

IN THE UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF WEST VIRGINIA
CHARLESTON, WEST VIRGINIA

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.)

Deposition of
GENE L. JESSIE
taken on behalf of the
Plaintiffs.

Reporter: M. Joy Springer

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EDWARDSVILLE, ILLINOIS 62025

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Defendant.

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APPEARANCES:

Messrs. Calwell, McCormick &
Peyton,

by W. Stuart Calwell, Jr., Esq. For Plaintiffs,

Messrs. Bowles, McDavid, Graff &
Love,

by P. Michael Pleska, Esq.
and
Deborah A. Sink
and
John Woods, Esq.

For Defendant.

IT IS STIPULATED AND AGREED by and between
counsel for the plaintiffs and counsel for the defendant
that the deposition of GENE L. JESSEE may be taken pur-
suant to Rule 26(a) of the Federal Rules of Civil Pro-
cedure, on July 11, 1983, at the Radisson Hotel, Room
215, 9th Street and Convention Plaza, St. Louis, Missouri,

1 before M. JOY SPRINGER, a Notary Public within and for
2 the County of Madison, State of Illinois; that the
3 issuance of notice and dedimus is waived, and that this
4 deposition may be taken with the same force and effect
5 as if all Federal rules and statutory requirements had
6 been complied with.

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

13 * * * * *

14
15
16 GENE L. JESSEE

17 produced, sworn and examined on behalf of the plaintiffs,
18 deposes and says as follows:

19 EXAMINATION

20 BY MR. CALWELL:

21 (Whereupon the reporter marked Plain-
22 tiffs' Deposition Exhibit #304 (Monsanto
23 #232571 through 232574) consisting of 4
24 pages; and Exhibit #305 (Monsanto #233618
25 and #233619) consisting of 2 pages, for the

1 purposes of identification.)

2 Q (By Mr. Calwell) Would you state your
3 name, please.

4 A Gene Lee Jessee.

5 Q And you're employed by the Monsanto
6 Company?

7 A Yes.

8 Q Here in St. Louis?

9 A Yes.

10 Q What is your address?

11 A The Monsanto address?

12 Q No. Your residence address.

13 A 447 Magna Carta, it's two words, St.
14 Louis, Missouri, 63140.

15 Q What is your position with Monsanto
16 Company?

17 A I'm Director of Regulatory Management
18 on the Corporate Environmental Policy Staff.

19 Q And what is your education?

20 A I have a Bachelor of Science Degree
21 in Chemical Engineering.

22 Q What school did you go to?

23 A University of Houston.

24 Q Did you do any post-graduate work?

25 A Yes.

1 Q Did you get a Degree?
2 A No.
3 Q What did you do in post-graduate work?
4 A Chemical Engineering.
5 Q Is that the same place?
6 A No. Washington University, St. Louis.
7 Q When did you start to work for Monsanto?
8 A October, 1953.
9 Q Was that shortly after you graduated
10 from college?
11 A No. That's after I got out of service.
12 Q Did you work for any other chemical
13 company besides Monsanto?
14 A No.
15 Q And where did you go to work for Monsanto?
16 A At what was then Monsanto, Illinois.
17 Q Sauget?
18 A Yeah, Sauget.
19 Q Did you go to work as a chemical engineer?
20 A Yes.
21 Q When you were at Monsanto, Illinois,
22 now Sauget Plant, did you work with any herbicides?
23 A Yes.
24 Q Was that in '53?
25 A No, it wasn't in '53. Off and on between

1 '53 and '61.

2 Q What herbicides did you work with?

3 A 2,4-D.

4 Q What were you doing with 2,4-D?

5 A The first thing I did was I served as

6 a relief foreman in the Production Department for a

7 summer. The second time around I was Assistant Engineer-

8 ing Superintendent in the Technical Service Department,

9 and the process improvement work in that area came

10 under my group.

11 Q Process improvement, that was Technical

12 Services that took care of that sort of thing?

13 A Yes.

14 Q Did you do any work with 2,4,5-T?

15 A No.

16 Q Is that manufacturing facility known

17 as Sauget?

18 A No. It's the W. G. Krummrich Plant.

19 Q How long were you at the Krummrich Plant?

20 A From October of '53 until October of '60.

21 Q Now, during that time period did you

22 do any work at the Krummrich Plant that was related to

23 the Nitro, West Virginia, manufacturing facility in

24 connection with any herbicides?

25 A Not to my knowledge, no.

1 Q Do you know if some work was done at
2 the Krummrich Plant in connection with the manufacture
3 of herbicides, particularly, 2,4,5-T that was being
4 produced at the Nitro facility?

5 A No.

6 Q After you left the Krummrich Plant in
7 1960, right?

8 A Yes.

9 Q Where did you go?

10 A I was reassigned to the Chocolate Bayou
11 Plant in Alvin, Texas.

12 Q What were you doing there?

13 A I went there as a startup supervisor
14 for a new unit that was being built there.

15 Q Is that in the herbicide, pesticide?

16 A No, it wasn't.

17 Q Do any work with phosphates?

18 A Not there.

19 Q Did you at the Krummrich Plant?

20 A No, I don't recall that.

21 Q At the Krummrich did you work with tri-
22 chlorophenol?

23 A Yes. There was some association there,
24 yes.

25 Q Was that connected with the Nitro Plant?

1 A Not to my knowledge.

2 Q What kind of work were you doing with

3 trichlorophenol at the Krummrich Plant?

4 A That was part of that same process

5 improvement type thing, the chlorophenol unit.

6 Q In connection with that process im-

7 provement undertaking, did you also work with orthochloro-

8 phenol?

9 A I don't remember.

10 Q Pentachlorophenol?

11 A Yes.

12 Q Is orthochlorophenol crude a pre-step

13 or an intermediate to the development of pentachlorophenol?

14 A I don't remember. It's been so long ago.

15 Q You said you worked with trichlorophenol,

16 is that right? Was the trichlorophenol process you were

17 going to improve connected with the 2,4,5-T process, as

18 far as you know?

19 A I don't know. I don't remember.

20 Q How about was it connected with the

21 2,4-D process?

22 A I don't recall, because we were dealing

23 with a building that had a number of different units in it.

24 Some things were done in some places, some in others.

25 I don't remember just how they all fit together.

1 Q Was the pentachlorophenol improvement
2 work connected with -- what was it -- Santophen R?

3 A There were a series of trade names
4 of Santophens, some of which had pentachloro in it.

5 Q Now, what about these chlorophenol
6 processes you were trying to improve, what was the problem?

7 A I think the things we were working with
8 was to try to improve the briquetting of some of the
9 materials.

10 Q The briquetting?

11 A Yes.

12 Q What is that?

13 A It's taking a semi-dried material and
14 making a pill out of it, pressing it into a pill. We
15 had some granular material that we were trying to improve
16 the pellet size or the particle size, uniformity, pro-
17 ductivity, stop the equipment from plugging up and that
18 kind of stuff. That's the last thing I remember on it.

19 Q And how long did you work in that
20 undertaking, trying to improve or work on the chloro-
21 phenol processes?

22 A Oh, I guess, probably no more than six
23 months, maybe.

24 Q And you know what year that would have
25 been in?

1 A I think it was in '60.

2 Q Was that all the longer this job was
3 related to the chlorophenols, or was that just your
4 association with it?

5 A That's just mine.

6 Q You don't know how long it had been
7 going on before?

8 A No.

9 Q After you left the chlorophenol project,
10 where did you go?

11 A Well, I was just moved into the Tech-
12 nical Services Department in another area wherein I had
13 other processes in my engineering group.

14 Q Did those processes involve chlorophenols?

15 A Yeah, that's where I got into that
16 business, picked up the processes for the 2,4-D.

17 Q I understand that. All right. That
18 was after you spent the six months working on trichloro-
19 phenol, pentachlorophenol and, perhaps, orthochlorophenol
20 crude, that six-month period?

21 A Right.

22 Q Then after that you went to work in
23 another part of the operation there?

24 A I got promoted to Assistant Engineering
25 Superintendent.

1 Q O.K. And then did you continue your
2 work with the chlorophenols after that?

3 A Yes, in terms of their being related
4 to the 2,4-D.

5 Q O.K

6 A The dichloro came over for --

7 Q Dichloro, right?

8 A Right.

9 Q So there were two distinct inquiries
10 being made? One section of the operation was concerned
11 with the trichlorophenols and, perhaps, the pentachloro-
12 phenols, and you moved to another area that was isolating
13 the dichlorophenols in the 2,4,5-T process?

14 A As a raw material for that, right.

15 Q Did you have any responsibility for
16 the chlorophenols at the Krummrich Plant between 1950
17 and 1960, any of them, trichlorophenol, penta-, di-?

18 A Just that process improvement work.

19 Q That was the first time?

20 A Yes.

21 Q All right. Prior to that what were you
22 working on at the Krummrich Plant?

23 A I spent most of my time there working
24 on the phenol process, both in Engineering and Production.

25 Q All right. Phenol process connected

1 Q Doesn't ring a bell?

2 A No.

3 Q Did you ever hear of a problem with

4 chloracne that might be connected with chloro-dibenzo-

5 dioxins or 2,3,7,8-TCDD?

6 A No.

7 Q Never have or just recently?

8 A I say prior to whatever you said.

9 Q Prior to two to three years ago?

10 A I heard about it recently.

11 Q You never heard about any problem of

12 chloracne at the Krummrich Plant with orthochlorophenol

13 crude or pentachlorophenol?

14 A No.

15 Q O.K. In about early 1961 you shifted

16 to another area of the Krummrich operation and concen-

17 trated on 2,4-D. How long did that job last?

18 A That didn't last but about six months

19 before I left and was transferred to Texas.

20 Q And how long were you in Texas?

21 A About two, two and a half years.

22 Q Where did you go then?

23 A To Luling, Louisiana.

24 Q What did you work on there?

25 A Adipic acid. It's a preservative that's

1 used in jello and pickles and olives. It's also used
2 to make some resins materials.

3 Q How long were you there?

4 A About two, two and a half years.

5 Q Is that all you worked on, adipic acid?

6 A No.

7 Q You work with any phenols or anything
8 there at Lulling?

9 A Yes.

10 Q Were you chlorinating any phenols,
11 anything like that?

12 A No.

13 Q Any agricultural products there?

14 A Yes. One.

15 Q What was that?

16 A Rice herbicide.

17 Q What was that called?

18 A It was called Machete.

19 Q Where did you go next?

20 A I came back to St. Louis and went to
21 the plant down on South Second Street.

22 Q What did you do there?

23 A I was General Manufacturing Superin-
24 tendent.

25 Q Work on any herbicides?

1 A No.

2 Q What happened next in your career?

3 A In 1970 I became Plant Manager of

4 the plant in Alabama.

5 Q Anniston?

6 A Yes.

7 Q Niran facility?

8 A Yes.

9 Q What else they make down there?

10 A PCB's.

11 Q Polychlorinated biphenyls?

12 A Biphenyls.

13 Q We call them biphenyl in the trade?

14 A And biphenyl. And we chlorinated

15 biphenyl and we hydrogenated para-phenyl and made para-

16 nitrophenolate and made ethyl parathion and methyl para-

17 thion.

18 Q Did you do anything else down there?

19 A That's enough.

20 Q In your manufacture of PCB's did you

21 learn anything about the dioxins or anything like that?

22 A Not as I recall.

23 Q Nobody ever mentioned it to you?

24 A Not that I recall.

25 Q Have you since learned about that in

1 connection with PCB's?

2 A Not dioxins in PCB's, no.

3 Q You work on any dibenzofurans?

4 A Yes.

5 Q At that plant?

6 A No.

7 Q Where?

8 A At Texas.

9 Q Is that Chocolate?

10 A Chocolate Bayou is the name of the

11 plant. It's near a town called Alvin, A-I-V-I-N.

12 Q O.K. What happened next in your career?

13 A In 1978 I came to St. Louis and the

14 Environmental Policy Staff.

15 Q And that's where you are now?

16 A Yes.

17 Q In the same job you got in '78?

18 A Just changed.

19 Q Different name or different --

20 A Different federal law I look after.

21 Q So you have been doing essentially the

22 same kind of work since 1973 for the Environmental Policy --

23 A -- Staff.

24 Q Is that a corporate staff position?

25 A Yes.

1 Q Who is your supervisor?

2 A Dr. Carpenter.

3 Q Is he an M.D. or Ph. D.?

4 A Ph. D.

5 Q Does he have some kind of official

6 title with the company?

7 A Yes. He's Director of Environmental

8 Management.

9 Q O.K. Now, what does the Environmental

10 Policy Staff do?

11 A What do they do?

12 Q Yes. What is its function?

13 A They set the policies, guidelines and

14 practices and procedures and have corporate oversight

15 relative to federal environmental laws.

16 Q Does that mean you try to get your

17 operations into compliance?

18 A Well, it says that we, those of us

19 who handle a given environmental law, are knowledgeable

20 enough of that law that we see that whatever regulations

21 implement that law are uniformly understood, assimilated

22 and applied within Monsanto on a corporatewide basis.

23 Q So you fellows, you divide up these

24 laws, right?

25 A Yes.

1 A Yes.

2 Q O.K. What dioxin were you first made
3 aware of and when?

4 A The first one I was made aware of
5 was 2,3,7,8, and it was in a staff meeting and somebody
6 got to talking about something about dioxins and toxicity
7 and they talked about a report from Seveso, Italy, or
8 something like that, and they passed a thing around
9 and I read it, and that's it.

10 Q And that would have been about '78,
11 you think?

12 A No. It was probably later than that.

13 Q In connection with your Solid Waste
14 Act monitoring, you didn't become acquainted with or
15 aware of dioxins?

16 A (Shakes head negatively.)

17 Q The staff meeting that you had you
18 think some time in 1979 was the Seveso incident the subject
19 matter of that meeting, or did it just come up informally?

20 A It just came up informally in a round-
21 robin type of incident as opposed to some type of formal
22 presentation.

23 Q You say you think there was some kind
24 of handout?

25 A Somebody had an article that was out

1 Q What kind of things were you instructed
2 on?

3 A Well, as I recall, in the operating
4 procedures or descriptions of the various processes
5 you worked with, they would have in the running text
6 things relative to safety precautions and safe handling
7 and what to do in emergency situations, got some on
8 you, got some in your eyes, breathe something, if that
9 happened to be what you could breathe, that kind of thing.

10 Q And, in fact, on some of those opera-
11 tions --

12 A What to wear as protective equipment.

13 Q And there was even in some of those
14 operating manuals a toxicity section, was there not?

15 A I don't remember whether there was
16 or not.

17 Q But if you got any instruction at all,
18 that's where you got it, at Monsanto?

19 A Well, in terms of safe handling of
20 chemicals, that's the only place I can remember getting
21 fairly indoctrinated about it.

22 Q You remember getting it anywhere else
23 at Monsanto?

24 A No, not in that formal of context.

25 Q Any informal kind of thing?

1 A No.

2 Q Now, you had pretty good experience,
3 it looks like, down in the plants?

4 A Yes.

5 Q You were a foreman, I think you said.
6 And you were actually out in these operating -- You
7 were Plant Manager?

8 A Yes.

9 Q Who had access to the operating manuals?

10 A Who has access to them?

11 Q Yeah. Down in the plant.

12 A Well, in all the operating control
13 rooms there are copies there the operators could look
14 at, the foremen. Anybody who wanted to walk in there
15 to look at it could look at it.

16 Q I realize, perhaps, anybody who was
17 there could look at it, but who would have occasion?
18 Was there a particular job classification that would
19 have occasion to look at it?

20 A Not that specifically. It was there
21 for everybody's use.

22 Q So anyone associated with a production
23 unit, for example, may have cause or occasion to take
24 a look at the operating manual?

25 A Could.

1 Q In operating the process?

2 A Yes.

3 Q Now, aside from the toxicity informa-
4 tion and the safe handling information that you have
5 talked about that appears in the operating manuals, do
6 you know of any other writing that would have that kind
7 of free access at the operations level?

8 A No. The operating instructions were
9 pretty much the official thing that was there where we tried
10 to put all the information we could about the processes.

11 Q Dr. Callis and Dr. Meyer, you know
12 those gentlemen?

13 A I know Dr. Callis.

14 Q He has testified that there is a
15 policy that Monsanto has that provides that information
16 that the Medical Department has about toxicity must be
17 communicated to the worker. Are you aware of that policy?

18 A In a general sense, yes.

19 Q He further testified that the person
20 responsible for distributing that information distribu-
21 ted it by way of a Materials Safety Data Sheet, you
22 know what that is?

23 A I'm familiar with the document, but
24 the many ways in which it could be used I'm not.

25 Q I understand. He also testified there

1 A Yeah, every two years.

2 Q And would that updating be the ex-
3 pression of that general policy to inform people in
4 the workplace what the Medical Department knew about
5 toxicity and hazards?

6 A I don't remember that being the main
7 reason for doing it.

8 Q You know what the main reason was?

9 A Yes.

10 Q What was it?

11 A To have the best information about
12 that process out there so that people who needed to
13 look something up could find it.

14 Q And as far as you know, that was the
15 policy of the company, wasn't it?

16 A Yes.

17 Q And if the company got new and better
18 information than it had the year before, as far as you
19 know, it was the policy of the company to get that new
20 information down there in that policy manual so these
21 fellows working with it would be advised what the prob-
22 lems were?

23 A To get it into what they call the
24 operating manual.

25 Q As a Plant Manager -- and speaking

1 practically -- the operating manual is really where
2 you would expect a fellow to go to for information if
3 he had questions about what was going on?

4 A Yes.

5 Q And the pertinent answers ought to be
6 there, isn't that right?

7 A For that particular process.

8 Q All right. You first heard about
9 2,3,7,8-TCDD informally at a staff meeting in some time,
10 you think, 1979, and it was associated with the incident
11 at Seveso, Italy. Now, subsequent to that did you hear
12 more about dioxin?

13 A How do you mean?

14 Q In connection with your work. Did
15 you find out anything more about dioxin?

16 A Not in connection with my work.

17 Q That's true today.

18 A Yeah, today it's true since my job
19 changed. What really came to mind was the federal
20 government is thinking about including dioxin and furan
21 compounds in the hazardous waste rules and they have
22 proposed as the Federal Register, so, yeah.

23 Q From the time in 1979 that you first
24 heard about it, about dioxin, did you hear any more
25 from your company? Were you briefed any on dioxin or

1 did you find out anything about it in connection with
2 your work other than just this article you referred to?

3 A Not in connection with my work.

4 Q Did you find out just informally or
5 do any reading on it yourself?

6 A No. It didn't have anything to do
7 with what I was doing, so I didn't need to know.

8 Q And you had no discussions about its
9 effect on man, toxicity or anything like that?

10 A No. It's not part of my work, so I
11 didn't have occasion to.

12 Q Just so I understand, the only real
13 connection or information you had about dioxin -- and
14 I'm speaking of 2,3,7,8-TCDD when I say dioxin -- in
15 connection with your work was in that informal staff
16 meeting when you got that little article about Seveso?

17 A Well, that's the first time I heard
18 about it. Now, you can't help but hear people talk
19 about it and read about it, so that's happened and this
20 all got kind of mixed up in terms of specifics because
21 I don't recall having been specifically involved in
22 activities within Monsanto related to my work that I had
23 cause to have to know anything about dioxin.

24 Q You didn't have to approve any position
25 that the company was going to take in reference to dioxin?

1 A No.

2 Q And you weren't on any distribution
3 lists or anything to receive information about dioxin,
4 that sort of thing?

5 A I don't know about that because a lot
6 of things get distributed. I may or may not have.

7 Q Now, they had you in solid waste there
8 for a while?

9 A Yes.

10 Q Did you look at the Nitro Plant in
11 terms of solid waste?

12 A Among others.

13 Q The first time you did there, I guess,
14 was in 1978, the beginning of '78?

15 A Yeah. Late '78 we surveyed Monsanto.

16 Q Was that in connection with trying
17 to stay in compliance with the Solid Waste Act?

18 A No.

19 Q Why were you doing that?

20 A To get ready.

21 Q For what?

22 A For the implementation of the Act,
23 which we knew the rules were coming.

24 Q So you surveyed Nitro?

25 A That's one plant, one of several.

1 Q And did you have a definition of
2 solid waste?
3 A Not at that time.
4 Q You must have had some idea what it
5 was you were looking for at that time.
6 A Well, what we were trying to do is
7 just get a volume variety count on the types of pro-
8 cess wastes that were generated.
9 Q That were ever generated at Nitro?
10 A No. That was being currently generated.
11 Q Did you survey any old dumps that were
12 no longer being used?
13 A No, not that we knew of.
14 Q O.K. And this would have been, like,
15 early '79 or late '78?
16 A Oh, this was late '78.
17 Q So you were concerned at that time
18 with existing --
19 A Monsanto's current waste management
20 practices.
21 Q And did there come a time when you had
22 to be concerned with Monsanto's past waste practices?
23 A Uh huh (yes).
24 Q And when was that?
25 A That was in '79.

1 Q And how did that come about?

2 A Monsanto and fifty other companies
3 participated in a survey of the major chemical producers
4 under Congressman Eckhardt's House Oversight Committee
5 work.

6 Q So the Eckhardt Committee was formed
7 some time in 1979 or they undertook this survey some
8 time in '79?

9 A Yes.

10 Q Monsanto was one of fifty plants, so
11 what did you do in connection with that undertaking
12 regarding Nitro?

13 A Just sent out some forms and the
14 instructions for filling out the forms and got the form
15 back with all the rest of the forms and sent them in.

16 Q Were you the fellow who was responsible
17 for seeing to it the form got filled out?

18 A Well, not got filled out, but they
19 got all collected corporately for Monsanto.

20 Q Then you took the materials and got
21 the information out of the materials that were sent to
22 you and completed the forms?

23 A No. I prepared, based on the instruc-
24 tions we got from Eckhardt's Committee technical staff,
25 we prepared a set of instructions for preparation of the

1 survey forms. We sent the survey forms to the Nitro
2 Plant. The Nitro Plant filled out the survey forms,
3 sent them back to me and I added that to the stack for
4 Monsanto and sent it in to the technical staff for the
5 Eckhardt Committee.

6 Q Did you have the final approval on
7 that? I realize probably Hanley had the ultimate say,
8 but in terms of your job?

9 A Yeah. In terms of getting the forms
10 back and looking through to see if people had done what
11 they are supposed to do, yes.

12 Q You could say yes or no to the stuff?
13 In other words, "We are going to send this, we aren't
14 sending that, it's not complete," that kind of thing?

15 A Yeah.

16 Q Now, at that time during this period
17 of time when you were required to examine past waste
18 disposal at Nitro, did you have a definition you were
19 working with for solid waste?

20 A Yeah, you had a definition of solid waste.

21 Q Do you recall what it was?

22 A No. It's about that long. It's what-
23 ever's in the law.

24 Q In addition to what was in the law, did
25 you identify other materials when you were doing this

1 survey?

2 A Survey didn't have anything to do
3 with the law.

4 Q You may have misunderstood my question.
5 The Eckhardt Committee asked that you perform a survey
6 at the Nitro Plant, among other plants, to determine,
7 I guess, the location of dump sites for solid waste?

8 A No. That was only part of it.

9 Q O.K. But part of it was to identify
10 that, right?

11 A I never have been sure.

12 Q Maybe you should tell me what it is
13 you were looking for pursuant to the Eckhardt request.

14 A Congressman Eckhardt's Subcommittee
15 asked to the best of anybody's ability for them to try
16 to reconstruct what they had done with their chemical
17 manufacturing process waste since 1950.

18 Q O.K. So that was what you undertook
19 to do at the Nitro Plant?

20 A Yeah, for that form. That's what the
21 form was supposed to do.

22 Q Were process wastes to be defined,
23 were they defined at all?

24 A Well, they just said from your indus-
25 trial processes.

1 Q For example, if you were manufacturing
2 a herbicide at Nitro, did you simply say it was a herbi-
3 cide or did you say, well, it was 2,4,5-trichlorophenoxy-
4 acetic acid? Did you break it down that far?

5 A No. They were just interested in the
6 process waste from the plant.

7 Q And is a process waste, is that some
8 kind of term of art? Does that mean something special
9 to the chemical engineer?

10 A Yes.

11 Q What does it mean?

12 A It means something that is no longer
13 of commercial value to that particular process as it is
14 when it's withdrawn from the process.

15 Q Would that include byproducts?

16 A No. Byproduct still has value. This
17 is something you take out of the process and traditionally
18 it hasn't had any value. You may some day discover you
19 could get something out of it, but traditionally it's
20 something you withdraw with the process and has no
21 further value.

22 Q And it's the process waste that the
23 Eckhardt Committee was interested in?

24 A Yes.

25 Q Not a product?

1 A That's right.

2 Q A contaminant would be a process waste?

3 A A contaminant what?

4 Q If you had a product that had a con-

5 taminant that you could extract and obviously it would

6 have no, as you say, value in terms of nobody wanted

7 to buy it, then that would be a process waste?

8 A If you actually did it. If you left

9 it in the product, it's not a waste.

10 Q I want to make sure what you mean when

11 you say process waste --

12 A You go through your purification --

13 You're talking about, like, purification?

14 Q Sure.

15 A If you purify something and the im-

16 purities that you pull out, if you have no further use

17 for those, those will be called process waste. In the

18 industrial lexicon that's what that means.

19 Q And that's what you took the Eckhardt

20 Committee's request pertaining to process waste to mean,

21 that definition?

22 A Yes.

23 Q And did you locate some process waste

24 dump sites at the Monsanto Nitro facility?

25 A Yes.

1 Q Did you identify what were then those
2 process waste dump sites?
3 A In a very general way.
4 Q I assume they want to know, like,
5 since 1950, so how would you determine what was in a
6 process waste dump site?
7 A Talking to people, long service em-
8 ployees, going back to whatever records might be still
9 around.
10 Q So you talked to oldtimers?
11 A Yeah.
12 Q And looked at whatever records you
13 might find?
14 A Yes.
15 Q What kind of records would that be?
16 A I don't know what they were.
17 Q Did you look at them?
18 A No.
19 Q Do you have any idea, would they be,
20 like, lab reports?
21 A I don't know.
22 Q You have no idea?
23 A I don't know what they used.
24 Q You're presuming they looked at records?
25 A Well, the instructions from the Eckhardt

1 technical staff was to do the best job you can, here are
2 the possible sources, and so I enumerated the sorts
3 of sources.

4 Q Told your people that?

5 A Right. We said that sounds reasonable,
6 here are the possible sources. Don't go make a career
7 out of this, but do the best you can, we have deadlines
8 to meet.

9 Q You talked to people and looked at
10 whatever documents might have been in existence. Did
11 you do any testing?

12 A No.

13 Q Did you subsequently do any testing
14 at those sites after you completed your work for the
15 Eckhardt Committee?

16 A I don't recall any testing being done
17 with regard to the Eckhardt survey. Eckhardt survey
18 didn't require any testing.

19 Q That specifically did not require
20 testing?

21 A That's right.

22 Q I mean, it said, do not test, just look
23 at records and talk to people?

24 A There was nothing on the form that re-
25 quired any tests.

1 Q O.K. Do you remember what you found
2 in those process waste sites, do you remember anything
3 at all?

4 A No, I don't remember that.

5 Q And whatever you identified by way
6 of talking to people or looking at documents, you turned
7 over, then, to the Eckhardt Committee?

8 A Yes.

9 Q The Eckhardt Committee, then, know
10 everything you knew about these dump sites, anyway,
11 is that true?

12 A As best I can tell. I don't know
13 what they'd do with it. I guess they did.

14 Q But that's your understanding, what-
15 ever you found out from the investigation you turned
16 over to the Eckhardt Committee?

17 A Yes.

18 Q Whatever happened to the Eckhardt
19 Committee?

20 A Oh, they are a standing House committee.
21 He didn't get reelected. He's not chairman of the thing,
22 but it's still there.

23 Q What happened in this committee? What
24 happened to it? Did you ever hear anything?

25 A They issued a report about what they

1 had done.

2 Q And that was it?

3 A We need to get on with getting the
4 rules and regulations out.

5 Q Now, did you make any survey for the
6 Eckhardt Committee of any off-plant sites for process
7 waste?

8 A It included both. It said whatever
9 you did with process waste, no matter where.

10 Q Now, aside from that survey, have
11 you done any other surveys as to location and content
12 of these process waste sites?

13 A Yeah, we have done an update more
14 recently on the process waste variety and volume.

15 Q Now, is that just something you de-
16 cided to do internally, or was that just a request?

17 A It was internally.

18 Q Do you know when that was done?

19 A It was in '82.

20 Q '82?

21 A Yeah.

22 Q Do you know if any testing was done?

23 A No, there wasn't any testing. These
24 were record type surveys.

25 Q That was under your responsibility?

1 A No.

2 Q Who was that under?

3 A It was under a Hazardous Waste

4 Management Study.

5 Q Again, that was an internal study

6 undertaken by Monsanto?

7 A Yes.

8 Q Hazardous Waste Management Study?

9 A Yes.

10 Q Do you know who was in charge of that?

11 A Yes.

12 Q Who was that?

13 A He's retired. Paul Klingsporn, K-l-i-n-

14 g-s-p-o-r-n.

15 Q Who did he work for, what part of

16 Monsanto?

17 A I don't know. I don't know how to

18 tell you. I'd screw it up if I tried to tell you.

19 Q Did you get a copy of the report?

20 A What report?

21 Q Was there a report that emanated from

22 the Hazardous Waste Management Study?

23 A Yes.

24 Q I guess, the title of it is Hazardous

25 Waste Management Study?

1 A Yes.

2 Q 1982?

3 A Yes.

4 Q If I wanted to get a copy of it,
5 that's what I would ask for?

6 A That's what you would ask for.

7 Q Whether I could get it or not is
8 another matter, right.

9 All right. Now, is there such a
10 thing as a product waste?

11 A Yes.

12 Q Now, what would a product waste be?

13 A A bad batch, a bad run, a bad tankful
14 of something.

15 Q Now, did you have dumps where you
16 dumped product waste?

17 A I don't know.

18 Q Or did you dump it in the same place,
19 probably?

20 A I don't know. There's all kinds of
21 things you could do with it.

22 Q Do you know if there is an attempt
23 made or if there was an attempt made to separate materials
24 that you dumped, to have all process waste dumped in one
25 place and if you ever dump a product waste, to dump it

1 in another? Was there any kind of rule about that?

2 A No, not to my knowledge.

3 Q So a process waste dump could contain
4 possibly product waste as well?

5 A Sure.

6 Q Did you ever identify anything where
7 a product waste was dumped at the Nitro Plant?

8 A No, not specifically.

9 Q Did you generally?

10 A No, not to my knowledge.

11 Q Never requested to do that by any
12 agency, that you know of?

13 A No.

14 Q Were there any internal surveys to see
15 where the waste was dumped?

16 A No.

17 Q And that would include off-site locations also?

18 A Yeah. Oh, yeah. You got that
19 specific about it.

20 Q As far as you know, you never tested
21 any of these waste sites, whether it was process waste
22 or might have been a product waste? You never took
23 samples to see what was there, as far as you know?

24 A You never go out and drill holes?

25 Q Yeah.

1. A Not to my knowledge.

2. Q I assume that's the way you test,
3. drill a hole and take a sample, is that the way you do it?

4. A If it was on my property. I don't
5. know about going on somebody else's property.

6. Q But if it was on Monsanto's property,
7. that's what you would do, dig it up or drill a hole?

8. A Yeah.

9. Q As far as you know, that was never done?

10. A I don't recall that it was or hearing
11. about it.

12. Q Now, have you had to do any kind of
13. survey in connection with your work with the Superfund,
14. this new law you're looking after?

15. A Yeah. A lot of the same type of thing.
16. In essence, they said if you turned this in for Eckhardt,
17. you don't have to do it, whatever you turned in there
18. is fine, that sort of thing; but there was a reporting
19. requirement similar to where have you sent stuff.

20. Q And did you find that Monsanto had
21. mostly complied by virtue of its response to the Eckhardt
22. Committee?

23. A Yeah, a large part.

24. Q Was that particularly true at Nitro?

25. A I wouldn't say so more than any place

1 else.

2 Q You know any additional reporting
3 you have had to make to the Superfund Agency with refer-
4 ence to Nitro?

5 A No.

6 Q So would it be fair to say in general
7 the Eckhardt work that was done fairly well sufficed
8 the requirements of the Superfund inquiry, at least,
9 so far as Nitro's concerned?

10 A Yeah.

11 Q Do you know if any 2,4,5-T waste
12 product was identified at any of the dump sites at Nitro?

13 A I don't remember ever seeing that.

14 Q Do you know if any dioxins were iden-
15 tified to the Eckhardt Committee in any of the process
16 waste dump sites identified?

17 A No.

18 Q When you were working in the plant as
19 Plant Manager in Anniston and around, did you have
20 occasion to work with carbon disulfide?

21 A No.

22 Q Was that ever used in any of the facili-
23 ties where you worked?

24 A I think they use it at the Krummrich
25 Plant, but I wasn't associated with where they use it.

1 Q And, consequently, you wouldn't have
2 been involved with any H2S, right?

3 A Well, I have been involved in H2S,
4 but it wasn't around there.

5 Q Where was that?

6 A It was in Anniston.

7 Q With the Niran operation?

8 A Yes.

9 Q From your earlier testimony, I guess,
10 the best source of information about the hazards of
11 H2S would be the operators' manual, you think?

12 A Yeah.

13 Q A fellow working on one of those
14 process jobs, you know, an operator or helper or what-
15 ever, would that be the best place for him to look for
16 that kind of information?

17 A Well, yeah. He'd get it during his
18 operator training, he'd get it during his breakin period
19 and he'd get it in the indoctrinations and orientation
20 he goes through initially and then get it out of the
21 operation instructions later on.

22 Q During the operator training phase,
23 he would receive specific instructions about various
24 substances he might be working with, right?

25 A Yes.

1 Q Do you know that that may be a corpora-
2 tionwide policy that would affect that? In other words,
3 would you expect --

4 A I assume it is.

5 Q You would expect the same kind of
6 thing to occur at Nitro?

7 A You train somebody and have somebody
8 to watch him before you turn him loose independently
9 to run a job.

10 Q Do you know if there is literature
11 that accompanies these training periods and training
12 sessions that contains information about toxicity and
13 hazards associated with specific chemicals?

14 A I don't know specifically what's there,
15 but it's supposed to show the guy how to run it, how
16 to run it safely and protect himself and keep the thing
17 in control.

18 Q And do you know whether workers are
19 also advised of suspected health hazards? You may have
20 a chemical that's questionable and you think, "We are
21 not sure about that but we think it does the following
22 things, be careful"?

23 A I have some personal experience. Now,
24 how much is done where to whom and how, I don't know.

25 Q What is your personal experience?

1 A This was with regard to some require-
2 ments that we had to talk to people about benzene in
3 the workplace. That's just a personal experience.

4 Q And was benzene a substance that you
5 may not have had conclusive proof on as to what it
6 caused, if anything, but there was a strong suspicion
7 or, at least, it was suspected as being hazardous?

8 A Yeah, it was in that light --

9 Q Kind of a gray area?

10 A That we talked to our operators about,
11 said it's suspected of this, studying it, they are
12 running tests on it and whatever develops we'll keep
13 you informed.

14 A And the purpose of that was to re-
15 iterate they should be careful in using it, being exposed
16 to this kind of stuff?

17 A I don't know if it was that. They
18 knew that. I think it was more of a "We learn more,
19 we'll tell you more " type of thing about what you're
20 working with and things you're making.

21 Q And you agree with that policy, don't
22 you?

23 A Sure.

24 Q And as Plant Manager would you be
25 responsible to see that that kind of thing went on as

1 you became aware, well, like, in the benzene situation?

2 A In terms of the overall site authority,

3 yes, but I didn't actually go do it. The supervisors

4 and the foremen in the operating areas and the mainten-

5 ance areas did it. They'd actually take the men and

6 sit down and talk to them or have safety meetings or

7 informal meetings and tell them.

8 Q Wasn't anything out of the ordinary

9 about this benzene example you cited at all, then?

10 A No.

11 Q And if the men were to find out this

12 new information, that's practically the only place they

13 could have found it out is through a vehicle like that

14 or the plant coming forward and telling them?

15 A I don't know about that.

16 Q You were Plant Manager. Does Monsanto

17 have the policy that shows the function of a plant

18 physician, plant doctor?

19 A I don't know whether they do or not.

20 I don't remember.

21 Q Did you work with the plant physician

22 when you were Plant Manager?

23 A With him?

24 Q Well, did you have one under you?

25 A Well, yeah, O.K.

1 Q He was generally there?
2 A He was part time.
3 Q What did you expect him to do?
4 A Make sure the annual physicals were
5 conducted, make sure that the necessary medical records
6 and reports were kept current and up to date, look
7 after first-aid type treatment, make sure about hospital
8 admissions, was familiar with anything unique about
9 the processes in the operations in case there was an
10 accident, fire, explosion at the plant. He was sort
11 of the guy who if he had to have other physicians or
12 help, had to take people to the hospital in town, he
13 sort of knew what to tell the emergency room people and
14 other medical attendants what to do in special cases
15 and things like that.

16 Q Did Monsanto, that you know, have
17 any requirements for a plant physician? Did he have
18 to be a specialist, did he have to have any industrial
19 hygiene experience or anything like that, industrial
20 medicine?

21 A No, I don't know.

22 Q You just don't know?

23 A No.

24 Q If a plant had a medical program or
25 medical monitoring program, would the plant

1 physician be in charge of that or at least keep an
2 eye on it?

3 A In my case he did.

4 Q Did you have a medical monitoring
5 program at your plant?

6 A Yes.

7 Q What plant was that?

8 A Anniston.

9 Q Was that in connection with Niran?

10 A Yes.

11 Q Did you receive records from a medical
12 monitoring plan from Nitro with regard to the Niran?

13 A No.

14 Q You know if there was a medical
15 monitoring program at Nitro relating to Niran?

16 A I don't know. It was before my time.

17 Q What type of medical monitoring pro-
18 gram did they have at Anniston?

19 A Cholesterolase.

20 Q Anything else?

21 A That's all.

22 Q How often did you do that? Did they
23 do that every quarter?

24 A It depended upon the work group and
25 the frequency of contact and possible exposure. Like,

1 the operators would be more frequent than mechanics
2 and the engineers would be less frequent than the
3 mechanics until they got to me, and they pumped blood
4 out of me every six months.

5 Q And as a part of that program was it
6 explained to the men why they were being tested?

7 A Sure. They knew about it.

8 Q And nothing unusual about that either?

9 A No.

10 Q That would have been Monsanto's policy,
11 as far as you know?

12 A I don't know. It wasn't my plant.

13 Q But you saw to it it was done, right?

14 A Yes.

15 Q Anybody tell you that or did you just
16 do it on your own?

17 A No. They were doing it when I got
18 there, kept on doing it.

19 Q Did you ever hear of the Nitro Health
20 Study Task Force?

21 A Yes.

22 Q Were you ever on that Task Force?

23 A No.

24 Q Were you copied with information from
25 the Task Force?

1 A I don't know. I don't think so.
2 Maybe.
3 Q Did you hear about it in connection
4 with your work?
5 A No, sir.
6 Q So you're saying it was just talk or
7 scuttlebutt, or what?
8 A Just talk about this Task Force that
9 was being put together to look at the health assessment
10 situation at Nitro.
11 Q Did you understand why it was formed?
12 A No.
13 Q Did you hear why it was formed?
14 A No, I don't think I ever did.
15 Q Did you ever ask?
16 A No.
17 Q Did you ever hear of Raymond Suskind?
18 A Yes.
19 Q What did you hear about Raymond Suskind?
20 A His name.
21 Q In connection with what?
22 A I can't remember. I've heard that name.
23 Q Did you ever see the man?
24 A No, not that I'd know.
25 Q You don't know anything about his health

1 studies on the Nitro work force?

2 A I do not.

3 Q Except what you read in the paper?

4 A Right.

5 Q Do you report to Dr. Callis?

6 A No.

7 Q He's entirely separate from you?

8 A Yes.

9 Q Medical Department entirely separate

10 from you?

11 A Yes.

12 Q When you're checking to see if things

13 are in accordance with these various federal laws, you

14 have occasion to deal with the Medical Department?

15 A Not very often.

16 Q When you do, who do you talk to over

17 there?

18 A Most often I talk about proposed rules.

19 Not rules in effect.

20 Q So who do you talk to over there?

21 A I talk to the toxicology people.

22 Q Anybody in particular?

23 A Dr. George Levinskas.

24 Q Anybody else?

25 A Yeah. Another toxicologist, Joe Hansen.

1 Q O.K. I want to hand you what's been
2 marked Plaintiffs' Exhibit 303 (Monsanto #233610 through
3 #233612).

4 Have you had a chance to look at that
5 document?

6 A Yes.

7 Q It's on Monsanto letterhead, is it not?

8 A Yes.

9 Q And it appears to be a memorandum dated
10 June 5, 1979, over G. Edward Paget's signature, is that
11 right?

12 A That's right.

13 Q And you're shown as a copyee or you
14 got a carbon copy of it?

15 A Yes.

16 Q Do you see that?

17 A Yes.

18 Q Is there any reason to believe you
19 didn't get a copy of it?

20 A No.

21 Q Do you remember getting a copy of it?

22 A No.

23 Q Mr. Jessee, I'm going to ask you to
24 read this document to the jury, but it won't be necessary
25 for you actually to read it now. The court reporter

1 will simply insert the text of this document the same
2 as though you'd read it, O.K.?

3 MR. PLESKA: We have no objection to
4 that. I might ask if counsel is going to
5 mark the exhibit from point "A" to "B"
6 where the reporter is to transcribe.

7 Q (By Mr. Calwell) I'll ask you to read
8 from "A", which will begin with the first paragraph on
9 page 1, and end at "B" on page 3. That just covers the
10 text of it and leaves out the rest.

11 A "Chlorinated ortho dibenzo dioxins
12 are referred to in this memo as 'dioxins' unless a
13 specific compound is mentioned.

14 Some Axioms. Some chlorinated dioxins are
15 extremely toxic to laboratory animals and one (2,3,7,8
16 tetrachloro dibenzo dioxin - 2,3,7,8 TCDD) has some
17 claim to be the most toxic substance known to man, at
18 least as judged on the results of administration to a
19 wide range of laboratory species. Profound experimental
20 biological effects - carcinogenesis, teratogenesis
21 and like effects - are found in some species at total
22 life time doses of the order of 10 micrograms per kilograms.

23 These toxic effects are highly isomer specific,
24 and some chlorinated dioxins are, by comparison almost
25 innocuous.

1 Evidence of profound toxicity even of 2,3,7,8
2 TCDD to man is lacking and the most serious ill effect
3 clearly related to human exposure to TCDD is chloracne.
4 It is at least possible that man is more resistant to
5 TCDD than most other species, but the evidence is no
6 more than suggestive and cannot be relied upon.

7 Dioxins are produced in a very wide variety
8 of circumstances in nature, in combustion processes of
9 all kinds and apparently also in small amounts (ppb and
10 ppt) whenever simple aromatic structures are chlorinated.

11 Analysis of dioxins at the state of the art
12 can be achieved at levels of ppt, but this requires
13 great workup of the sample, a dedicated GC MS and several
14 days work. Such analysis is not practical on a daily
15 q.c. basis, with any acceptable level of resource allo-
16 cation.

17 Causes of Concern - 1. 'Dioxins, the Most
18 Poisonous Substances Known to Man' is now a media cliché
19 and elicits shudders of horror almost equal to 'A Sea
20 of Carcinogens' or 'Love Canal.' We must be sensitive
21 to this public awareness and be prepared with data and
22 a response if 'Monsanto dioxins' reach the public eye as
23 they did in the notorious Sturgeon spill (no matter what
24 the actual facts were in that case).

25 2. Agencies will be looking for 'dioxins'

1 wherever they could conceivably be present bearing in
2 mind 1. above (c.f. FDA inquiry of Krummrich plant).

3 3. In certain circumstances, dioxins could pre-
4 sent a hazard to workers or customer and we must be aware
5 of what such circumstances might be and the extent of the
6 hazard.

7 4. Dow fouled up the dioxin scene by ill-
8 judged behavior. We must be sensitive enough to the
9 issues to avoid doing that, but we must avoid penalizing
10 Monsanto by going beyond what is needful and responsible
11 in our reactions to these agents as with any other 'scary'
12 situation.

13 The Needs - We must eventually establish
14 specifications for dioxin content in products and wastes
15 that contain them, and HAPs where they are likely to be
16 encountered and finally we must consider waste and efflu-
17 ent of all sorts for the likely occurrence of dangerous
18 dioxins and if such occurrence is at all likely we must
19 institute a monitoring program.

20 To do these things intelligently and respon-
21 sibly, we must be armed with as many facts as possible.

22 The facts we need are: 1. A survey of
23 products, processes, and wastes and an identification of
24 those that are likely to contain dioxins.

25 2. Generic analysis for dioxins in all such

1 circumstances down to fairly readily reached levels
2 (? ppb) and where high levels of generic dioxins are
3 encountered, isomer identification down to ppt should be
4 considered.

5 3. Identification of products for which a
6 dioxin content specification should be set, bearing in
7 mind the results of 2. and an analysis of possible human
8 exposure. (It is probably unnecessary, for example, to
9 set a specification for dioxins in products that are
10 only used as intermediates and where the end process is
11 certain to destroy them).

12 4. Identification of workplaces and waste
13 streams where dioxins may occur, and the establishment
14 of limits for each case.

15 5. We must have the capability of instant
16 action when questions about dioxin levels of our products
17 arise as urgencies - spills, explosions, mishaps, misuse.
18 We must not let agencies or their representatives detect
19 and measure 'our' dioxins for us and then tell us the
20 results are intolerable. We must be first with infor-
21 mation. It seems to me that several levels of activity
22 are needed - q.c. analysis probably to levels of ppb
23 (or even ppm may suffice).

24 Investigatory capability in the first examina-
25 tion of a problem. This must be state of the art.

1 Response analysis. This also must be authori-
2 tative and state of the art.

3 Inasmuch as the latter two types of analysis are
4 non-routine but recurrent and continuous, it seems to me
5 that Monsanto should have a dedicated facility at the
6 state of the art and indeed, contributing to it."

7 Q All right. Mr. Jessee, you have Ex-
8 hibit 303 before you. Do you know why you would have
9 been a copyee of this document?

10 A I can speculate on it. As informa-
11 tional as a member of the staff we might have some future
12 need to be called in for some reason, but that's all I
13 can think of.

14 Q All right. And the document makes
15 reference to agency inquiries at a couple of places.
16 Do you know if those agencies might be related to your
17 responsibility under the Solid Waste Act or the Superfund?

18 A No, I don't think they would be.

19 Q And on page 2 of that document there
20 is a second paragraph numbered 4 on that page. It's down
21 next to the bottom of the page.

22 A Yes.

23 Q It reads, "Identification of workplaces
24 and waste streams where dioxins may occur." Would that
25 have anything to do with dump sites?

1 A No, I don't think so.

2 Q All right. Let me have 303 back.

3 I hand you what's been marked Plaintiffs'
4 Exhibit #304 (Monsanto #232571 through 232574), and ask
5 you to take a look at that.

6 All right. Mr. Jessee, Exhibit 304
7 is captioned "Chlorinated Dibenzo Dioxins, a Position
8 Paper for Consideration by M. C. Throdahl," and it's
9 written over G. Edward Paget's signature, correct?

10 A Yes.

11 Q And it's dated June 26, 1979?

12 A Right.

13 Q And you're shown as having agreed to
14 this document, is that correct?

15 A Yeah, in terms of the discussion under
16 which Monsanto was to elect to become or get whatever it
17 needed to become highly proficient in analytical work, yes.

18 Q Was that a specific part of this ex-
19 hibit that you agreed to?

20 A No. I just remember the conditions
21 under which the discussion was brought forward, and the
22 question before the house was should Monsanto obtain,
23 acquire and become highly proficient in the analytical
24 capability of trace quantities of materials, and a bunch
25 of us talked about it and we said, yes, we think we should.

1 Q Was this at a meeting or something?
2 You said the conditions under which --

3 A Yeah. The general circumstances I
4 recall is, one, should Monsanto have worldclass analytical
5 capability to do this.

6 Q You know why you were included in this?

7 A Well, it has to do a bit with the
8 process association, I guess, and possible future need
9 to know this about things, which I might have some res-
10 ponsibility. That's all I can say.

11 Q In connection with your Superfund
12 and Solid Waste, that kind of work?

13 A Could be or could be the fact -- See,
14 something like this, since I had had a lot of plant
15 experience and process experience, they invited me to
16 this thing, as I recall. It was that kind of action.

17 Q I would like for you to read to the
18 jury certain portions of this from "A" to "B".

19 MR. PLESKA: And you will insert in
20 the record those portions between "A" and
21 "B" as though Mr. Jessee read them.

22 A "Prepared by G. E. Paget. Agreed by
23 C. F. Callis, W. D. Carpenter, J. T. Garrett, G. L. Jessee,
24 H. P. Mieure, W. B. Papageorge, P. S. Park, George Roush,
25 Jr., M. D., B. G. Ward and M. C. Throdahl.

1 This paper is the outcome of several discussions
2 on the subject of chlorinated dibenzo dioxins and contains
3 suggested policies and recommended actions.

4 Nomenclature - It is common for the class of
5 compounds under discussion to be referred to as 'dioxins'
6 (c.f. Krummrich citation). This is incorrect. We are
7 specifically considering chlorinated dibenzo dioxins,
8 and to avoid falling into the trap of loose nomencla-
9 ture, this whole class will be referred to here as CDD's.
10 Of particular concern within that generic class are the
11 tetrachlorinated species and this group (of 22 isomers)
12 will be referred to as TCDD's. Of this group of 22
13 isomers, one is of particular concern. This is the
14 2,3,7,8 isomer and this will be referred to as 2,3,7,8
15 TCDD.

16 Background Biology - Several CDD's are ex-
17 tremely toxic experimentally and 2,3,7,8 TCDD is es-
18 pecially so. In various animal species, single doses
19 of 2,3,7,8 TCDD of the order of 1 - 6 micrograms per
20 kilograms produce serious and irreversible changes,
21 ranging from death through teratogenesis and carcino-
22 genesis to long-lasting biochemical anomalies.

23 Knowledge of the toxicology of CDD and 2,3,7,8
24 TCDD in particular is still far from comprehensive.

25 Even more incomplete is knowledge of human

1 response to these materials. It is known that the most
2 obvious response is chloracne, and that CDD's are power-
3 ful causes of this condition. Other effects of exposure
4 are less well established. However, evidence suggests
5 inconclusively that humans may be less susceptible to
6 CDD toxicity than most laboratory species. In the
7 experimental animal, the half-life of TCDD's is of
8 the order of 30 days. In the environment TCDD's are
9 more stable, with a half-life of circa one year. They
10 are firmly bound to soil and do not readily migrate.

11 In the absence of precise knowledge of human
12 susceptibility, and in view of the extreme sensitivity
13 of some species, it is obvious that very small amounts
14 of TCDD in the human environment, in certain circum-
15 stances of intimate exposure, or of abuse or misuse, or
16 casual worker procedures, may (we repeat may), have
17 significance.

18 Background Chemistry - It appears that in
19 the very small concentration of which we speak of CDD's
20 (parts per billion and parts per trillion, or nanograms
21 per m²) CDD's can be formed under a wide variety of
22 conditions. They appear to be very frequently formed
23 by combustion of many materials and may, therefore, be
24 of ubiquitous appearance at low levels in the environ-
25 ment. Of importance to Monsanto is the fact that it

1 appears that they may be formed when any aromatic sub-
2 stance is chlorinated under industrial conditions where,
3 for example, some water usually contaminates so-called
4 dry intermediates although some chemical processes
5 (chlorination of phenols under alkaline conditions (with
6 heat) are more likely to produce CDD's than others. Be-
7 cause of Monsanto's involvement with such processes at
8 several locations, CDD's are of particular concern to us.

9 Analytical Background. It is important to
10 distinguish between detection of CDD's generically, the de-
11 tection of TCDD's generically, and the specific identifi-
12 cation of 2,3,7,8 TCDD.

13 Many laboratories, including Monsanto, can
14 perform the first two identifications at high levels
15 of sensitivity. Few can perform specific 2,3,7,8 TCDD
16 analysis at high sensitivity. Some that claim to be
17 able to do so are mistaken. It is probable that Dow
18 can perform this analysis, although they do not do so
19 routinely, and that the University of Nebraska cannot
20 do so at present.

21 It is also important to bear in mind the
22 matrix in which the CDD of interest is found. Some
23 matrices - water for example - present fewer problems
24 than others and Monsanto analysts are already capable of
25 performing analysis of TCDD in such matrices at very high

1 levels of sensitivity. Other matrices, particularly
2 products, present very many more difficulties, and we
3 have to accept that in some circumstances the state
4 of the art will not permit low level CDD analysis, and
5 particularly 2,3,7,8 TCDD identification.

6 Additionally, achieving the ultimate in
7 analytical sensitivity for TCDD's is extremely demanding
8 of time and skilled labor. It cannot be undertaken on
9 a routine 'quality assurance' basis with any acceptable
10 commitment of resources, but must be reserved for
11 special circumstances.

12 Monsanto Analytical Capability. Although
13 Monsanto analytical capability in this field is highly
14 advanced, and is only surpassed by two or three other
15 facilities in the world, there are a number of ways in
16 which it can be improved, all involving expenditure on
17 capital and on professional effort.

18 Recommendations - All concerned agree that
19 Monsanto must have analytical skill in this area sufficient
20 to:

21 1. Determine TCDD and if necessary 2,3,7,8
22 TCDD at levels that are biologically relevant. In the
23 present state of knowledge analysis of TCDD's in terms
24 of parts per trillion, and state of the art speciation
25 of 2,3,7,8 TCDD is regarded as being biologically relevant.

2. Authoritatively confirm, rebut or pronounce upon official statements about the presence of TCDD or of 2,3,7,8 TCDD that are validly made and that require factual information for rebuttal. Again this requires access to analytic capability as set out in 1. above.

All concerned agree that these requirements necessitate the development of a dedicated analytic facility and that at present at least Dahn's laboratory at AEC Dayton seems the most suitable site. It has the advantage of being both an accredited laboratory, and having accredited analysts.

Policy About Analysis - As pointed out above, the most sensitive analysis for TCDD's or 2,3,7,8 TCDD requires several days' work. It is, therefore, impossible, especially in the case of chlorinated products such as the chlorophenols to perform quality assurance analysis for TCDD or even for CDD's on each batch of product or to monitor effluents of workplace continuously for TCDD or CDD's with any acceptable commitment of resources. The following steps should be taken in order to develop a policy about ongoing CDD and TCDD analysis when the capability is available.

1. A list will be made of all processes that in the light of feasible chemistry might give rise

1 to CDD's in a workplace, product or effluent. (Res-
2 sponsibility: Garrett, Callis, Carpenter, Papageorge).

3 2. This list will be annotated with any
4 facts known about CDD's in that context and with the
5 circumstances of use or worker exposure. (Responsibility
6 as 1.)

7 3. In the light of 2. a priority list will
8 be derived for consideration. (Responsibility: Page,
9 Garrett, Callis, Carpenter, Papageorge).

10 4. DMEH (Paget, Roush, Lavinskas) will
11 consider the list by the method of 'worst case analysis'
12 i.e. where knowledge exists about CDD it will be con-
13 sidered on the basis that all CDD is 2,3,7,8 TCDD and
14 that the most extreme human exposure called for by
15 product use or workplace practice will occur, and that
16 man is sensitive as the most sensitive species. It is
17 expected that even in this worst case such an analysis
18 will show that CDD's are biologically irrelevant in
19 most circumstances. Where such analysis does not give
20 reasonable and legally sufficient assurance (Respon-
21 sibility: Page, Park) of the safety of the circumstances
22 considered, the product process or effluent will be
23 listed as a possible for analytical investigation and the
24 CDD analysts will be requested to develop appropriate
25 methods.

1 To prevent excursion into unnecessary analysis
2 a policy will be developed for scrutinizing such analytical
3 requests. (Responsibility for developing discussion paper
4 to lead to policy, Page, Carpenter, Park).

5 5. Irrespective of any of the foregoing,
6 analyses either within Monsanto or outside will always
7 be undertaken at a state of the art laboratory when an
8 official body such as OSHA or other agency takes samples
9 at a Monsanto site that will be or are likely to be
10 analyzed for CDD's by the agency. In such circumstances,
11 parallel samples with authentication and unbroken chains
12 of custody will always be taken (as will be the case
13 when any official body takes samples at a Monsanto site)
14 and transmitted as soon as possible for analytical
15 treatment to Ward (DMEH) or when Monsanto facility is
16 unequivocally in place and confident, to that facility
17 with notification to Paget/Garrett - DMEH. The Mon-
18 sonto facility will always be preferred over outside
19 facilities when the required analysis is within the
20 demonstrated capability of the Monsanto facility.

21 6. Where workplace exposure to CDD's is
22 possible, consideration will be given to appropriate
23 methods of area and personal monitoring (Roush, Paget,
24 Garrett).

25 7. In view of likelihood of official

1 insistence on 'appropriate biological monitoring for
2 dioxins' (sic!) DMEH (Roush) will consider with con-
3 sultants what may be appropriate medical monitoring
4 for CDD exposure and will develop a policy."

5 Q Mr. Jessee, I want to hand you what's
6 been marked Plaintiffs' Exhibit #305 (Monsanto #233618),
7 and ask you to take a look at that, sir.

8 A All right. Mr. Jessee, you have had
9 occasion to look at Exhibit #305, have you not?

10 A Uh huh (yes).

11 Q And it, likewise, is on Monsanto
12 letterhead and appears to be a memorandum dated June
13 11, 1979, over Phocion S. Park's signature, is that
14 correct?

15 A Yes.

16 Q You know who Phocion S. Park is?

17 A Yes.

18 Q Who is Phocion S. Park?

19 A He's Environmental Counsel for Mon-
20 santo Company.

21 Q He's a lawyer?

22 A Yes.

23 Q And this document also shows you as
24 having been copied?

25 A Yes, it does.

1 Q And is this Exhibit #305 somehow
2 related to Exhibit #304?

3 A It's connected to some of that stuff
4 I read about discussions and meetings prior.

5 Q And that would explain your being
6 on there?

7 A Yes.

8 Q Can you tell me if the policy suggested
9 by Exhibit 304, or analyzing for these various substances,
10 dioxins and so forth, was that policy implemented, do
11 you know?

12 A Well, to the extent of developing
13 the capability to do it, yes, I know that was done, but
14 how far it goes beyond that I don't know.

15 Q In connection with your being called
16 in for the discussions that are variously reflected in
17 304 and referred to in 305, did you learn if Monsanto
18 had in the past attempted to monitor or test for dioxins?

19 A No.

20 Q You don't know whether they did or not?

21 A I do not.

22 Q Did you subsequently learn that they did?

23 A No.

24 MR. CALWELL: O.K., Mr. Jessee. Thank
25 you very much.

~~John L. Jessee~~

1 STATE OF ILLINOIS)
2) SS.
3 COUNTY OF MADISON)
4

5 I, M. JOY SPRINGER, a Notary Public, duly
6 commissioned and qualified in and for the County of
7 Madison, State of Illinois, do hereby certify that
8 pursuant to notice came before me on the 11th day
9 of July, 1993, at the Radisson Hotel, Room 215, 9th
10 Street and Convention Plaza, St. Louis, Missouri,
11 GENE L. JESSEE, who was by me duly sworn to testify
12 to the truth and nothing but the truth of his knowl-
13 edge touching and concerning the matters in contro-
14 versy in this case; that he was thereupon carefully
15 examined upon oath, and his examination reduced to
16 writing under my supervision; that the deposition is
17 a true record of the testimony given by the witness;
18 and signature of the witness was not waived.

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

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IN WITNESS WHEREOF, I have hereunto set my
hand and affixed my notarial seal on this _____
day of July, 1983.

Notary Public within and for the
County of Madison, State of Illinois.