

IN THE UNITED STATES DISTRICT COURT
FOR THE
SOUTHERN DISTRICT OF WEST VIRGINIA
AT CHARLESTON

JAMES M. ADKINS, Administrator)
of the Estate of Ralph E. Adkins,)
Deceased, et al,)

Plaintiffs,)

vs.)

No. 81-2098

MONSANTO COMPANY, A Delaware)
Corporation,)

Defendant.)

APPEARANCES:

Paul L. Pratt, P.C.,
by Paul L. Pratt, Esq.

For Plaintiffs,

Messrs. Bowles, McDavid, Graff &
Love,
by Charles M. Love III, Esq.,
and Paul E. Frampton, Esq.,

For Defendant,

and

Thomas M. Bistline, Esq.

Monsanto Company
Counsel.

IT IS STIPULATED AND AGREED by and between
counsel for the plaintiffs and counsel for the defen-
dant that the deposition of FRANK J. HELMER may be taken
pursuant to Rule 26 (a) of the Federal Rules of Civil
Procedure, on June 2, 1983, at the Radisson Hotel, 9th

1 Street and Convention Plaza, Room 215, St. Louis,
2 Missouri, before M. JOY SPRINGER, a Notary Public
3 within and for the County of Madison, State of Illi-
4 nois; that the issuance of notice and dedimus is waived,
5 and that this deposition may be taken with the same force
6 and effect as if all Federal rules and statutory re-
7 quirements had been complied with.

8 IT IS FURTHER STIPULATED AND AGREED that any
9 and all objections to all or any part of this deposi-
10 tion except objections as to form of the questions asked
11 or answers given, are hereby reserved and may be raised
12 on the trial of this cause; and that the signature of
13 the deponent is not waived.

14 * * * * *

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20 FRANK J. HELMER

21 produced, sworn and examined on behalf of the plaintiffs,
22 deposes and says as follows:

23 EXAMINATION

24 BY MR. PRATT:

25 (Whereupon the reporter marked Plaintiffs'

1 Deposition Exhibit #97, consisting of 1 page;
2 Exhibit #98, consisting of 1 page; Exhibit #99,
3 consisting of 3 pages; and Exhibit #100, con-
4 sisting of 1 page, for the purposes of identifi-
5 cation.)

6 Q (By Mr. Pratt) Tell me your name, sir.

7 A Frank J. Helmer, H-e-l-m-e-r.

8 Q Mr. Helmer, my name is Paul Pratt, and
9 I represent some people along with Stuart Calwell in
10 the Federal Court in West Virginia concerning some
11 workers at Nitro who allegedly were exposed to dioxin
12 and some other toxic chemicals while working there,
13 and I'm going to ask you some questions about your
14 possible involvement in this particular subject matter.
15 If any question I ask you is not clear, you tell me
16 and I will try to make it clear, O.K.?

17 A (Nods head affirmatively.)

18 Q And generally what I'll be talking
19 about, first of all, is your educational background
20 and work background and then we'll get into some docu-
21 ments that you show up on on the distribution list, O.K.?

22 A O.K.

23 Q Tell the Court and jury your name, please.

24 A My name is Frank Helmer.

25 Q Where do you live?

1 A 2825 Flamewood Drive in St. Louis County.
2 Q All right. How old are you, sir?
3 A 51.
4 Q Graduate from high school about 1950?
5 A '49.
6 Q What did you do after that?
7 A I went into the Army in 1951 and got out
8 in 1953.
9 Q What did you do from '49 to '51?
10 A I operated our family business.
11 Q And what was that, sir?
12 A It was a furniture store in the town of
13 Monticello, Iowa.
14 Q You went in the Army from '51 to '53?
15 A To '53.
16 Q What did you do after getting out of
17 the Army?
18 A Then I went to school at Iowa State
19 University.
20 Q You started in the Fall of 1953?
21 A Actually I started in '54.
22 Q All right. Fall of '54?
23 A Yes.
24 Q What did you do between the Army and
25 when you went to Iowa State in '54?

1 A I worked at various jobs.

2 Q O.K. Starting the Fall of '54 at Iowa

3 State?

4 A Uh huh (yes).

5 Q Was that at Ames, Iowa?

6 A Ames, Iowa.

7 Q And when did you graduate?

8 A In June of 1959.

9 Q And what was your Degree?

10 A Bachelor of Science in Chemical Engineer-

11 ing.

12 Q Can you tell me generally what courses

13 you took to obtain the B.S. in Chemical Engineering?

14 A Courses in mathematics, courses in

15 physics, in chemical engineering elements per se, courses

16 in chemistry, some courses in humanities.

17 Q O.K. How many hours do you have in your

18 major?

19 A I really don't recall.

20 Q Over 30, probably, right?

21 A Probably.

22 Q You have a minor?

23 A Not really.

24 Q All right. When you graduated in June

25 of '59, what did you do?

1 A I went to work for General Mills in
2 Minneapolis, Minnesota.

3 Q Now, before we go any further, do you
4 have any higher Degrees?

5 A No.

6 Q You went to work for General Mills,
7 and what was that date?

8 A That was in 1959, June of 1959.

9 Q And how long were you with them?

10 A For two years, until June of '61.

11 Q And what was your title while you were
12 there and what were your duties?

13 A My title was Food Engineer, and my
14 duties were the development of new grocery products,
15 processes to produce new grocery products.

16 Q And did you remain as a Food Engineer
17 during that two-year period?

18 A Yes.

19 Q All right. Where did you go after June
20 of 1961?

21 A I joined Monsanto at the Queeny Plant
22 in St. Louis.

23 Q And what was your first position with
24 them, with Monsanto?

25 A As a Process Engineer.

1 Q What department were you in?
2 A As a Process Engineer I worked in
3 maleic anhydride, maleic and phthalic.
4 Q And what are those products, sir?
5 A They are chemicals that eventually become
6 components of plastics.
7 Q How long were you a Process Engineer in
8 that division?
9 A Two years.
10 Q Be about June of '63?
11 A Yes.
12 Q Where did you go then?
13 A I became a Production Supervisor at the
14 same facility.
15 Q And what were you the Production Supervisor
16 of?
17 A Toluenesulfonyl chloride Manufacturing
18 Department, TSCL.
19 Q What were your duties there?
20 A To supervise the manufacture of chemicals,
21 TSCL and derivatives.
22 Q How long were you in that position?
23 A In that position for two and a half years,
24 roughly.
25 Q About January of '66?

1 A That's about right. Maybe a little
2 later. Maybe August of '66.
3 Q Where did you go then?
4 A Then I went to the General Offices as
5 a Production Planning Supervisor.
6 Q As a what?
7 A Production Planning Supervisor.
8 Q That's at World Headquarters, as they
9 call it?
10 A Yes.
11 Q How long were you in that job?
12 A Until approximately September of '67.
13 Q What were your duties at the General
14 Office as Production Planning Supervisor?
15 A To arrange for the manufacture of
16 chemicals at three different plants to match the mar-
17 keting demand.
18 Q What three plants and what chemicals?
19 A A whole armload of chemicals, but the
20 plants of Texas City, John F. Queeny and Luling.
21 Q Nothing to do with Nitro?
22 A No.
23 Q Any of them have to do with 2,4,5-T?
24 A No.
25 Q 2,4-D?

1 A No.

2 Q Then after September of 1967 where did
3 you go?

4 A Then I became a Commercial Development
5 Project Manager.

6 Q And where were you at when you did that, sir?

7 A At the General Offices.

8 Q How long were you in that job?

9 A Short period of time. Until, perhaps,
10 February of 1968.

11 Q What were your responsibilities in that
12 job?

13 A I had one primary responsibility, and
14 that was introduction of a new chemical to a customer,
15 to a specific customer.

16 Q Following February of '68 where did you go?

17 A Well, the function of Commercial Develop-
18 ment was dissolved as a Corporate function, and at that
19 time I had really no job. I had to look around the
20 corporation for a job, and there was one open at Nitro.
21 So in February of '68 I went to Nitro, West Virginia,
22 as an Engineering Supervisor.

23 Q How long were you in your capacity at
24 Nitro as an Engineering Supervisor?

25 A Until 1975.

1 Q All right. Now, let me ask you this,
2 Mr. Helmer, did you change any jobs while you were there?

3 A No. I had the same job.

4 Q And what were your responsibilities as
5 an Engineering Supervisor at Nitro in February of '68
6 until 1975?

7 A I was responsible for the technical
8 support of a number of products there.

9 Q What were those products?

10 A Principally the tall oil manufacturing
11 facility. I also had a number of rubber chemicals,
12 several of those, and in the beginning I also had 2,4,5-T.

13 Q And you had 2,4,5-T February of '68
14 until when, sir?

15 A Until the time that we knew the product
16 would be abandoned, that the manufacture of the product
17 would be abandoned, which I suspect was probably in the
18 early part of 1969.

19 Q All right. Now, tell me about what
20 your responsibilities were as the Engineering Supervisor
21 in the 2,4,5-T process until it closed.

22 A Well, my engineers were responsible for
23 maintaining the rated capacity of the unit, for install-
24 ing capacity and yield improvement projects, to perform
25 any sort of engineering services that would be required

1 to keep the operation at an economical and reliable rate.

2 Q Can you tell us when that operation
3 ceased?

4 A I believe it was in the middle of 1969.
5 I think, in the summertime of '69. I'm not sure of
6 those dates.

7 Q All right. Were you involved as an en-
8 gineer in any of the work of dismantling the 2,4,5-T
9 plant?

10 A None. Our function was an optimizing
11 function, and once it was known that the product was
12 phased out, we had nothing further to do with it.

13 Q What was the reason they phased that out?

14 A I can't say precisely why it was phased
15 out.

16 Q Was it because the government was no
17 longer going to buy 2,4,5-T or Agent Orange, as it were?

18 A I really don't know.

19 Q So you had nothing more to do with 2,4,5-T
20 at Nitro after the summer of '69?

21 A We were probably out of there before
22 the summer of '69. I think earlier in the year we got
23 out of there.

24 Q We'll come back to that period of time
25 later. Where did you go after 1975?

1 A Came to the Krummrich Plant in Sauget,
2 Illinois.

3 Q What was your position there?

4 A Process Engineer Superintendent.

5 Q O.K. And how long did you remain in
6 that job?

7 A I'm still in that job. So from '75
8 until the present time.

9 Q Are you over the entire plant?

10 A No. I have roughly a quarter of the
11 plant, 25% of it.

12 Q Have you always been over the same part
13 of the plant?

14 A No. I've had three of the four areas now.

15 Q Tell me timewise and what areas.

16 A Well, in the first period I had the
17 acids, chlorosulfonic and sulfuric acids and monochloro-
18 benzene facilities and later took on the nitrochloro-
19 benzene, monochlorobenzene and later the nitrochloro-
20 benzene facilities, and then in the third period the
21 nitrochlorobenzene facilities and derivative products,
22 para- and ortho-anilines and ortho-nitrophenol, batch
23 nitrations.

24 Q Any of those areas you talked about
25 Department 236 or 237 be under? That's the only penta

1 and ortho.

2 A I did have Department 239 but not penta.
3 I had 239.

4 Q What did they make in 239?

5 A It's a bacteriostat. It's an ingredient
6 in soaps. It's called Santophen.

7 Q You had nothing to do with penta- or ortho-
8 chlorophenol?

9 A No, not to my recollection, no.

10 Q 2,4-D?

11 A No. 2,4-D has not been a product there
12 for some time.

13 Q 2,4 dichlorophenol?

14 A No.

15 Q 2,6 dichlorophenol?

16 A (Shakes head negatively.)

17 Q Nothing to do with phenol?

18 A No. Well, the -- No, not really.

19 Q Now, let me ask you this, going back to
20 your tour of duty in Nitro where you were the head of
21 the 2,4,5-T and Engineering Supervisor from February
22 of '68 until before the summer of '69, O.K. Would you
23 frequently be in the 2,4,5-T area? Where were they
24 making it at that time? Building 92?

25 A That name rings a bell. I don't recall

1 precisely the number of the building.

2 Q Had there been, do you know whether
3 or not there had been any relatively new unit or new
4 unit put in in about '62?

5 A I was aware that the facility was not an
6 old facility. I was not aware of the exact date when it
7 had been installed.

8 Q Did you have any problem in the manu-
9 facture of 2,4,5-T while you were there concerning
10 making the contaminant called 2,3,7,8-TCDD?

11 MR. LOVE: Objection to the form of the
12 question.

13 Q (By Mr. Pratt) Go ahead.

14 A I can't recall specifically whether we
15 had problems with the chemical that you mentioned.

16 Q Would some documents refresh your memory?

17 A Depends on the document.

18 Q This first one, Plaintiffs' Deposition
19 Exhibit #97 (Monsanto identification number 8319364),
20 may not be exactly relevant to what we want to talk
21 about, but I'm going to show it to you. Hand you
22 Plaintiffs' Exhibit #97, ask you to take a look at that.

23 This document purports to be from an
24 R. A. Atkinson. Do you know who he is?

25 A Yes.

1 Q Who is he?

2 A He was a chemist working at the plant at

3 that time.

4 Q All right. Apparently, is a document

5 that was dated April 15, 1969?

6 A Uh huh (yes).

7 Q And looking at the subject, looks like

8 Sodium 2,4,5-T. What does the rest of that word say,

9 can you make it out?

10 A 2,4,5-T Eimco Belt. Can't read that

11 last one. Rinse or wash, something like that.

12 Q And you're on the distribution of that

13 document, correct?

14 A Yes.

15 Q And the document was to a Mr. F. A.

16 Lakin?

17 A Right.

18 Q Who is he?

19 A I believe Frank Lakin was the Production

20 Superintendent of that product at the time.

21 Q Who is Mr. Kellogg?

22 A Wally Kellogg was my boss. He was the

23 General Superintendent of Technique at the services at

24 Nitro.

25 Q How about Mr. Dolin?

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A Dolin was the Chief Chemist.

Q Mr. Rhodes?

A Laverne was the Production Supervisor of the 2,4,5-T Department.

Q What are they discussing in the text of that short memo?

A Looks to me like what they were trying to do here is to see what the contents of the wash water was after we had finished washing the Simco belt.

Q How were they going to do that?

A Taking the water and testing it for the chemicals that it contained.

Q And what process was used on that?

A Apparently -- Well, as it says here, acidified the water and then extracted, which means shake the water up, with 15 milliliters of chloroform with tetralin added, I don't know why, and what happened there was probably the organic that was in the water was dissolved out preferentially in the chloroform and then ran a sample of the chloroform through a GLC, which is a gas chromatograph and then they can tell what kind of chemicals were contained in that water.

Q What did they find or not find in that document?

A They found a small, extremely small

1 amount of 2,4,5-T and no detectable amount of TCP.

2 Q And what were their detection limits?

3 A According to Rick in his memo, you
4 could detect up to -- is that percent -- five ten thou-
5 sandths of a percent.

6 Q Of TCP?

7 A Yes.

8 Q And how much 2,4,5-T?

9 A Is that a percent sign on the end of
10 that? That would be one thousandth of a percent of
11 2,4,5-T.

12 Q And how much approximately of 2,4,5
13 trichlorophenoxyacetic acid?

14 A How much he found was .007%, or seven
15 thousandths of a percent, which is very tiny, and no
16 detectable amount of TCP.

17 Q All right. Let me hand you Plaintiffs'
18 Deposition Exhibit #98 (Monsanto identification number
19 8319432), and ask you if you can identify that.

20 A Yes.

21 Q All right. This document, Plaintiffs'
22 Exhibit #98, appears to have originated from a man named
23 Jack Strum, is that correct?

24 A Right.

25 Q Who is or was Jack Strum?

1 A Jack Strum was a young Process Engineer
2 at the time at Nitro.

3 Q And he's written a memorandum dated
4 May something, 1969, concerning TDD analysis of 2,4,5-T,
5 right?

6 A Correct.

7 Q And what you're talking about is the
8 tetra level of the paradioxins, correct, the term TDD,
9 that's what it means?

10 A Yes.

11 Q Again, the memo was to Frank Lakin?

12 A Uh huh (yes).

13 Q And the persons receiving that memo
14 were Dolin, yourself, and who are the other people?

15 A W. C. Woods, that's Curt Woods, and
16 he's a chemist, and P. Balderson, and he's also a chemist.

17 Q Apparently, Mr. Balderson had agreed to
18 run TDD analysis on a number of samples of sodium TGT
19 currently being produced in order to ascertain that
20 no increase had occurred in the amount of dioxin, right?

21 A Correct.

22 Q Curt Woods was to set up a program for
23 a routine analysis of the 2,4,5-T finished goods sample
24 for dioxin by the Quality Control Lab, right?

25 A Correct.

1 Q In order to establish where they were
2 now on the finished goods, is that a pretty good statement?

3 A Yes.

4 MR. LOVE: Objection to the form of the
5 question, for what it's worth.

6 Q (By Mr. Pratt) And the last paragraph
7 states that, "After sufficient analyses have been com-
8 pleted, I will evaluate our current situation and report
9 to you," meaning Lakin, right?

10 A Yes.

11 Q Did you ever see a copy of that report?

12 A Not that I can recall.

13 Q Were you involved in this type of testing
14 at all?

15 A Personally?

16 Q Yes.

17 A No.

18 Q Why would you be receiving a copy of
19 this type of document that relates to gas chromatograph
20 analysis for TCDD?

21 MR. LOVE: Objection to the question as
22 to its form. There's no mention of a gas
23 chromatograph, that I'm aware of, in the document.

24 Q (By Mr. Pratt) Go ahead.

25 A Jack worked in my group.

1 Q Worked for you?

2 A Yes.

3 Q Are you professionally capable of doing

4 that type of analytical testing?

5 A Personally?

6 Q Were you?

7 A Personally?

8 Q Yes.

9 A No.

10 Q This deals with analytical chemistry,

11 doesn't it?

12 A Correct.

13 Q Completely different field of chemical

14 engineering?

15 A Yes.

16 Q Hand you what's been marked, Mr. Helmer,

17 Plaintiffs' Deposition Exhibit #99 (Monsanto identification

18 number 8319180), and ask you if you can identify that

19 document.

20 You recognize that document, sir?

21 A Yes.

22 Q This document, Plaintiffs' Exhibit 99,

23 consists of three pages, does it not?

24 A Yes.

25 Q The first page is a Progress Report,

1 dated February 21, 1969, is that correct?

2 A Correct.

3 Q And it's from your associate, J. C.
4 Strum, right?

5 A Correct.

6 Q And it shows that you're on the dis-
7 tribution list, correct?

8 A Yes.

9 Q And what is the title of this document?

10 A Title is Reduction of TDD in Sodium TCP-
11 Building 92.

12 Q And what was the problem that's stated
13 there?

14 A "Reduce formation of TDD in 2,4,5-T
15 plant sodium TCP autoclaves, and increase conversion
16 of TCB to sodium TCP."

17 Q In other words, increase production
18 and to lower the dioxin?

19 MR. LOVE: Objection to the form of the
20 question. Dioxin has not been mentioned in any
21 of these documents. If you want to use that
22 term, I would request that you lay some sort
23 of a foundation for the time period in which
24 it became a term that was known to this witness,
25 whether it was known at the time of the author-

1 ship of the document.

2 Q (By Mr. Pratt) What is TDD, sir?

3 A I'm not sure of the chemical composition

4 of TDD.

5 Q It's tetrachlorodibenzo-para-dioxin,

6 isn't it?

7 A That sounds like what it would be, yes.

8 Q Well, then it would commonly be called

9 dioxin, would it not?

10 MR. LOVE: Objection as to the form

11 of the question as to when and what point in

12 time, if ever, it was commonly called dioxin.

13 MR. PRATT: Your objection's noted.

14 Q (By Mr. Pratt) Go ahead.

15 A When we dealt with this chemical, TDD,

16 that was its identity, and this is how we referred to

17 it, as TDD, and as you can see in these documents.

18 Q That's an abbreviation of what, sir?

19 A It's an abbreviation of the chemical

20 name of the thing, which is tetradichloro whatever.

21 Whatever the chemical name is. TDD is, obviously, a

22 shorthand notation.

23 Q It's tetrachlorodibenzo-para-dioxin,

24 isn't it?

25 A Apparently that's so, yes.

1 Q So the problem as stated was to reduce
2 formation of the tetrachlorodibenzo-para-dioxin in
3 2,4,5-T plant sodium autoclaves, isn't that correct?

4 A Reduce formation of TDD.

5 Q And increase conversion of tetrachloro-
6 benzene into sodium TCP?

7 A Yes.

8 Q In other words, increase production
9 and reduce the amount of TDD, right?

10 A That's correct.

11 Q Looking at the summary in the first
12 paragraph, would you read to the jury the second sen-
13 tence.

14 A "The research study indicated a reduction
15 in formation of TDD (a chloracnegen) from 40 parts per
16 million (1968 experience) to 5 to 7 parts per million,
17 with a concurrent reduction in TCA --"

18 Q What is TCA?

19 A Trichloroanisoie.

20 Q All right.

21 A "-- content from 1% to trace."

22 Q And would you read the first line of
23 the second paragraph.

24 A "The trial run showed a reduction in TDD
25 content from 10.5 parts per million to 3.05 partsper

1 million."

2 Q Do you know the amount of parts per
3 million or parts per billion that was accepted in the
4 industry as being safe at that time of tetrachloro-
5 dibenzo-para-dioxin?

6 A No.

7 Q It indicates on that day with that run,
8 the TDD, or tetrachlorodibenzo-para-dioxin, showed
9 3.05 parts per million, is that correct?

10 MR. LOVE: Objection to the form of
11 the question. I don't know what day you're
12 talking about.

13 MR. PRATT: February 21st, 1969.

14 Q (By Mr. Pratt) You want the question
15 read back.

16 (Whereupon the reporter read back the
17 preceding question.)

18 A I don't believe you're talking about
19 that day at that run. It seems to me this would be,
20 the 3.05 might be the average of the trial runs.

21 Q (By Mr. Pratt) All right. Turning to
22 Plaintiffs' Deposition #99, page 2 under Details, would
23 you read that first paragraph, sir.

24 A "Tetrachlorodibenzyldioxene (TDD) is the
25 only known chloracne-gen involved in the manufacture of

1 2,4,5-T. It is formed in the sodium TCP autoclaves
2 in a side reaction during the production of sodium TCP."

3 Q Did you know what chloracne was then?

4 A Yes.

5 Q Did any of your persons that worked in
6 the 2,4,5-T operation, did you ever hear of them having
7 any other physical problems other than chloracne?

8 A No.

9 Q Did you ever go over and talk to any
10 of the men that worked in there and discuss any physical
11 problems that they were having?

12 A No.

13 Q Would you read to the jury the second
14 paragraph of page 2 of Plaintiffs' Exhibit #99.

15 A "In past years TDD produced during the
16 sodium TCP reaction has amounted to approximately 40
17 parts per million (based on total phenols). Since the
18 installation of the autoclave pressure charging system,
19 a significant reduction in TDD has been observed, but
20 the incidence of chloracne is still high."

21 Q And this date, February 21st, is about
22 the time they shut this operation down, within a few
23 months?

24 A Yes.

25 Q Would you read the first sentence of

1 paragraph 3, page 2 of Plaintiffs' Exhibit #99, Mr. Helmer.

2 A "Agricultural Research recently completed
3 a study of the sodium TCP reaction with the goal of
4 minimizing TDD and obtaining a more complete conversion
5 of TCA (trichloroanisole, the main intermediate in the
6 reaction) to sodium TCP."

7 Q And what does the next sentence say, sir?

8 A "The study indicated that TDD content
9 of the sodium TCP could be reduced to 5 to 6 parts per
10 million using pure methanol and 7 to 8 parts per million
11 using recycled methanol (normal plant practice)."

12 Q Turning to page 3 of Plaintiffs' Exhibit
13 #99, in Table II certain comparative analyses were made
14 on Batch Nos. 149, 150, 151, 152, 154, 155 and 157,
15 isn't that correct?

16 A Yes.

17 Q And for Batch No. 149, how much tetra-
18 chlorodibenzo-para-dioxin was found in parts per million?

19 A The TDD was, apparently, 4.3.

20 Q Batch No. 150, what was found?

21 A 14 parts per million.

22 Q And Batch 151?

23 A 11-1/2.

24 Q Batch 152?

25 A 3.1

1 Q Batch 154?

2 A 2.6.

3 Q Batch 155?

4 A 2.3.

5 Q Batch 157?

6 A 6.5.

7 Q I hand you what's been marked Plaintiffs'

8 Deposition Exhibit #100 (Monsanto identification number

9 8306643). Ask if this is not a Service Request in the

10 Nitro Plant Technical Services, dated 1/9/69, the Request

11 is from Mr. J. C. Strum, is that correct?

12 A Correct.

13 Q And you're one of the people on the

14 distribution, correct?

15 A Yes.

16 Q And a Mr. Cutright's there. Who is Mr.

17 Cutright?

18 A Cutright was a Manufacturing Superinten-

19 dent of that unit. Now, I think he was succeeded by

20 Mr. Lakin very shortly after this, I believe.

21 Q And the statement of problem and objective

22 was what? Would you tell the jury what that was.

23 A You want me to read that?

24 Q Yes, sir.

25 A "TDD, the primary cause of chloracne in

1 2,4,5-T, is produced in a side reaction in the sodium
2 TCP autoclaves. Agricultural Research has developed
3 a proposal to reduce the TDD content of the sodium
4 TCP from 50 parts per million to 5 parts per million.
5 An intensive plant study is required to evaluate the
6 proposal and make necessary process and equipment
7 modifications if the proposal is adopted."

8 Q All right. Would it be fair to say that
9 in January of '69, from this document, that the process
10 was showing about 50 parts per million?

11 MR. LOVE: Objection to the form of
12 the question in that the document is one pre-
13 pared by someone else which reflects a carbon
14 copy to the witness, and no foundation has been
15 laid to suggest he had any knowledge where the
16 information came from or accuracy or authenticity.

17 Q (By Mr. Pratt) Go ahead.

18 A I don't know what the level of the TDD
19 was in the process at that time.

20 Q Well, in the second sentence it says,
21 "Agricultural Research has developed a proposal to reduce
22 the TDD content of the sodium TCP from 50 parts per
23 million to 5 parts per million." Based on the tense of
24 that statement, would you conclude that on January 9th,
25 at least, they still had as much as 50 parts per million

1 in that process of tetrochlorodibenzo-para-dioxin?

2 MR. LOVE: Objection to the form of
3 the question, and it calls for conclusion on
4 the part of the witness without any proper
5 foundation being laid.

6 Q (By Mr. Pratt) You may answer.

7 A If this is in reference to a laboratory
8 run -- I don't know whether this is in reference to a
9 laboratory simulation of our process or to our process
10 itself.

11 Q So you can't answer that question?

12 A No, so I really can't answer. I don't
13 remember what the TDD level was in our actual process.

14 Q Then on the document, Plaintiffs' Exhibit
15 100, it's hard to read, but I think it has to do with
16 benefits, generally, isn't that correct?

17 A Yes.

18 Q And would you tell the jury what the
19 four benefits are shown.

20 A On this document, "Number 1, Safety
21 (Greatly reduce personnel exposure to TDD). 2, Shorter
22 autoclave cycles. 3, Eliminate problems associated
23 with incomplete a/c reaction (high TCA in product,
24 plugged drying system, low assay). 4, Improved relations
25 with craft personnel, correspondingly improving

1 availability of maintenance workers."

2 Q O.K. Do you know anything about the
3 health effects of exposure to tetrachlorodibenzo-para-
4 dioxin?

5 A I know a little bit, yes.

6 Q Tell me what you know.

7 A I know that some individuals who were
8 sensitive would suffer a skin irritation.

9 Q And that was called what?

10 A It was locally known as the bumps or
11 weed bumps, but it was chloracne.

12 Q Do you know of any other health effects?

13 A No.

14 Q Had you at the time or have you since
15 read any of the scientific literature concerning the
16 low level tetrachlorodibenzo-para-dioxins?

17 MR. LOVE: Objection. You asked him
18 at the time. I don't know what time you're
19 talking about.

20 MR. PRATT: At the time he was there
21 working in 2,4,5-T.

22 A No.

23 Q (By Mr. Pratt) Are you familiar, other
24 than these documents we have looked at here, which are
25 Plaintiffs' Exhibits 97 through 100, with any of the

1 tetrachlorodibenzo-para-dioxin values that were found
2 under gas chromatograph in the 1960's?

3 A No, not really.

4 Q You would have never received any of
5 those documents in your work other than possibly the
6 ones we have here where you were a cc?

7 A Correct.

8 Q Did you ever tell any of the workers
9 during the period of time you were over the 2,4,5-T
10 plant as Engineering Supervisor that working in there
11 could be harmful to their health?

12 A No.

13 MR. PRATT: Thank you very much.
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15

16 Frank J. Helmer
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1 STATE OF ILLINOIS)
2) SS.
3 COUNTY OF MADISON)

4 I, M. JOY SPRINGER, a Notary Public, duly
5 commissioned and qualified in and for the County of
6 Madison, State of Illinois, do hereby certify that
7 pursuant to notice came before me on the 2nd day of
8 June, 1983, at the Radisson Hotel, 9th Street and
9 Convention Plaza, Room 215, St. Louis, Missouri,
10 FRANK J. HELMER, who was by me duly sworn to testify
11 to the truth and nothing but the truth of his knowl-
12 edge touching and concerning the matters in controversy
13 in this case; that he was thereupon carefully examined
14 upon oath, and his examination reduced to writing
15 under my supervision; that the deposition is a true
16 record of the testimony given by the witness; and
17 signature of the witness is not waived.

18 I FURTHER CERTIFY that I am neither attorney
19 nor counsel for nor related to nor employed by and
20 of the parties to the action in which this deposition
21 is taken; and further, that I am not a relative or
22 employee of any attorney or counsel employed by the
23 parties hereto, or financially interested in the
24 action.

25 IN WITNESS WHEREOF, I have hereunto set my

1 hand and affixed my notarial seal on this _____
2 day of June, 1983.
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7 Notary Public within and for the
8 County of Madison, State of Illinois.
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