 105:2
suggestive 60:1,3	table 59:10	tend 63:2	third 23:25 40:17 41:2,3 47:22 48:7,9,11 98:1
suggests 87:16	tables 50:23 52:9,18	tenure 18:14	thirteen 108:17
suite 1:25 121:18 122:4,13	taft 35:2	term 4:6 25:13 41:4 60:4 81:21	thirty 33:6,19 37:25 57:6 71:7 83:5 91:24
summary 26:7,12 28:23	taiwan 24:4,5,14 25:7 31:15,24	terms 51:20 55:6 104:11	thomas 2:22 121:16 122:2
summery 26:4,5 28:2,7,8	taken 3:3 23:20 39:12 79:25 120:10 121:12	test 6:7 32:18 77:20 115:17	thought 20:4 22:21 28:23 59:17 88:4 90:1
supply 46:23	talk 116:17	tested 5:17,22,23 75:17	thousand 31:19
supplying 81:5	talked 4:18 11:17 19:1	testified 44:10 53:6 87:18 119:8 120:3	thousands 33:13 34:14
support 46:24	talking 20:14 29:19,21 32:13 48:15 59:4 70:14 74:13 76:12,13 78:20 81:23 84:14 86:19,20 86:22 100:22,23 102:13,18 106:8 111:8,9 113:18 114:4 114:23 117:23	testify 6:19,20 63:9	three 24:7,8,8 29:24 31:13 41:12 41:15 46:19 48:2 57:14,16 61:24 62:1 73:7,12 75:19 88:20,22 98:13 106:3 112:16 113:11 118:11 119:14
supporting 45:19	talks 87:13	testifying 35:20	threshold 20:22 72:11,13 79:3,4,8 80:11 82:16,17,18,21
supposed 86:23	tanks 100:14	testimony 29:5 57:10 69:6 70:11 88:8 97:2	throat 82:25
supposes 43:11	tape 119:3,4	testing 19:20	throw 41:7
sure 4:20 5:9,14 11:5 16:9 17:12 18:13 19:16 28:5 29:11 43:10 54:13 64:15 72:6,23 86:6 99:6,24 105:21 116:7	taxed 122:1	tests 51:16 95:13 117:18 118:5,7 118:25	thumbed 66:21
surface 41:15	technical 7:25	texas 6:14,16	thumbing 66:23
surprised 35:11 36:9 37:9	telephone 23:11 68:21 69:12 83:9 85:4	thank 9:7 65:3 77:1	
survey 33:17	tell 6:24 7:16 10:19 21:14 32:20 33:1,1,4 54:18 68:10 70:21 71:18,22,23 75:1 80:21,25 81:1,12,13 82:5,6 82:8,14 85:19 89:2 92:19 93:8 94:5,15,25 100:9,10 100:11 101:3,10 103:4,24 104:4,22,24,25 106:18,25 107:4 115:25 116:10 118:2 118:4,5,9,10	thermometer 97:19	
suskind 33:16,23,23,24 38:13	tells 77:12	thick 56:6	
swelling 89:15 90:10,11,17	temperature 3:24 77:17,21 81:14 102:7	thin 110:25	
swollen 90:25		thing 48:15 60:11 62:2,4,8,9 71:17 75:8 78:14 107:2 112:6	
sworn 2:12 3:12		things 18:11 43:15 52:22 54:7	
symptom 31:14 33:3 84:4			
symptomatology 24:13			
symptoms 24:16 25:20,22,24,25 30:2 33:4,17 44:15 76:9,25 88:14 92:19 93:3 94:9 96:17			

[till - walnut]

till 21:19	transcribed 3:5	turn (cont.) 107:21	users 102:16
time 3:25 4:13 5:10 12:16,22,23 13:1,11,25 14:13,20 15:6 15:25 16:16,19 17:18,22 18:24 20:7 26:19 30:8 37:21 40:9 48:7 66:19 73:18 79:24 83:12 88:11 94:8 97:3 100:12,22 101:12 101:13 106:16 110:23 112:20	transcript 121:15 122:1	turns 57:10	uses 107:25
	transcripts 122:8	turpentine 105:16	usual 52:19
	transfer 21:17 30:10 86:22 88:22 90:4 97:13 98:5	twelve 41:23 61:3	v
	transformer 5:21 82:24 100:24 106:21 114:15 115:9	twenty 15:9 21:7 30:13 41:12,14 44:20 57:14,16 60:23 61:3 83:12	vacuum 101:22
times 16:20 41:15 72:18 73:8,13 74:4,8,15 75:3,19 76:5,15 113:12,14 115:19	transient 29:16	twice 20:10 96:13	vague 53:10 74:2 103:22 114:8
	transport 69:7	type 37:15 67:18 76:12 77:20	value 20:23 72:11,13 79:3,5,8 80:11 82:17,18,21
titled 108:18	transportation 68:25 70:20 73:4 86:24	typewriting 3:6	values 51:25
tlv 72:9,10,24,25 73:7,12 74:4 74:8,15 75:12,19,24 76:5 81:8,16 100:21	treat 118:16,17	u	vapor 77:6 82:23 109:9,10,16
	treating 93:2,4,4 118:10	uh 51:4,7 107:17	vapors 78:2 100:6,8 103:2,4,13,13 105:24
tod 2:16 3:4	treatment 91:24 92:12 118:14	umpteen 47:11	varicose 54:11
today 20:14 72:4,6,6 93:18 111:13,23 112:2,11,22 114:1 116:24,25	tri 96:10	undefined 104:11	varies 4:3
	trial 5:3 6:14,15	understand 13:19 18:18 50:12,13,25 51:21 53:10 67:23 84:14 87:15 113:25	various 65:24 67:13 70:22
told 19:25 46:25 49:22 68:9,12 75:2 85:13 92:20,21,21 100:13 101:17	trichlorobenzene 5:21,24 6:4 71:5,6,8,9 72:8 73:23 79:11 106:23	unique 65:7	vary 12:18 14:1
	trichlorobenzenes 114:5	unit 30:10 88:22 90:4 98:5	vast 7:18 24:25 25:1
tom 50:8 87:25 119:17	tried 37:13 54:6	united 8:5 52:23 53:7,17 55:8,13 57:23 58:16,22 59:2,8 67:5 94:22 112:7	veins 42:13 54:10,11 90:25
tomorrow 36:12 119:5	triglyceride 30:25 51:18 95:17,21	units 86:22	view 62:18
top 54:20 108:25	triglycerides 27:23 30:18 31:3,5,6,8 43:15,18 51:24 96:2,9,11	unpublished 34:18 37:10,12,14 39:3	voice 33:3
total 9:17,17 14:11 97:7 122:6	trouble 73:16 105:7	unrealistic 94:6 117:23	volume 1:12
totally 112:17	truck 69:1 72:19,22 73:1 104:14	unreasonable 48:2	vomiting 25:14,15,16 85:9,15 86:16 87:2 88:7,24 90:20 92:5 98:7
toxic 78:19,24	true 9:24 94:20,22 95:6 96:7	unsafe 3:19,25 20:15	vs 1:6 2:6 121:5
toxicity 69:20 109:2,2	try 46:17 111:1 116:9	unusual 23:16,17	w
toxicological 110:5,7,7,8,11 111:3,6 113:10 116:21 117:11	trying 14:22 28:21 35:22 87:7 88:4	upper 68:19	wait 27:14 34:1,5,23 52:5 113:23
trademark 109:3	tumors 40:17,24 84:12	use 3:20 21:16 46:8 53:6 60:4 68:25 70:24 97:23 99:12 102:22 114:2,9,9,9,11,12 114:13	walks 22:15
training 54:2	turn 12:11 36:6 39:13 43:1 64:17 66:25 67:8 106:3		waller 1:24
trans 30:9			walnut 2:28

[want - zero]

want 6:20,20 39:5 54:16 63:10 78:4,7,12,15 80:22 85:16 87:9 91:14 95:4	white 56:16 widely 108:10 110:3 willing 34:19 withdraw 28:24 witness 3:6 10:9 14:7 24:5 26:8 28:10 35:22 45:14,17 48:13 48:20,24 49:7,11 65:15 120:6,14 122:15	world 21:4 worried 105:23 wreck 61:14 wright 4:5 6:14,15 write 89:11 91:10 writers 111:19 writing 91:2 102:15,17,21 written 97:16 115:13 wrong 35:12 36:10 117:16 wrote 21:23 30:23 88:13 89:1,5,6 89:12,12 110:15 wvp 89:9
wanted 19:18 22:4 69:20 93:16 94:24 97:22,22 115:23	women 97:20 word 31:18 42:2 66:17,17 words 8:8 40:15,21 88:3 104:17 110:18 117:18 work 5:1 7:10 40:22,23,24,25 56:24 61:22 63:22,25 64:4 65:18 76:25 worked 8:9,9,13 10:3 12:25 15:14 15:15 75:11 82:22 85:15 88:10,11 115:16 worker 3:20 23:10,12 30:18 32:23 40:21 67:15,22 80:17 82:1 83:11 84:15,16 92:3 100:7 102:10,13,22 103:2 105:2 115:14 117:24 workers 6:23 7:1,6,11 9:11,15,16,25 10:3 14:11,16 15:2,6,8,20 21:3 22:18 23:7 28:17 30:15,16 33:2,7,17,19 35:5 37:25 39:18 42:5,9,21 43:6 52:3,13 53:8 55:10 63:13 64:22 75:20,25 76:2 84:1 91:24 101:23 104:12 114:21 worker's 3:22 72:16 working 15:12 18:17 21:9 22:13 67:16,24 68:1,7 80:13 81:10 82:6,7 83:13 84:2,18 90:21 100:13 101:14,25 102:11,23 111:15 workplace 19:12 56:22 works 84:8,9	written 97:16 115:13 wrong 35:12 36:10 117:16 wrote 21:23 30:23 88:13 89:1,5,6 89:12,12 110:15 wvp 89:9
warn 102:6,10 warning 101:16,23 102:22 104:8,11 104:13 warnings 105:6 wash 91:7 watch 98:9 watchman 69:15 water 77:6,22 91:8 ways 41:17,20 101:19 102:7,8 wear 78:5,12 100:7 101:1,20,24 102:10 wearing 91:13 week 20:8,10,11 47:21 48:5 73:8 74:6 82:23 83:5 98:10 119:19 120:15 weight 85:23 86:1,16 87:3 88:7,24 90:18,22 92:6 93:24 welcome 63:11 went 22:3,18 26:17 45:19 48:25 97:25 west 64:16 westinghouse 7:7,9 23:7 33:20 38:1 67:22 68:2 71:3 73:11,20 80:18 92:3 115:14,21 we've 34:15 69:19 105:6 119:2 wheeler 19:21 whereof 122:15	women 97:20 word 31:18 42:2 66:17,17 words 8:8 40:15,21 88:3 104:17 110:18 117:18 work 5:1 7:10 40:22,23,24,25 56:24 61:22 63:22,25 64:4 65:18 76:25 worked 8:9,9,13 10:3 12:25 15:14 15:15 75:11 82:22 85:15 88:10,11 115:16 worker 3:20 23:10,12 30:18 32:23 40:21 67:15,22 80:17 82:1 83:11 84:15,16 92:3 100:7 102:10,13,22 103:2 105:2 115:14 117:24 workers 6:23 7:1,6,11 9:11,15,16,25 10:3 14:11,16 15:2,6,8,20 21:3 22:18 23:7 28:17 30:15,16 33:2,7,17,19 35:5 37:25 39:18 42:5,9,21 43:6 52:3,13 53:8 55:10 63:13 64:22 75:20,25 76:2 84:1 91:24 101:23 104:12 114:21 worker's 3:22 72:16 working 15:12 18:17 21:9 22:13 67:16,24 68:1,7 80:13 81:10 82:6,7 83:13 84:2,18 90:21 100:13 101:14,25 102:11,23 111:15 workplace 19:12 56:22 works 84:8,9	written 97:16 115:13 wrong 35:12 36:10 117:16 wrote 21:23 30:23 88:13 89:1,5,6 89:12,12 110:15 wvp 89:9
y		
yale 21:22 yeah 10:10 31:14 44:22 49:11 59:22 72:23 104:22 year 47:4 64:23 116:23 years 12:3 13:8 15:9 18:9,15 19:23 25:23 27:6 40:22,23 40:24,25 46:14,17,19 82:3 82:6,10,23 83:6 89:6 91:25 105:6 110:1 111:15 115:15 115:23 119:15 yesterday 6:13,22 8:22 44:14 66:19 yucheng 24:2,15 27:6 31:20 yusho 23:20 24:14 25:6 27:5,19 31:15,19,24 32:10 33:17		
z		
zack 9:12 11:14 12:8 14:23 16:12 28:17 35:6 36:12 37:3 39:14 49:2 50:19 52:6 53:12 63:16 95:11,24,25 zack's 28:12,13 31:17 zero 57:18		