

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
MONTE C. THRODAHL
taken on behalf of the
Plaintiffs.

Reporter: M. Joy Springer

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1 '42 to '45 you also became a group leader?

2 A No. In 1945 I became a group leader
3 and remained there until about 1950.

4 Q In the same place?

5 A Yes.

6 Q All right. Now, the rubber laboratory,
7 was that a part of the Monsanto Research Corporation,
8 or did it become the Monsanto Research Corporation?

9 A No, no. At that time the Nitro
10 operations were a part of what was then called the
11 Organic Chemicals Division. See, that had been an
12 independent company that Monsanto had acquired back in
13 the late '20's some time, and it still maintained a
14 rather complete entity of research and manufacturing
15 in the same location. But the Research Department at
16 that point had a different reporting relationship. It
17 was not a part of Manufacturing.

18 Q Did you carry out any tests on para-
19 amino-biphenyl in that laboratory?

20 A No. Not on para-amino-biphenyl it-
21 self because that has no effect on rubber, but the re-
22 action product of that with acetone, which was called
23 Santoflex, yes, we did. You have to understand, this
24 is not a quality control lab. This is a research labora-
25 tory where we would test literally hundreds and hundreds

1 of chemicals for their efficacy, and obviously Santo-
2 flexes were a part of that.

3 Q In the rubber laboratory you had a
4 different mission in terms of what you were to do than
5 from what we call the quality control work you were
6 doing?

7 A This is not quality control at all.
8 These are looking for new products and proving their
9 efficacy and carrying out investigations that would be
10 useful to potential customers who could then use that
11 information with their own kinds of problems.

12 Q During this time period, 1941 to,
13 let's say, '45 to 1950, did the Nitro Plant have a
14 research laboratory function in connection with the
15 other products that it manufactured there?

16 A Yeah. It did process research for
17 all products that were there in addition to the products
18 of rubber. They made, at that point in time, they made
19 some detergent materials, they made some oil additives.

20 Q So in addition to the quality control
21 laboratory, you had the rubber laboratory, which was
22 primarily or not exclusively a research function, and
23 in addition to that you also had a research function
24 laboratory for some of the other products at the Nitro
25 Plant?

1 A Yeah. That function is called Organic
2 Synthesis where you're actually making new chemicals
3 and then hopefully optimizing processes for the more
4 appropriate ones that might be carried forward into
5 larger scale.

6 Q For example, if you had a product
7 that needed to be improved, for example, at the Nitro
8 Plant, would that kind of research be done at the Organic
9 Synthesis Laboratory at Nitro or part of that work?

10 A It could be.

11 Q For example, if you had customer
12 complaints about a product, would one of the chemists
13 in the Organic Synthesis Lab maybe be instructed to
14 take a look at that?

15 A If the complaint was performance?

16 Q Yeah.

17 A Uh huh (yes).

18 Q Now, would that physically have been
19 in a different place, or was it just one laboratory
20 with different sections of it devoted to different --

21 A The rubber laboratory was a freestand-
22 ing building that was located some distance away but
23 within the plant area. The research facility, which
24 was at that time in the early part of that period, was
25 a one-story group of labs that were built for two to

1 four people, and there was a library and storeroom
2 and this sort of thing. The Analytical Department
3 was a part of that building. Then there was a third
4 building called a small pilot plant that was also lo-
5 cated nearby.

6 Q That was called a pilot plant?

7 A Uh huh (yes).

8 Q Now, did that constitute all the
9 laboratory type facilities at the Nitro Plant?

10 A Yeah.

11 Q Now, you were group leader from '45
12 to 1950?

13 A Yeah.

14 Q And then what happened to you then?

15 A Well, the record shows I became
16 Assistant Research Director at that time. I did that
17 for, it says here, a little more than a year. I moved
18 over then and became a Manager of Commercial Develop-
19 ment for Rubber Chemistry, and I did that from '52 to
20 '54 at Nitro?

21 Q Now, as Assistant Research Director
22 what did you do, what was that all about?

23 A Well, I had the responsibility then
24 for much of the work that would be called synthesis
25 of the chemicals as well as their evaluation in rubber.

1 I guess that's why I made the next move. At that time
2 the concept of persuading somebody, a customer, for
3 example, that he, if he had a problem, that you had
4 a solution to his problem. We didn't know that was
5 called commercial development in those days, but I
6 made a number of contacts with customers in that role
7 as Assistant Research Director to the point where in
8 the early part of '52 it was decided maybe I could ex-
9 pand that function and do it on a full-time basis,
10 so that's what I did. At that point I spent a great
11 deal of time with our Marketing people who were in
12 Akron, Ohio. In effect, commercial development was
13 kind of a bridge between research and sales.

14 Q That's where began the escape from
15 Nitro, right?

16 A Oh, listen, we did a lot of fascinat-
17 ing things at Nitro. Just far enough away from head-
18 quarters so we'd try things. If they didn't work, we
19 didn't tell anybody. If they did work, we were heroes.

20 Q Now, as Assistant Research Director,
21 did that job initially -- I know it evolved into some-
22 thing a little different when you started making these
23 contacts such that you were moved out -- but did you
24 have responsibility for all the organic synthesis labora-
25 tory that was going on in the plant at that time or just

1 the rubber laboratory?

2 A Well, anything that had to do with
3 rubber chemistry was my responsibility at that point.
4 There was a Research Director to whom I reported at
5 the site.

6 Q Was there another Assistant Research
7 Director besides yourself?

8 A No.

9 Q But as Assistant Research Director
10 you had no responsibility for organic synthesis operation?

11 A I did for those that were applicable
12 to rubber. Primarily to get the lining on straight
13 there would be accelerators and anti-degradants and
14 vulcanizing systems, those were applicable to the
15 processing of rubber.

16 Q Do you know at that time who would
17 have had responsibility for supervising the research
18 function of organic synthesis as it related to other
19 products outside the rubber interests at Nitro at that
20 time?

21 A Well, the Director had that function
22 himself.

23 Q Who was that at that time?

24 A His name was Wendell Mataner. Now dead.

25 Q You left Nitro when? In '55?

1 A '54.

2 Q Was Metsner still there, if you recall?

3 A As I recall, he had gone to St. Louis

4 as well. I think he had gone to St. Louis prior to

5 my time, about a year or so, but that's a guess. I

6 haven't talked about that in a while.

7 Q If in fact he did leave, do you know

8 who may have replaced him as a Director?

9 A Yes. A man named George Stahly,

10 S-t-a-h-l-y.

11 Q Up until the time you left the Nitro

12 Plant, the Director of Research would have been the

13 gentleman who had responsibility for this organic

14 synthesis work for everything outside the rubber --

15 Of course, he also had responsibility for that, but

16 the Assistant Director was primarily responsible for

17 the rubber laboratory?

18 A That's right.

19 Q All right. Now, during the period

20 of time that you were at Nitro, do you recall who the

21 plant doctors were?

22 A Yeah. Richard Wallace.

23 Q Was a Dr. Nelson there also at some time?

24 A Nelson?

25 Q Yes, sir.

1 A I don't remember a Nelson. There may
2 have been a Nelson that was a consultant, but I don't
3 remember that name.

4 Q O.K. In 1954 you moved out of Nitro
5 to Akron, did you say?

6 A No. I came to St. Louis. I came
7 as Assistant Director of Development for what was then
8 kind of the parent of us all, the Organic Chemicals
9 Division.

10 Q At the time that would have included
11 Nitro?

12 A Yes.

13 Q And would that have included everything
14 at the Nitro Plant except the rubber business, or was
15 that also included?

16 A Well, now, this is Commercial Develop-
17 ment at this point. So our role in the Organic Chemicals
18 Division at that time in addition to rubber, we had a
19 number of other functional products that were part of
20 the focus of the Organic Chemicals Division.

21 Q All right. And what kind of a job
22 was that?

23 A Well, again, it was one of these one-
24 over-one affairs. I reported to a Director, and he
25 and I essentially split the responsibilities of several

1 groups that we had in the department at that time. I
2 continued to look after rubber, and I've forgotten now,
3 but I took on plasticizers, as I recall, I think, oil
4 additives at the time; but it's fuzzy to me exactly
5 how we did split it up. That was customary in those days.

6 Q What was it that you were trying to
7 accomplish through this development department?

8 A O.K. That role was to guide, not
9 direct, but guide research in their search for functional
10 products. Functional products are chemicals that perform
11 a function, such as vulcanizing agent in rubber, anti-
12 degradant in rubber, lubricating oil additives that
13 would reduce wear on piston rings and things of this
14 sort. We called those functional chemicals. So it was
15 our task to provide guidance for research in their ex-
16 ploratory programs, synthesize new chemicals moieties.
17 It was our task to test the waters with customers or
18 potential customers for problems and needs that they
19 had and translate those into the kinds of skill bases
20 that we had and then, thirdly, we actually had groups
21 of people that took promising products from the research
22 and the application work that went on and took them out
23 to customers and stayed with them while the customers
24 worked with them over periods of time and eventually
25 brought them to a point where they were transferred to

1 the Marketing Department as a standard kind of product.

2 Q So part of your function, then, was to
3 try to define what the market was there and make sure
4 that your research efforts would keep pace with what
5 would be needed or was needed?

6 A That's right, anticipate what the needs
7 would be, that's right. But the word is guidance and not
8 direct. We didn't direct research. That was done by
9 others.

10 Q What is the difference between guidance
11 and direction?

12 A Well, to offer guidance you'd say,
13 it would be appropriate to have a product that could
14 do this and this and this. The direction would be,
15 you'll do work that will give you a product to do this
16 and this and this. We couldn't do that. The research
17 people would carry out the direction, the management
18 of the function. We didn't manage the function of
19 research at that time.

20 Q In other words, you couldn't tell the
21 research people in the various areas what to do? You
22 simply suggested what ought to be done?

23 A Yeah, that's a good way to put it.
24 We certainly never told them how to do it.

25 Q All right. You never told them how to

1 go about doing it? In other words, this was left up
2 to some other -- Who would that be left up to?

3 A Research management itself.

4 Q Now, as Assistant Director of Develop-
5 ment of the Organic Chemicals Division you were primarily
6 responsible for the rubber end of Monsanto's business
7 in this function of providing guidance for research?

8 A And also a broader range of functional
9 products that the Organic Chemicals Division was manu-
10 facturing and selling at that time.

11 Q Were you responsible for any herbicides?

12 A Not in those days. I became the
13 Director in 1956 and remained there until 1960, and at
14 that time, then, all of the groups, of which we had a
15 pesticide group as a part of, same sort of function,
16 what are the needs and the problems, what are the per-
17 formance requirements and then also working with cus-
18 tomers on that point. Same sort of principles.

19 Q In 1954 you became Assistant Director
20 of Development?

21 A That's right.

22 Q How long did you stay Assistant
23 Director of Development?

24 A Until '56.

25 Q During the period of time '54 to '56

1 did you have any responsibility for the product 2,4,5-T
2 from the Nitro facility?

3 A No.

4 Q Was it a functional product?

5 A Sure. It's a herbicide.

6 Q During that period '54 to '56 in your
7 department, I guess, you'd call it the emerging Depart-
8 ment of Development, I suppose, who was responsible for
9 the functional product 2,4,5-T?

10 A Well, let's see, I think it was an
11 article of commerce at that time. I say, I think it was.
12 I recall it was. So that would have been a function of
13 whoever was the Sales Manager for pesticides at that
14 period. It may have been Zorsch. What was Red Zorsch's
15 first name?

16 Q C. F. Zorsch?

17 A Yes. It could have been a man named
18 Paul Eckberg, who I think was Zorsch's boss. That's the
19 best that I can remember.

20 Q 2,4,5-T, according to your memory,
21 was an article of commerce during the period '54 to '56
22 but it was still a functional product?

23 A Oh, yeah.

24 Q And as such the Department of Develop-
25 ment for the Organic Chemicals Division carried out some

1 function in connection with 2,4,5-TC

2 A No. No. If it were the commercial
3 product, it would be the responsibility of the Marketing
4 people.

5 Q So during the period '54 to '56 the
6 Development Department had nothing whatsoever to do with
7 2,4,5-TC?

8 A That's my recollection because our
9 role there was to look for and commercialize new herbi-
10 cides.

11 Q And you had no function to play in
12 the perfection of an existing herbicide that was not
13 functionally perfect as yet?

14 A That's right.

15 Q That was a task completely outside
16 your area?

17 A Uh huh (yes). See, I mentioned
18 earlier to you that when Commercial Development brought
19 things to a point where, you know, they could be sold,
20 we knew who the customers could be and we'd actually
21 make some early sales with them just for, you might say,
22 proof. At that point there would be an agreement that
23 the product would be transferred to the Marketing De-
24 partment. At that time that was a pretty standard
25 practice.

1 Q When was a decision made to ship
2 2,4,5-T from Development to Marketing?

3 A I don't recall. It would have been
4 done some time before I moved to St. Louis, I'm sure,
5 but I don't know that.

6 Q Some time prior to 1954?

7 A I would imagine so.

8 Q What criteria existed at that point
9 in time for shifting a product from Development to
10 Marketing?

11 A When proof existed that it was a
12 saleable product, it performed the function intended
13 and that there was a strong likelihood that manufacturing
14 on an appropriately large enough scale would result in
15 costs that would allow appropriate profits to be made,
16 and then these were decisions that were usually arrived
17 at after consultation among the Directors of the De-
18 partments of Development, Marketing, Research, probably
19 Manufacturing, Engineering and, I guess, presided over
20 and blessed by whoever was the General Manager. That
21 was the pattern of bringing things into the market-
22 place. It was a division of labor that worked very well.

23 Q Would the Director of Research at
24 Nitro between 1950 and '54 be a kind of person who
25 would have been in on the decision to shift a new

0 1 2
1 product, like, 2,4,5-T from Development to Marketing?

2 A Well, he certainly could have been,
3 but as I recall, the responsibility for the management
4 of the Agricultural -- what did we call them -- it was
5 Agricultural Products Group. That responsibility rested
6 for the most part in St. Louis, and the Nitro location
7 was simply a convenient place where the research could
8 be carried out and in some instances -- they didn't make
9 all the agricultural products there. But that work was
10 essentially decided upon from St. Louis, I'm quite
11 certain, and the Nitro Research Director would have
12 taken a subordinate, an important but subordinate role.

13 Q During the time you were Assistant
14 Research Director, 1950 to '51, would you know whether
15 2,4,5-T was shifted from Development to Marketing?

16 A I don't know. I don't have any
17 recollection of that. I just didn't know enough about
18 it to have any.

19 Q If you wanted to find out, who would
20 you ask?

21 A Well, I have no idea where Paul Eckberg
22 is. Zorsch might know. I probably would start there.

23 Q The criteria for shifting a product
24 from Development to Marketing has been described as
25 determining whether it was functionally perfected, I

1 suppose, it would do what it was supposed to do?

2 A Uh huh (yes).

3 Q Was there also any consideration
4 given to toxicology?

5 A Yes, I'm certain there was.

6 Q Do you know if there was?

7 A No, I don't know -- I don't know that
8 as a fact.

9 Q During the time that you were Assis-
10 tant Research Director, 1950 to '51, did you take any
11 part in shifting a product of any kind from Development
12 to Marketing?

13 A Yes. They would be rubber chemicals.

14 Q When you took a role in shifting a
15 rubber chemical from Development to Marketing, did
16 you make any inquiry about whether it was toxicologi-
17 cally appropriate to be released for sale?

18 A Yes, that was done through Dr. Emmet
19 Kelly. At that time the Medical Department was what
20 we called a freestanding corporate staff department,
21 and Dr. Kelly would have been the individual to whom
22 people that reported to me would have been working
23 with over time. Again, that was carried on at rather
24 more arm's length, as I recall.

25 Q What role did you play when you were

1 Assistant Research Director in this ascertainment of
2 the toxicology of a product you were getting ready to
3 move from Development to Marketing?

4 A Well, the role would have been to
5 have made certain that the Medical Department was
6 appropriately informed of our intention to, first of
7 all, test the product.

8 Q To make certain they knew they were
9 going to test or you would be testing it?

10 A No. They were testing it. We didn't
11 have our own toxicology laboratories at that time, so
12 that was done in a contractual way between the medical
13 group and that outside laboratory.

14 Q Did you know in 1950 and '51 what
15 testing meant if you sent a product or inquired about
16 a product to see if it had been tested for toxicological
17 purposes, what did that mean to you?

18 A It's hard to put myself back at
19 that period of time because I know a lot more about it
20 today.

21 Q I realize that.

22 A Well, first of all, I'm certain that
23 we would have been concerned, I know that Dr. Kelly
24 would have been concerned, that the material with
25 appropriate precautions would have been safe for the

1 workers to handle. I know that in terms of rubber
2 chemicals many of them were finely divided powders,
3 200 mesh or thereabouts, and, therefore, there was a
4 lot of skin contact and dust and the like; and I know
5 that in those days their concern was certainly for
6 them, for the workers. As to the nature of the toxicology
7 tests that were done, I must admit that at that
8 point in time I don't believe the thought crossed my
9 mind as to what kind of toxicology tests were done.

10 Q Do you know if it included a search
11 of the literature at the time on a particular product
12 or substances that went into the manufacturing product?

13 A I'm supposing it did.

14 Q As far as you know, this process that
15 you went through on the substance that you were involved
16 in moving from Development to Marketing, was
17 that in keeping with company policy at the time?

18 A Yes.

19 Q Nothing unusual about that process,
20 then, right?

21 A No.

22 Q You would have expected it to be done
23 with any product?

24 A Yes.

25 Q Did you ever have a product rejected

1 on toxicological grounds?

2 A Yes.

3 Q What product was that?

4 A I don't remember. These would be
5 compounds that would be still in the early synthesis
6 stage.

7 Q I use the term "rejected," of course,
8 in a very broad general sense. Was the product sent
9 back to you for further work or for corrections or that
10 kind of thing?

11 A Well, in the spirit of your question
12 it would seem to me that -- and in the PAB situation --

13 Q Yeah.

14 A I think when it was determined that
15 PAB was the actor it became, I know that the subject
16 of toxicity of things like benvidine dyes from an ear-
17 lier period of time, I know that was a matter of reason-
18 able knowledge even among some of the chemists. But
19 you have to understand that back in the early '40's
20 our knowledge of and our concern for things that are a
21 matter of course today did not exist. We were concerned
22 about skin contact, lung contact, eye contact, and
23 everyone was very diligent on those points. -- On the
24 more chronic issues, not that much was known. But I
25 do recall that we would look at certain chemicals in

1 early tests in rubber and we'd say, well, that works
2 very well but that thing's too toxic and we are not
3 going to do that one, we'll find one that's not.

4 Q So on the occasions that you recall
5 when a product that was a candidate for removal from
6 Development to Marketing, the rejection was based on
7 some toxicological consideration --

8 A Well, that was certainly one criterion
9 that would be used, yes.

10 Q And would you then set about to either
11 correct that problem within the product itself or shift
12 to another product, is that the kind of things you'd do?

13 A You'd almost never correct that. You'd
14 have to shift to another product.

15 Q And, again, there was nothing unusual
16 about that? If it came up toxicologically unsafe,
17 then no real decision would be made, right?

18 A Well, yeah, the decision would be
19 made not to do it.

20 Q That's what I meant.

21 A Yeah, I know.

22 Q And that was true in 1950 and '51 when
23 you were the Assistant Research Director? --

24 A Yes.

25 Q O.K. You're the Assistant Research

1 Director of Development for the Organic Chemicals Division
2 in 1954 to, did you say, '56?

3 A Uh huh (yes).

4 Q And in '56 did you become Director?

5 A Yes.

6 Q Same type of work, increased respon-
7 sibilities, right?

8 A Yes, that's correct.

9 Q Would the herbicides and pesticides,
10 then, have been under your supervision, or whatever, to
11 the extent of the development?

12 A Right.

13 Q And you got that job in '56. How long
14 did that last?

15 A Until 1960.

16 Q All right. During that four-year
17 period was any chlorinated phenol or any product that
18 was a consequence of some intermediate step involving
19 the chlorination of phenols or chlorination of a benzene
20 ring under your supervision in the Development Department
21 of the Organic Chemicals Division?

22 A Any chlorinated phenol --

23 Q Let me make it easier. Like, a penta-
24 chlorophenol.

25 A Yes.

1 Q Trichlorophenol?

2 A I think trichlorophenol was an article
3 of commerce. It would not have been in the development,
4 the product in the department for development itself,
5 but penta was.

6 Q During the period '56 to 1960 penta-
7 chlorophenol was in the development stage?

8 A There were some uses for penta in
9 wood treating that were part of the development role,
10 as I recall it. It had been an article of commerce
11 for some time for other uses, and I'm fuzzy on what
12 those were. But penta was an effective wood treating
13 chemical.

14 Q So that I'll understand a little more
15 about the distinction between the substance in develop-
16 ment and one in commerce or in market, I guess, it
17 would be possible for a substance to be both in devel-
18 opment and in commerce at the same time?

19 A For different uses, uh huh (yes).

20 Q During this period '56 to '60 do you
21 know if trichlorophenol was in that dual capacity?

22 A I don't think so.

23 Q As far as you know, it was exclusively
24 a functional product already in the market?

25 A Well, I guess I would look at

1 trichlorophenol as an intermediate for other things to
2 be made from. I don't recall it ever had a use of its own.

3 Q That's the spirit of my question.
4 Trichlorophenol, whether it may have been an end product
5 itself or an intermediate in the production of some end
6 product, as far as you know, during '56 to '60 trichloro-
7 phenol or any process that was associated with was not
8 in the development stage at Monsanto?

9 A That's right.

10 Q And continuing in that same vein,
11 how about orthochlorophenol?

12 A We had a germicide group in develop-
13 ment, but my mind doesn't recall now -- Didn't we call
14 that Santophen?

15 Q Yes.

16 A I don't know. I think that had to
17 be an article of commerce. I certainly don't remember
18 us doing anything with it. We were looking for other
19 germicides.

20 Q So your recollection is during '56
21 to '60 Santophen was a product that was in commerce and
22 not necessarily in your development area, right?

23 A Yes. We were working more with, like,
24 trichlorocarbanilide, TCC, in those days to find appli-
25 cation for germicides in soaps.

1 Q TCC?

2 A Trichlorocarbanilide.

3 Q That's not a trichlorophenol?

4 A No.

5 Q Now, during the time that you were

6 Director of Development did the particular function of

7 pentachlorophenol that you were looking at in a develop-

8 ment sense, does it need some development to market?

9 A I don't think so. I haven't thought

10 about that in a while, so I can't remember.

11 Q O.K. During that period of time did

12 you become aware of any toxicology relating to penta-

13 chlorophenol?

14 A No.

15 Q Was that not a consideration or some-

16 thing that you just weren't aware of?

17 A Wait a second. You said was I aware

18 of toxicology. Do you mean whether I was aware of any

19 toxic effects?

20 Q Yes.

21 A Well, in the spirit of your question,

22 I guess I'd say no because, after all, if it's a wood

23 preservative, it's going to kill termites. But certainly

24 from a point of view of human toxicology or impact on

25 humans, the answer was no. We believed it to be a safe

1 product.

2 Q What about animal studies?

3 A I can't answer that. I just don't
4 remember.

5 Q I assume that during this period of
6 time when a product is in the development stage, that
7 there are a number of things going on at the same time.
8 You're trying to perfect a product and at the same time
9 there may be some toxicological inquiry into the product
10 so that if the product would then come on line for move-
11 ment into the market, these things would hopefully kind
12 of come together and make a decision, is that sort of
13 the way it goes?

14 A Well, yes. You certainly would not
15 go out to a group of customers without that knowledge,
16 and while it was not -- well, that knowledge was not
17 as extensive as it is today, it was still in terms of
18 state of the art and state of the thinking about that
19 part of the social responsibility that you had.

20 Q So anything that you knew about it
21 within reason you would impart to the potential customers
22 in a toxicological sense in terms of harm to humans?

23 A It would be what's called the label.
24 How to use it, so on.

25 Q If you knew some of your process

1 workers were developing a rash or bumps or pimples dur-
2 ing the manufacturing process of some product, would
3 that be something that would appear on the label?

4 A That's a funny way to ask a question,
5 though. We would be more concerned from the label's point
6 of view of what the finished product, the formation, would
7 be taken out of the container, how that would affect the
8 dermatology of the user. Now, the potential exposure
9 of a worker due to intermediates or whatever would be
10 somewhat different. If you're asking it in the case of
11 the user, I think that was in the knowledge of the state
12 of the art, it always has been our concern and that would
13 be the concern largely at that point in time. The medi-
14 cal group was quite rigorous on that. The plant physician
15 had it as his responsibility to see to it that worker
16 exposure was held to a minimum. Dealing with short-
17 term effects is one thing. Dealing with longer-term
18 effects is something else, and that's something that's
19 developed in the last four or five years with a lot more
20 clarity than we used to know about.

21 Q During the development stage of one
22 of these products who would make the decision about what
23 would appear on a label and what wouldn't in terms of the
24 human risk?

25 A Well, remember, there was no EPA.

1 The U. S. Department of Agriculture -- You're smiling.

2 Q It seems like we've always had an EPA.

3 A Yeah, it does seem like we've always
4 had it. The Department of Ag was involved. I certainly
5 was never that close to it, so from a personal point of
6 view I can't testify on that. Our own labels insofar as
7 I'm recalling were pretty carefully scrutinized by our
8 Medical Department.

9 Q It would be the Medical Department
10 that would have that responsibility?

11 A Yeah.

12 Q And that would have been in the period --

13 A As long as I can remember.

14 Q And during the period let's say, 1951
15 through 1960, would that have been Dr. Kelly?

16 A Uh huh (yes).

17 Q Would that have been to determine
18 whether a worker exposure that may have caused a dermatitis,
19 if the causative agent existed in the finished product,
20 would that be one of the things they'd have to determine?

21 A Uh huh (yes).

22 Q And if it did, then you would expect
23 something like that to appear on a label, right?

24 A If it were that serious, that product
25 probably would be restricted and it wouldn't appear on a

1 label.

2 Q In other words, the product wouldn't
3 appear?

4 A That's right.

5 Q Much less the label?

6 A That's right.

7 Q And would that recommendation be
8 something that would come out of the Medical Department?

9 A Uh huh (yes).

10 Q And in fact would that be the kind
11 of a recommendation that we were talking about earlier
12 when you were talking about the criteria of when a
13 product would safely move from development to market?

14 A Uh huh (yes).

15 Q So you would expect a problem like
16 that not to make the final cut and be sent back to de-
17 velopment for either further work or --

18 A Well, whatever was needed to correct
19 the situation. If it were intrinsic with the product
20 itself, that product would not be commercialized.

21 Q And nothing unusual about that, that
22 was just standard procedure at that time?

23 A That's right.

24 Q And I assume it became more standard
25 as time went on?

1 A We have formalized the situation now
2 to the nth degree.

3 Q Now, you were the Director of Develop-
4 ment of Organic Chemicals from 1956 to '60. What
5 happened to you next?

6 A Then I moved to Research in the
7 Organic Chemicals Division and became Director of Re-
8 search. I was there for two years.

9 Q From some time in 1960 to '62?

10 A April.

11 Q Now, what did that job involve, what
12 did you do there?

13 A Well, the research role then was to
14 work on both new products and processes for new products,
15 work on process improvement of existing products, assist
16 Manufacturing in working on quality problems, yield
17 problems, cost problems and presumably try to -- I was
18 going to get some of my own medicine, you see, having
19 come from the development side -- to work in harmony
20 with Development to get as much insight as possible in
21 what we call -- I'll give you a nice term -- the window
22 of anticipation. The whole idea was could we anticipate
23 problems that people would have, customers would have,
24 before they knew about them themselves. That's fair
25 competition. So with that kind of thing you would then

1 approach the customer and oftentimes, you know, like
2 the alcoholic who denies he drinks, customers, "I don't
3 have any problem like that; but if you had a problem
4 like that, here's an approach to it." We still do that
5 in more sophisticated ways. Anyway, Director of Re-
6 search was responsible for the management of that whole
7 division. That was the whole function of Research. That
8 was a group of somewhere 400 people at that time.

9 Q At this time period, 1960 to '62,
10 the Micro Plant was still within the Organic Chemicals?

11 A Yes, it was.

12 Q And the product 2,4,5-T would fall
13 within the Organic Chemicals Division, then?

14 A Yes, it did.

15 Q And did you supervise any efforts
16 during the period 1960 to '62 to improve the 2,4,5-T
17 process?

18 A Wait a minute. The Agricultural,
19 what was called the Agricultural Company-- it was then
20 called the Agricultural Products Division, was formed
21 in early '60. I had just come aboard as Director, and
22 you can check the records on it. My memory says it was
23 very shortly thereafter that the new division was formed,
24 and the person that had been responsible for, as an
25 Assistant Director for Agricultural Products, moved over,

1 became the Director of Research for the new Agricultural
2 Products Division. That did happen in the year '60.
3 That division was carved up from part of the Organic
4 Chemicals Division for pesticides and fertilizers.
5 That came out of what was then the Inorganic Chemicals
6 Division.

7 Q That became an Assistant Director of
8 Research, that position you're talking about?

9 A No. That became a Director of Research
10 for the Agricultural Products Division.

11 Q And who was that person?

12 A That was Dr. Richard Gordon.

13 Q Now, during this period of time, '60
14 to '62, then, you had no connection at all with 2,4,5-T?

15 A (Shakes head negatively.)

16 Q And during the period of time that
17 you're in Nitro you had no connection at all with 2,4,5-T?

18 A Huh uh (no). That's correct, I did not.

19 Q You wouldn't have been kept advised
20 about what was going on in terms of product problems or
21 anything like that?

22 A I'm sure I was aware of things going on,
23 but like many other things I paid scant attention to them.
24 I can't say I didn't know, like anyone would in a large
25 group, but no responsibility.

1 Q And as this development idea grew at
2 Monsanto and particularly the function involving process
3 improvement, you likewise just didn't have any knowledge
4 about any product improvement process involving 2,4,5-T?

5 A That's right.

6 Q Now, aside from Dr. Gordon who, I
7 assume, would have known about it, is that right, or,
8 at least, that would have been part of his responsibility?

9 A It was his responsibility.

10 Q Now, is he dead?

11 A No. He's no longer with the company.

12 Q Do you know when he left the company?

13 A Wait a minute. I made a mistake.

14 The first Director of that -- No, no. I'm right. There
15 was another man that had been the Assistant Director of
16 Research, but he was not made the Director. That's my
17 own memory that's catching up with me. Gordon, he's left
18 Monsanto. He doesn't live in St. Louis. I don't know
19 where he is.

20 Q All right. In '62 what happened?

21 A Well, I moved to become Director of
22 Marketing in the Organic Division. They were trying to
23 find a job I could hold. So I've been pretty much making
24 the circuit. I did that for two years.

25 Q And as Director of Marketing, that was

1 for the Organic Chemical Division?

2 A That's right.

3 Q And by that time there was created a
4 new Agricultural Products Division?

5 A That had been created in 1960.

6 Q So the 2,4,5-T product was part of
7 the Agricultural Division?

8 A Uh huh (yes).

9 Q And would not have been under your
10 directorship of marketing for Organic?

11 A Correct.

12 Q You would have had a peer in the
13 Agricultural Division who would have been Director of
14 Marketing?

15 A Uh huh (yes).

16 Q So you ~~know~~ who that would have been?

17 A I think that was Paul Eckberg.

18 Q Were there still some products at
19 Nitro that were under the Organic Division, or was the
20 whole plant moved into the Agricultural?

21 A No, no. Let's see, do you know about
22 host-guest relationship?

23 Q Yes. So in '62, '64 you had that kind
24 of a situation at Nitro?

25 A Uh huh (yes). So the Agricultural

1 Division would have been a guest at that plant.

2 Q O.K. What happened in '64?

3 A Well, I moved to the International
4 Division, and I moved over as Assistant General Manager
5 of the division. I was there literally for a few months
6 and then became General Manager later that year in '64.
7 I was General Manager 'til about '67. Part of that time
8 I lived in Brussels, and I was made a Corporate Vice
9 President in January, '65.

10 Q Now, you're out of the operation
11 divisions and all that. You're a corporate staff officer,
12 is that where you would be as a Corporate Vice President?

13 A In part. The International Division
14 at that time had the responsibility for managing all
15 assets outside the United States. Now, we managed them --
16 and part of the reason I went there was to organize the
17 International Division from a rather loose kind of con-
18 federation that supervised wholly-owned subsidiaries
19 that pretty much paddled their own canoes, and we made
20 then the old domestic divisions, which the organic
21 division was a domestic division, we made them world-
22 wide in scope for product and processes. The inter-
23 national group actually managed those locations on be-
24 half of certain operating divisions and looked after
25 the problems of operating businesses outside the United

1 States where there were different language problems,
2 different currency problems, different legal problems
3 of one kind or the other. Our thrust at that point
4 was Europe. The various heads of the subsidiary com-
5 panies that were outside the United States reported to
6 me at that time.

7 Q Any of those companies involved in
8 the manufacture of herbicides?

9 A No. I believe in that period of time
10 that all herbicides were made in the United States and
11 exported. I think that's right.

12 Q All right. How long were you a Vice
13 President with those duties?

14 A 'Til early '67.

15 Q Then what did they do with you?

16 A I came back to St. Louis and I was
17 made Vice President for Technology.

18 Q And is that corporate -- When I
19 say corporate level --

20 A That's corporate, yeah.

21 Q And what were you responsible for as
22 Vice President for Technology for, I guess, all companies,
23 right?

24 A We have a decentralized system of
25 research and development in the corporation, and each of

1 the operating units has a research function itself.
2 That head, whatever he may be called, reports to the
3 leader of that organization, whatever he may be called.
4 Today they are called General Managers of Technology,
5 and their boss is called Managing Director, but in those
6 days they were Director of and General Manager. That
7 system still works, and so what you do is you have
8 functional oversight responsibilities to see to it that
9 indeed they were hopefully practicing the state of the
10 art as much as possible, that they are aggressive in
11 looking for windows of anticipation and generally trying
12 to see that there is some sort of continuity and con-
13 sistency in the adoption of policies and the like of
14 that. That role as Corporate Vice President for Tech-
15 nology has always included a management role, and what's
16 called the Central Research function, which is a group
17 somewhat in size about that of an operating division
18 but it has to have a home, and that's where it is.
19 And so very briefly, that's the role it has. You're
20 more concerned about policy, you're less concerned about
21 operations.

22 Q The idea that's expressed by windows
23 of anticipation, is that an attitude that you think is
24 a part of Monsanto? Is that something you try and
25 promote in the company?

1 A Yes.

2 Q Even today?

3 A Yes.

4 Q Was John Hanley with your company in
5 1967?

6 A No. He didn't come until late in the
7 year '72.

8 Q Did this idea of windows of antici-
9 pation apply to your Medical Department?

10 A I wouldn't think they would have
11 thought of it that way. I think they would have thought --
12 They would look certainly with favor on products that
13 would be brought to the public, and so long as those
14 products were judged to be safe for people who made
15 them, people who transported them, used them, that would
16 be part of their role to be supportive of efforts to
17 see that that happened. They also blew the whistle
18 once in a while.

19 Q They blew the whistle on PAB, didn't
20 they?

21 A Yeah. That was before there was an EPA.

22 Q Would that be part of a windows of
23 anticipation kind of idea, the fact that the Medical De-
24 partment, maybe there was a product but as they learned
25 more about it they tried to anticipate perhaps a potential

1 risk, and as you say, blew the whistle.

2 A Yeah, that's well said. I think we
3 formalize that even more today.

4 Q Is that part of the Management By
5 Results or reward program that Mr. Hanley --

6 A Oh, I think it preceded him in that
7 sense. The Medical Department today has a different
8 reporting relationship than it did back in those days.

9 Q In these early days what was the
10 Medical Department's reporting responsibility?

11 A They were a freestanding corporate
12 department, as was Law, Patents, Public Relations and
13 the like. They reported usually to an Administrative
14 Vice President for, you know, Housing, Quarters, Pro-
15 motion and the like. It was not until -- I guess it
16 had to be about '75, somewhere along in there, that
17 the Medical Department came under my wing as Vice Presi-
18 dent for Technology.

19 Q Up until that time it was still pretty
20 much a freestanding kind of an operation, as you described
21 it?

22 A Uh huh (yes). I'm not exactly sure
23 about that date, but I think '75 is within a year.

24 Q PAB seems to be a good example,
25 Medical Department blew the whistle on it?

1 A Yes.
2 Q During that period of time -- and
3 they were freestanding at that time?
4 A Yes.
5 Q How did they go about doing that?
6 A Well, I remember when Emmet blew the
7 whistle.

8 Q How did he do that?

9 A Well, I can recall he convened the
10 General Manager of the Organic Division, there were some
11 other people present, and he said, I've studied this
12 PAB problem. He had had some suspicions of it, and I
13 think with the prudence that Emmet used, he tried to
14 collect enough facts so he wasn't making a guess be-
15 cause at that time that was a terribly important product
16 to us. And I do remember he told the General Manager
17 he had to quit. Emmet was satisfied that that was one
18 that we could no longer manufacture and sell, and he
19 told them why. As I recall it, the General Manager
20 was appropriately deflated over it because, you know,
21 obvious, and that was it.

22 Q Do you recall who the General Manager
23 was?

24 A Well, it was either Mr. John Gillis
25 or Charlie Summer. I can't remember precisely. It was

1 in '55. That is a matter of record.

2 Q That was in '55 when this PAE --

3 A As I remember it, yeah.

4 Q In 1955 did Dr. Kelly have the
5 authority to shut a product down? Did he have to get
6 clearance from anybody, or could he ~~made~~ a decision
7 and say, this is it?

8 A Well, I don't know. If there were
9 corporate policies that were so recorded, I don't know.
10 I know in Emmet's own mind he would have had that
11 authority, and that's probably the best answer I could
12 give you. He knew it wasn't right.

13 Q He just kind of assumed that respon-
14 sibility and did it?

15 A Yeah. I suspect he would have been
16 guilty in his own mind had he not done so. As I recall,
17 there was no attempt on the part of senior management
18 to do any more than gnash their teeth at that bad luck.
19 Got to give him a lot of credit for being forthright.
20 I'm sure he could have looked the other way.

21 Q But in those days when it was a free-
22 standing division --

23 A Department.

24 Q Or department, rather. That really
25 was part of his responsibility? I mean, nobody else would

1 have known, would they, about PAB? For example, senior
2 management that could have technically overridden Dr.
3 Kelly had to rely on that department, did they not?

4 A Well, from a legal sense I imagine
5 even today if Mr. Hanley was to decide, I'm not going
6 to listen to you, you could say, could he do it. The
7 answer is he could do it -- couldn't either because EPA
8 exists now and he'd get in trouble with the law on that
9 one. Before EPA I think it's a moral judgment that
10 the guy took on. I think Emmet must have known from
11 Mr. Queeny where he stood on a lot of things. Emmet
12 was our first Medical Director.

13 Q He worked with Edgar Queeny, was it?

14 A Yes. John Queeny died by the time
15 Emmet came aboard. I knew Mr. Queeny myself, and I know --
16 Had he been aware of this, he would have agreed with that
17 decision, and I'm sure he was made aware. He was still
18 alive at that time.

19 Q Do you know of any other times when
20 the whistle was blown on a product or a substance?

21 A At this sitting I can't tell you any
22 other examples, at least, in the same way that the PAB
23 had the whistle blown on it as an article of commerce
24 where we had been manufacturing and selling it widely.
25 I know that Dr. Kelly said no on a good many situations.

1 those things in the '60's and '50's?

2 A No, not particularly. The driving
3 force, if there was a single event that may have been
4 crucial to that, was our experience with a product
5 called Cycle-Safe where the Food and Drug Administra-
6 tion after some seven years of cooperative work with
7 them in the approval process of this beverage container
8 made with a certain plastic, they suddenly changed their
9 tune based on some toxicology data and said, we are
10 going to withdraw that from the market. That's when
11 it became very clear that we were not in control of
12 our own destiny. That was probably the main driving
13 force. There were many other kinds of problems that
14 were occurring to us then. The OSHA Department at that
15 time was coming forward with a proposed generic carcino-
16 gen standard which we thought patently unfair. We
17 weren't very well prepared on that one. There were
18 hosts of problems in regard to the Clean Water Act,
19 the Clean Air Act. The Toxic Substances Act had been
20 in the process of being born and in my role as VP for
21 Technology I had worked with some other chemical people
22 in helping to draft some of the words for that legisla-
23 tion. And so the Toxic Substances Act itself as well
24 as OSHA and Food and Drug probably were more responsible
25 than anything, wrapped off by this Cycle-Safe experience.

1 That's what was really on my mind. As I look back on
2 it, dioxin was then as it is now, more of a myth than
3 a reality. Beyond the actual chloracne observations
4 insofar as I'm aware of the medical evidence bona fide,
5 verifiable evidence on humans, we are dealing with non-
6 factual allegations. And so when you hear a one part
7 per billion level in soil as being an outside danger
8 limit, that's purely a mathematic construct and has
9 no basis in fact, experimental fact. From that point
10 of view I can say we are dealing largely with mythical
11 questions.

12 Q You have learned about the dioxin
13 content since your tenure as Senior Vice President of
14 Environmental Policy of the 2,4,5-T that was manufactured
15 in Nitro, you know your plant has studies that indicated
16 it had as much as 55 parts per million, you're aware
17 of that?

18 A I'm aware there were occasional ex-
19 cursions.

20 Q Is that mythical also?

21 A No, it's not mythical, but from health
22 effects. I think we have to again go back beyond the
23 chloracne question, there are no irreversible effects
24 anyone can measure.

25 Q Let me ask you about the bona fide

1 A No.

2 (Whereupon a short recess was taken,
3 after which the following proceedings were
4 had:)

5 Q (By Mr. Calwell) Before we leave
6 Exhibit 366, we have been talking about the Nitro Task
7 Force. It had its, I suppose, official beginning about
8 June 1st, 1979. Did it have an official end?

9 A No.

10 Q Is it still ongoing?

11 A Yes.

12 Q There were four major issues that
13 were identified that needed to be addressed by the
14 Task Force, according to a number of memoranda. Mr.
15 Throdahl, I'm going to hand you what's been marked
16 Plaintiffs' Exhibit 367 (Monsanto #8323075 through
17 #8323079). 367 is a memo, Mr. Throdahl, addressed to
18 you dated June 25, '79, from Dr. McCarville?

19 A Yes.

20 Q And on page 2 of that exhibit under
21 Roman Numeral II there are four major issues. You
22 testified earlier that if you looked through the various
23 minutes that make up 366, that you would see, you know,
24 certain themes develop through there. Would those themes
25 be directed generally to the four major issues identified

1 on that page of Exhibit 367?

2 A I think that would be reasonable. I
3 haven't gone through that to see.

4 Q In other words, assuming that the Task
5 Force carried out what you had in mind, would that be
6 the four general areas that you expected it to take a
7 look at?

8 A I expect so. I have not tested. It
9 exactly to see whether there were others that may have
10 arisen. I'm sure there probably were, but I can't name
11 them at this sitting.

12 Q Do you know if answers had been made
13 to any of those four issues?

14 A Well, I think things are always open-
15 ended. We are constantly trying to, as I explained in
16 the beginning of why did we form this, we'll never be
17 through with answering these. There are always more
18 allegations that can be made, especially when you're
19 chasing negatives. So we'll probably always be working
20 at these things. I don't say that capriciously. I
21 think as more is known about new test methods, more is
22 known about -- The root cause of all of this is the
23 assumption that a single molecule of a carcinogen causes
24 a cancer in man, even though you give massive doses of
25 a carcinogen or suspected carcinogen to an animal. Now,

1 there is a school of thought that says there are no
2 effect limits and there is a school of thought that says
3 with carcinogen there are no no-effect limits. That's
4 the driving force through all of these things. So
5 we'll always until some time in the far distant future
6 when that's put on rest, then we'll know indeed that
7 some of these things can be put away.

8 Q Do you know if there's been any reports
9 from the committee in response to the four major issues
10 about whether there are any differences between -- In
11 other words, Issue number 2 there.

12 A I think the minutes that you have
13 would constitute the record so far that exists. There's
14 been no formal report that would deal with any one of
15 these explicitly.

16 Q O.K. Are you still in charge of the
17 health force or Nitro Health Study Task Force effort,
18 is that still under your title?

19 A Yes.

20 Q And as far as you know, it's still
21 meeting?

22 A It meets on occasion. It doesn't meet
23 on the regular basis it did when it first started.

24 Q Now, inasmuch as many of the minutes
25 that are contained in Exhibit 366 make reference to the

1 Suskind studies or the mortality study, morbidity study,
2 did you take any part in the planning of those studies?

3 A No.

4 Q For example, the mortality study done
5 by Suskind and Zack or Zack and Gaffey?

6 A No. I would take no part in preparing
7 the protocols, if that's what you mean.

8 Q Right. And would the same be true
9 for the morbidity study of Suskind?

10 A That's right.

11 Q Do you know if the morbidity study
12 is completed?

13 A It's my understanding it's completed
14 and awaiting publication.

15 Q Do you know if Monsanto's received a
16 copy?

17 A I don't think so, because it's still
18 being peer reviewed. Until that's done, we won't know
19 what the final content of the paper is.

20 Q Did you authorize or was it necessary
21 for you to authorize Monsanto's turning over to Dr.
22 Suskind various health records and so forth for the work
23 force at Nitro?

24 A There are people who work with me that
25 have that authority.

1 Q You know that was done?

2 A Yes. I know it now, yes. I knew it
3 after the fact, is that what you mean.

4 Q Is the 1978 DMFH undertaking this study,
5 health records of the work force and particularly the
6 Nitro work force, the same undertaking that Dr. Suskind
7 became involved in in '79?

8 A I don't understand the question.

9 Q In 1978 there was a DMFH health study
10 undertaken.

11 A Yeah.

12 Q Now, was that the same study that Dr.
13 Suskind became involved in in '79?

14 A I don't know the answer to that one.
15 Well, I believe -- I'll have to say I don't know if that's
16 the same or not. I can't believe that it is, but I
17 don't know that. Can you give me any other hint?

18 Q I don't know myself. That's the reason
19 I asked you. I know there was a study undertaken in
20 1978 that's been variously described as the DMFH study
21 and then in 1979 some contract's entered into with
22 Suskind and he began to do a study, and I'm curious if
23 that's one and the same.

24 A Well, the Suskind study, as I recall it,
25 was devoted entirely to the dioxin issue. Now, the Nitro

1 health study would be similar to ones being done at
2 other plants for other reasons by the Department of
3 Medicine, and they are constantly doing studies, par-
4 ticularly in epidemiology --

5 Q Suskind study was exclusively related
6 to dioxin, is that right, to the Nitro Plant?

7 A Yeah, that's my understanding. Now,
8 the Selikoff study was broader than that and it may be
9 that Suskind did do some other things beyond the dioxin
10 issue, but that's a detail that I'd have to go back into
11 the people and refresh myself because as you ask me this
12 question I don't know the specific answer to it.

13 Q And at the time that the Task Force
14 was created and that the Suskind studies which began,
15 I suppose, of great interest to the Task Force, do you
16 know if Monsanto had any knowledge about continuing
17 health problems that the Nitro work force was having
18 as a result of its exposure to dioxin during the '50's
19 and '60's during the 2,4,5-T manufacturing process?

20 A Well, if I understand your question,
21 you're asking did the Task Force know of continuing
22 health problems with dioxin?

23 Q Right.

24 A Well, I think I've answered that. We
25 don't believe there are continuing health problems that

1 have to do with disease or affected by the 1949 runaway
2 reaction and subsequent manufacture of 2,4,5-T, we don't
3 believe that.

4 Q So the Task Force was not in response
5 to any perceived health problem?

6 A Oh, I see. No, the Task Force had a
7 broader implication than that.

8 Q No, let me hand you what has been
9 marked Plaintiff's Exhibit 368 (Monsanto #8326149
10 through #8326160, #8326129 through #8326142).

11 368 is a Monsanto memorandum from
12 Dan Bishop dated March 11, 1969, and it encloses what's
13 entitled, "Agent Orange, What are the Facts, Monsanto
14 Company Perspective," and you're shown as having re-
15 ceived a copy of this memo and its enclosure. The
16 attachment to Exhibit 368 appears to be some kind of
17 position paper, does it not?

18 A Yes. He says it's an official Monsanto
19 position of Agent Orange as of that date. "We intend
20 to make multiphased internal distribution of this in-
21 formation, followed by selected external distribution."

22 Q Do you recall this official document,
23 this position paper, is that something you had to approve
24 or at least have some hand in creating?

25 A Yes. This probably would have passed

1 through a number of hands, particularly our legal counsel,
2 as to its propriety. The public relations aspect of this
3 would be, I'm certain, cleared by someone, probably Dr.
4 Nolan, J. T. Nolan.

5 Q Now, on page 10 of that document, the
6 second paragraph, it relates to the Nitro epidemiology
7 study. Now, is that the Suskind study we have talked
8 about?

9 A I believe it is.

10 Q And as far as you know, the reasons
11 that are set out at the bottom of page 10 and continuing
12 on page 11 for the study accurately represent Monsanto's
13 justification or reasons for doing the study?

14 A We owed our employees, the plant work
15 group. Yeah, as far as we know, the second point, the
16 only group, albeit, HEW was not very impressed with
17 the low number of people. We said that's the largest
18 group we know of in the world that's had surveillance.
19 We felt at this point we didn't know some of the re-
20 ports that are coming back about Seveso. Yeah, I
21 think those three were certainly pertinent reasons for
22 doing it.

23 Q Did Monsanto monitor that group at
24 Nitro over the years beginning when Suskind looked at
25 them to see how they changed?

1 A They have been under periodic exami-
2 nation ever since.

3 Q The people exposed to the 2,4,5-T
4 process and/or the autoclave incident?

5 A Yes.

6 Q And do you know who would have done
7 that? Is that part of an ongoing medical monitoring
8 program for 2,4,5-T exposure, that you know of?

9 A Yeah, that's our Medical Department
10 and Suskind, as indicated here.

11 Q So it's your understanding that
12 Suskind had a hand in this over the years kind of
13 keeping an eye on the situation?

14 A Yes.

15 Q And was he supplied with medical
16 records from time to time over the years?

17 A I don't know that for a fact, but
18 I would presume so.

19 Q It's probably a fairly obvious question,
20 but what was the purpose of that continual monitoring
21 over the years you did for people exposed to 2,4,5-T?

22 A Well, the model of it was the PAB.
23 I think whenever you have something of a chronic nature
24 that you really don't understand all that well, part
25 of the responsibility practices keep going. I'm still

1 a member of the PAB group and probably will be until
2 I die.

3 Q That same principle applies to the
4 2,4,5-T people, is that what you're saying?

5 A Yeah. We monitor lots of things.
6 I guess that's why we've got the close interrelation-
7 ships of industrial hygienists who help to set standards,
8 minimal standards of exposure, the occupational physicians,
9 the epidemiologists and the toxicologists, and they all
10 interact so we can build up a body of knowledge of the
11 people in the workplace. I believe this is just part
12 of a broader pattern.

13 Q All right. Now, if you'll look on
14 page 11 of Exhibit 368, if you would please read that
15 paragraph numbered third to the Jury, please.

16 A "Third, in view of the growing
17 worldwide concern regarding potential human health
18 effects of exposure to dioxin -- fueled by the indus-
19 trial accident in Seveso and more recently the Agent
20 Orange controversy -- we felt the study could provide
21 meaningful medical conclusions to ease the anxieties of
22 those who may have been exposed to dioxin and now fear
23 the worst."

24 Q So from that paragraph, does that
25 mean that you knew that there was really nothing to

1 worry about, was that the position of Monsanto?

2 A We feel that on the basis of the
3 medical evidence that exists there is no chronic
4 problem. That isn't to say that people still aren't
5 feeling the worse because they are being fed this as
6 almost a daily diet in the media. The Seveso accident,
7 of course, had tremendous publicity at the time and
8 now it's beginning to simmer down and the Agent Orange
9 controversy has hotted up with the class action suit
10 that's now being tried in the media rather than in
11 Uniondale. We expect there will be negative results
12 coming out of this. Negative meaning the results we
13 expect. If they turn out otherwise, O.K., we'll take
14 our lumps, but we really feel -- These people who
15 have been exposed in this way unfortunately we're
16 sorry they got the exposure and had the chloracne;
17 but they should constitute a body of evidence that's
18 valid and reasonable and that's why we want to continue
19 it. Have I addressed the response in the spirit you
20 asked the question?

21 Q Yes. Why did you wait thirty years
22 to do this study?

23 A Well, in the way you asked it, we
24 waited thirty years until some -- I think ~~we~~ were
25 constantly following it, but remember at the time that

1 the present suit you're involved in has arisen, there
2 were allegations of impropriety on our part which we
3 didn't feel were valid. The Agent Orange question
4 has come up through the class action suit. This I
5 think had as much prompting from Suskind himself as
6 from us.

7 Q All right. Mr. Throdahl, I'm handing
8 you what's been marked Exhibit 369 (Monsanto #232571
9 through #232574), which is captioned, "Chlorinated Di-
10 benzo Dioxine, a Position Paper for Consideration by
11 M. C. Throdahl," dated June 26, 1979, and it looks
12 as though it was authored by Edward Paget. If you
13 would, please, take a moment and look at that.

14 A Yeah, this is part of the Project
15 Ultratrace.

16 Q Did Project Ultratrace emanate from
17 that job you created for yourself?

18 A Yeah.

19 Q It's captioned, "A Position Paper
20 for Consideration by M. C. Throdahl."

21 A Uh huh (yes).

22 Q I'm not sure I understand, what is
23 a position paper in Monsanto's scheme of things?

24 A Do you know who Dr. Paget is?

25 Q No, I really don't.

1 A Dr. Paget is a rather renowned toxicologist himself, and he had once run -- He was one
2 of the co-discoverers of Tagamet, the ulcer drug.
3 He founded a company he called Ingrares (phonetic).
4 He came to us a few years ago as part of the brain
5 drain in Britain. I had asked him to give kind of a
6 position that he would take having been new to us
7 about searching for trace quantities of dioxins that
8 could be formed as he points out in the opener, where
9 it's possible that an aromatic in the presence of
10 oxygen and halogen or a particular chlorine could
11 conceivably give one of any number of dioxins, and
12 so this was his recommendation to give to me. On
13 the basis of this I think it was more clear we should
14 form, and we did, a small task group, ad hoc, and they
15 studied up processes; and if they were to find any
16 processes that gave traces, then the instructions were
17 to correct the processes so they did not or in the
18 event we could not correct them, we had to figure out
19 which dioxins were they. In order to do this we had
20 to create a facility, which we did at our Dayton
21 laboratories -- Does the term "worldclass" mean anything
22 to you?
23

24 A Worldclass?

25 A Yeah. In this case a worldclass

1 facility, capability for measuring -- These are very
2 difficult to measure. So we wanted to have the
3 facility that was equal to the best in the world.
4 At that point there was probably only two places,
5 one at the University of Nebraska and one at Dow, so
6 we wanted to have that kind of capability so when
7 we said we can't find it, "it" being a dioxin, that
8 means to the best of anyone's ability it doesn't exist,
9 at least, within the limits of that state of the art.
10 We did that.

11 Q That was part of the ultratrace thing?

12 A Yeah.

13 Q Now, if you'll look at the last para-
14 graph on page 1 of 369.

15 A Yes.

16 Q If you would read that, please.

17 A "In the absence of precise knowledge
18 of human susceptibility and in view of the extreme
19 sensitivity of some species, it is obvious that very
20 small amounts of TCDD in the human environment in
21 certain circumstances of intimate exposure or of abuse
22 or misuse or casual worker procedures may (we repeat,
23 may), have significance."

24 Q All right. Now, since this was
25 written in June of 1979, since that time -- and I assume

1 You agreed with that statement in June of '79?

2 A Well, I received the statement. This
3 man is British, this is the British way of writing,
4 and I think I certainly didn't object to it, if that's
5 what you mean. He's saying it's not unconceivable there
6 could be something we haven't seen yet. He's leaving
7 the door open for that.

8 Q Has anything happened between now
9 and then to alter your interpretation of this view, or
10 do you still agree with this or disagree with it?

11 A Well, we are carrying out work either
12 on a continuing basis by supportive work elsewhere in
13 encouragement to various universities that are capable
14 of doing this. We are encouraging the Institute of
15 Toxicology to consider these things. Again, if on
16 the basis that we haven't got this pinned down with
17 absolute ironclad evidence that everybody will accept.
18 This is almost searching for the negative.

19 Q Is Dr. Paget still with you?

20 A Yes.

21 Q He's in the Medical Department?

22 A No.

23 Q What's he do now?

24 A He's now the Director of Scientific
25 and Regulatory Affairs for the new Health Care Division.

1 Q Did this position paper 360 become
2 the position of the company with regard to this project?

3 A Our ability to improve our analytical
4 capability came from this paper.

5 Q I'm handing you what's been marked
6 Exhibit 370 (Monsanto #233610 through #233612), which
7 is a June 5, 1979, memorandum from, again, looks like
8 Dr. Paget, and you're shown as having received a copy
9 of it, I gather.

10 A This is an earlier one than we just
11 looked at.

12 (Whereupon discussion was had off
13 the record.)

14 Q (By Mr. Calwell) Mr. Throdahl, you
15 have had an opportunity to look at Exhibit 370, have
16 you not?

17 A Yes.

18 Q I would ask you to read to the jury,
19 please, that portion of the exhibit on page 1 between
20 what's been marked "A" and "B" under "Some Axioms."

21 A (Refer to exhibit.)

22 Q Thank you. Mr. Throdahl, I'm going
23 to hand you a multipart exhibit which has been marked
24 Exhibit 371 (Monsanto #8305445, #8305446, #8305443,
25 #8305444, #8305441, #8305442, #8305439, #8305440,

1 #8306026, #8306025, #8306023, #8306024, #8306022,
2 #8306021, #8306020, #8306019, #8306018, #8306017),
3 and what they appear to be are progress reports, Or-
4 ganic Chemicals Division, Nitro Research Department,
5 beginning August, 1957, and continuing through Septem-
6 ber, October, November of '57, and then January of
7 '58, March of '58, April of 1958, May of 1958, June
8 of '58, July, August and September of 1958. You're
9 shown as having received copies of these progress
10 reports, and I'd ask you to take a minute and look
11 over those, if you would, please.

12 A O.K.

13 Q Mr. Throckmold, you have had an oppor-
14 tunity to look at these various, we'll just call them
15 progress reports. They began in August of '57 and go
16 through almost monthly through September of 1958. Now,
17 during that period of time you were Director of De-
18 velopment of the Organic Chemicals, were you not?

19 A Uh huh (yes).

20 Q And as I understand it, the distinc-
21 tion was made that if a product was in market, it was
22 out of development?

23 A Uh huh (yes).

24 Q But some products could be both in
25 development and market?

1 A Uh huh (yes).

2 Q Depending on whether or not they
3 needed improvement. On your review of these progress
4 reports does that mean that 2,4,5-T was still in the
5 development stage in this time period?

6 A It doesn't mean anything.

7 Q Can you tell me what it means?

8 A It means that at that time a lot
9 of people were given copies of these things that had
10 virtually nothing to do with it. For example, item
11 number 1, E. W. Gluesenkamp, he was a Research Director
12 at Dayton of what was then the central department.
13 This would be for casual information. Item number 4,
14 J. L. Hammer, who was at that time Director of Mar-
15 keting, and G. F. Pauley, who was somewhere in Mar-
16 keting at that time. J. R. Durland -- and this must
17 be Durland's copy, there's a check mark on it -- but
18 Minckler and Durland had something to do with manu-
19 facturing. Durland may have been the Plant Manager
20 at the time at Nitro. Minckler might have been the
21 Manufacturing Superintendent. I was probably given
22 these as a courtesy. There are others in here, such
23 as Beaver and Healy, who were in St. Louis. I knew
24 all these people, of course. They had no connection
25 with this at all, very much like I have no connection

1 with it. But as a matter of courtesy you were given
2 these things. There are others on here, but I won't
3 go through them. There are probably two or three
4 people on there that really had something to say about
5 this, but besides that I guess you'd look at it today
6 as a management practice, you'd say there's really no
7 need for me to know this, and the fact I was given a
8 copy would suggest no responsibility on my part any
9 more than it would be the responsibility of the men
10 I mentioned.

11 Q My question to you was whether or
12 not these progress reports indicate further develop-
13 ment -- As I understand the distinction between market
14 and development, if you needed to improve a product
15 or whatever, it could be in both areas. My question
16 to you is whether or not these progress reports had
17 to do with further development or perfection of 2,4,5-T
18 as a functional --

19 A That was an article of commerce
20 at that time. So the responsibility for marketing it
21 would have been with the Marketing Department, and
22 that would have been Mr. Hammer and Mr. Pauley. There
23 was a man named M. S. McCauley, and I think he was a
24 Marketing Research man. I really don't know why that
25 list was as encompassing as it really was. Nonetheless,

1 there were a number of people that got copies of this
2 that really had no direct responsibility for it, and
3 frankly, we probably treated it in a very casual way.
4 I, obviously, don't remember ever seeing these sheets.
5 My name is there. I must have at one time. The fact
6 that a man named Baker and, I guess, Hill is on most
7 of these -- Baker witnessed it. Hill did the work.
8 Baker must have been Hill's boss. At any rate, yeah,
9 this is not uncommon that this work would have been
10 carried on to improve -- A lot of this has to do,
11 it seems to me from the language one gets from a cur-
12 sory reading, it has to do with yield. There is one
13 point he mentions health effects somewhere in here,
14 but I think that's the only one. But yield was im-
15 portant and purity was important, so that would be
16 going on, and I suspect -- I know some of the products
17 we are making today we may be in the sixth or seventh
18 process on the product over the years, and that goes
19 on constantly. As a matter of fact, we probably have
20 work going on now to reduce the amounts of hazardous
21 waste produced because of the Weicker laws, and that's
22 just an ongoing thing.

23 Q You understand these progress reports,
24 right? When you read them, you understand them?

25 A Do I understand them now?

1 Q Yes.

2 A Well, you're asking me to absorb a
3 lot in a few minutes. I understand the purpose of them,
4 and they are devoted mostly to yield and then, obvious-
5 ly, would be cost improvements. Quality improvements
6 is in here, but I think beyond that they are dealing
7 with such things as corrosion, they are dealing with
8 ways to acidify things, they can use hydrochloric in-
9 stead of sulfuric which is easier, they speak of cost
10 savings and conversion rates and so on. Without
11 giving them far more study, I think I couldn't answer
12 you much more in detail.

13 Q On the distribution list you see
14 anybody in the Medical Department?

15 A Assuming they are all the same.

16 Q Well, yeah, that's probably an unfair
17 question. For example, the progress report dated
18 August, '57.

19 A Yeah, I'm looking at that now. I
20 don't see anyone here from Medical. Kelly's name is
21 not present and -- No, I don't see anyone from Medical
22 here. That would not be unusual at that time.

23 Q Look at the one marked September, '57,
24 see if you can see anyone from the Medical Department
25 there.

1 A No, I don't see anyone there.

2 Q O.K. If you would, glance through the
3 remaining ones there and see if you see anyone from
4 the Medical Department on any of those.

5 A No.

6 Q All right, sir. Now let me hand
7 you what's been marked Exhibit 372 (Monsanto #8306242
8 and #8306243), and it's a memo dated June 8, 1959, from
9 some fellow named John Harris; and, again, you're shown
10 on here as having received a copy of it.

11 This document 372, which looks like
12 some kind of a memorandum of a meeting held to consider
13 2,4-D and 2,4,5-T brush killers, and it's dated con-
14 temporaneously with those exhibits comprising 371,
15 the progress reports. At this time in '59 you were
16 still Director of Development for the Organic Chemicals
17 Division, were you not?

18 A Uh huh (yes).

19 Q Was that the reason you got this
20 document?

21 A This was a series of derivatives.
22 It's indicated as item 5 on that second page. The
23 formation, and that would be considered probably a new
24 product, at least as I see it now. They are using
25 various esters, and he mentions comparative effectiveness

1 of the isooctyl ester and Dow's and AmChem's pro-
2 prietary esters. Whatever they were I don't know.
3 The isooctyl received a bad reputation, not as effec-
4 tive as the other esters. I don't know why. I think
5 what this man Harris was trying to do here, as best I
6 can understand this one, is that they must have had
7 some kind of a joint responsibility because item 5
8 shows Ag Research-Development, so there must have been
9 a team between Harris and somebody else to find an
10 improvement in brush killing -- They could have had
11 a whole family of these esters used; so from that
12 point of view Harris was part of it. Harris was
13 essentially a Market Research man who dealt with the
14 Organic Development Department at that time, and he
15 did work on this matter of windows of opportunity.
16 The best I can reconstruct what this says, this is
17 what they are about. They have to do something to
18 improve that isooctyl performance in terms of its
19 effectiveness.

20 Q All right. There's 373 (Monsanto
21 #8321750 and #8321751), Mr. Throdahl. Take a minute
22 and review that, if you would.

23 A O.K.

24 Q All right. That's a letter or memo-
25 randum on Monsanto letterhead authored by Dr. McCarville,

1 looks like, dated August 11, '78.

2 A Uh huh (yes).

3 Q And it's addressed to you and also
4 some other gentlemen.

5 A That's correct.

6 Q This predates the somewhat formal
7 formation of the Nitro Task Force, but was this docu-
8 ment a part of your ongoing thought processes to make
9 the decision to go ahead and form the Task Force, is
10 that one of these preliminary kinds of things?

11 A No, I don't think so. I think this
12 was sent -- These people who are involved here are,
13 well, they are VP's at the time.

14 Q Are those fellows that it's addressed
15 to all peers of yours pretty much?

16 A Yeah. These were essentially members
17 of the administrative committee. There were more people
18 in the administrative committee, and I'm not sure why
19 they are not there. At any rate, I think what he's
20 proposing to be done here is to alert a group of people
21 who would be involved in one way or another with the
22 support of this either from a point of view of the
23 propriety of doing it and what have you because you
24 see in the background section on the second page he's
25 saying, well, he's talked this over with Law and there

1 is no requirement to do this and you can get into
2 trouble if you do it, but you run that chance. But
3 he's summarizing that on the last paragraph on the
4 second page. He thinks a voluntary Monsanto-sponsored
5 followup study is consistent with the policy of social
6 responsibility. He's saying Suskind came to us and
7 wants to add those 37 people to bring up to date the
8 long period of monitoring. I think the only hitch here
9 is in the second paragraph under "Recommendations" on
10 the second page. When we actually let the contract
11 with Suskind, he did emerge as being in charge of it.
12 I think it was Bill McCarville's recommendation that
13 he not be, but as it turns out with university rela-
14 tionships of that sort, you have to have the investi-
15 gator be in charge of it, so he was. Suskind has not
16 been noted for his promptness in doing things.

17 Q So the second paragraph you're referring
18 to on page 2, the sentence is, "The study would
19 remain in the overall control of Monsanto. Dr. Suskind,
20 while he may be part of the consulting team, would not
21 be in charge of the effort." That's what you're re-
22 ferring to?

23 A Yes.

24 Q All right. Let's have 373 back.
25 I'll hand you what's been marked 374 (Monsanto #236191 through

1 #236193), and it looks like another memo from Mr.
2 McCarville. I think you're shown as getting a copy
3 rather than being an addressee.

4 A That's true.

5 Q And it encloses a document which
6 looks to be some preparedness questions and answers
7 pertaining to, I guess, some press inquiry or some
8 perceived press inquiry about Agent Orange.

9 A It's what we called a preparedness
10 statement in the event we were going to need it within --
11 The Krummrich Plant's the one over here in East St.
12 Louis.

13 Q Uh huh (yes).

14 A J.K.

15 Q On the second page of the exhibit,
16 which is the first page of those questions and answers,
17 the last paragraph, the bottom of the page.

18 A Yes.

19 Q Well, the question is, "What is
20 Monsanto doing to study workers exposed to 2,4,5-T?"

21 A Uh huh (yes).

22 Q And the proposed answer is, "Although
23 we have had experience with 2,4,5-T and presumably with
24 2,3,7,8-TCDD at Nitro dating back to 1949, we have seen
25 no long-term effects on health other than chloracne."

1 Is this reference there to that period of observation
2 you talked about earlier on the Nitro workers you
3 talked about over the number of years?

4 A The Suskind work, you mean?

5 Q As I understand it, you were talking
6 about observations of this work force in the nature of
7 the model that PAP provided.

8 A Oh, the purpose of it, yeah.

9 Q So it was like an ongoing observation
10 of these men from the time of production and so forth --

11 A Time of exposure.

12 Q Yes. Up until the time Suskind took
13 to do the morbidity study in the late '70's or whatever?

14 A That's right. We have had records
15 on those people all this time.

16 Q And during that period of time you
17 were kind of keeping an eye on those records?

18 A That's right.

19 Q To see if there would be any kind
20 of a development there?

21 A That's right.

22 Q Of any long-term health effects. Do
23 you know what was being looked for specifically?

24 A Well, what would you look for in any
25 one that had been exposed to something once and had a

1 condition of this. If you were a physician, you'd cer-
2 tainly be looking for any long-term health effects
3 that you wouldn't be predicting. You just want to know.

4 Q Do you have any idea what those effects
5 might be and how would you know -- Have you been in-
6 formed to know?

7 A I'm not qualified to judge that,
8 but the physicians would be in taking annual physicals
9 they -- If you had had a childhood disease like nephritis,
10 wouldn't your physician be examining things as you went
11 to him annually to see whether that nephritis was carry-
12 ing over into other effects he couldn't predict. This
13 is the way you build up a volume of information.

14 Q So that's your understanding of
15 the kinds of things being done at Nitro?

16 A Sure.

17 Q Since you began having that exposure
18 problem there in '49?

19 A Sure.

20 Q So it's your understanding that the
21 physicians such as they were would have taken that into
22 account?

23 A Sure.

24 Q If you wanted to know the particulars
25 of that, you'd ask Dr. Roush?

1 A Yeah, you ought to ask Koush about
2 that.

3 Q Now, is it your understanding that
4 that kind of information was to be a part of this,
5 we talked earlier about this 1978 DMH undertaking?

6 A Uh huh (yes).

7 Q Was that part of the plan there to
8 incorporate this long period of observation that you
9 had into that data base?

10 A Have you heard of the term "MEHI"?

11 Q Yes.

12 A In essence, that's what MEHI's about.
13 We are hopeful when we get all the records in place --
14 that will be some time yet -- we will be able to
15 answer in a matter of minutes things of this sort.

16 Q Was Nitro -- I understand you had to
17 put that in some kind of priority order?

18 A Nitro's high on the list.

19 Q And that was a retrospective kind of
20 thing inasmuch as you wanted to go back with as many
21 records as you had as far as you could go?

22 A We tried to do that recognizing that
23 always these records are not kept in the shape -- Well,
24 any record you wish that you knew then what you know
25 now, so with that thought in mind, but we are trying to

1 go back as much as possible.

2 Q Do you know the nature of that effort
3 in reference to the Nitro Plant with regard to the MEHI
4 undertaking?

5 A I can't answer that off the top of
6 my head. Again, Roush would be able to do that. The
7 big plants and the plants handling the largest variety
8 of chemicals are obviously the highest on the list.
9 I couldn't testify to this, but I would think Nitro
10 has to be among the most important ones for a number
11 of reasons.

12 Q Now, you said something earlier,
13 Mr. Throckmole, in response to questions about Exhibit
14 366, which was the Nitro Task Force exhibit.

15 A Uh huh (yes).

16 Q Part of the thing that got you going
17 on this were the media implications of what you were
18 receiving as you kind of monitored the situation sur-
19 rounding dioxin and the veterans' suit and all that,
20 and you made the comment that you thought the problems
21 were behind you but it looked like with this resurgence
22 that you were going to have to form this task force.
23 What problems did you have in mind, what were those
24 problems that you thought were behind you?

25 A I thought I responded to that. The

1 concern about dioxins has been increasing over time
2 and not decreasing. When I said I thought we had
3 some of those problems behind us, the epidemiology
4 records that we had and the evidence that chloracne
5 was the only measurable harm that we could authenticate,
6 but nonetheless, the fact that that was coming up, the
7 Agent Orange suit was going to be a part of this, this
8 suit that you're involved in; and we really felt that
9 these things were coming in such proliferation that
10 in order for us to do an appropriate job of informing
11 plant workers, management, the public, we had to have
12 a coordinated basis, and certainly part of this co-
13 ordination was to keep reexamining what were new states
14 of the art in terms of tests, in terms of other things
15 we might think of doing that we hadn't thought of before.
16 As I said, I believe I said it, this will probably be
17 ongoing until all of this is really put on rest, and
18 I don't know when that would be. But that was the
19 genesis of this. As you can imagine, if we have --
20 Let's say that a reporter would ask the plant manager
21 at the Nitro operation for a statement. Well, if he
22 makes a statement and it isn't coordinated with our
23 particular policies, our guidelines, other actions,
24 he could well put both feet in his mouth unintentionally.
25 We have to have some way to coordinate this. We certainly

1 are concerned, we don't want to tell the public, tell
2 the media something we aren't going to share with the
3 regulatory authorities. That's one of our biggest
4 problems. See that we don't get out of phase on this.
5 That's a big job, and we take that pretty seriously.

6 Q I think what I was referring to, you
7 said when this started, this area started to bother you,
8 you mentioned Agent Orange and dioxins and all.

9 A Sure.

10 Q You felt that the problems at Nitro
11 were behind you. Were there specific problems you had
12 in mind other than the problems of communicating with
13 the media and all that?

14 A Gee, I don't know how else to answer
15 you. Let me ask you guys.

16 MR. BISTLINE: If you want to have
17 an off-the-record discussion, we can, we
18 can retire if you want to do that.

19 Q (By Mr. Calwell) Maybe I can rephrase
20 the question. I think what I'm getting at, Mr. Throdahl,
21 is aside from the obvious problems created for your
22 company by an increasing interest in dioxin and, as
23 you said, the Agent Orange suit and all that, were
24 there historical problems at the Nitro Plant you had
25 reference to?

1 A No. Quite frankly, the PAB question
2 has come up again with that suit and we thought that
3 was behind us. We published everything we knew about
4 it. We had the surveillance program going for all
5 the folks exposed. All that's been made a matter of
6 record, and now comes a class action suit against us.
7 And so that's a problem we thought ~~was~~ behind us.
8 Remember, your allegations were twenty-some-odd products,
9 fifty-some-odd processes and God knows, thirty-five,
10 forty years. Well, that's enough to say to you, my
11 goodness, we better go over everything else we thought
12 we had in place and try once more. So with all these
13 things taking place, and you compound this with Agent
14 Orange coming along of which we are one of several
15 defendants, it occurs we certainly ought to redouble
16 our efforts to make sure what we are doing, first
17 of all, is honest and, secondly, is the state of the
18 art insofar as we can make it and that it's prompt.
19 Then the matter of what do we say to the people on
20 the outside has got to be coordinated for reasons
21 I'm sure are understandable to you. Beyond that I
22 think I really tried to say it in here -- I could
23 probably do it better if I had known you and I were
24 going to meet this way. "Make certain all appropriate
25 resources within or outside the corporation are being

1 applied to resolve the many interrelated and difficult
2 situations surrounding the Nitro Health Study involving
3 trichlorophenol." No question.

4 Q Did you think the chloracne problem
5 was behind you?

6 A From the point of view of long-term
7 chronic effects, other long-term chronic effects, I
8 personally thought it was behind us.

9 Q Chloracne was viewed as a long-term
10 chronic effect?

11 A It certainly lasted for a long time
12 with some of the folks, but it was reversible. We
13 are trying to see are there irreversible reactions,
14 and we found that. The immunological work and mortality
15 work of Suskind and Zack and Gaffey indicated on the
16 basis of that cohort study, they can find no statis-
17 tically significant differences in the death rates
18 due to any other so-called chronic diseases. We
19 thought that part had been reasonably well established.

20 Q And was behind you at the time you
21 had to get this thing underway, the Nitro Task Force,
22 Exhibit 366?

23 A Well, up until that time, yeah,
24 Youriffle through here and see what they brought up.
25 They brought up things that generally bore on those

1 four points we were making. That whole atmosphere --
2 I think there's no question we were getting messages
3 from responsible folks in the plants that indeed
4 what we thought was in pretty good shape probably wasn't.

5 Q What do you mean by that?

6 A We do this all the time with all kinds
7 of things. We are trying to anticipate and prevent
8 something from happening. If you're looking for another
9 reason, I can't give you any other reason. You tell me
10 what I'm missing. Maybe that will help.

11 Q I don't know. You tell me.

12 A I rest.

13 MR. CALWELL: O.K. Thank you, Mr.
14 Throdahl.

15
16
17

Monte C. Throdahl

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 19th day
9 of July, 1983, at the Radisson Hotel, Room 215,
10 9th Street and Convention Plaza, St. Louis, Missouri,
11 MONTE C. THRODAHL, who was by me duly sworn to
12 testify to the truth and nothing but the truth of
13 his knowledge touching and concerning the matters
14 in controversy in this case; that he was thereupon
15 carefully examined upon oath, and his examination
16 reduced to writing under my supervision; that the
17 deposition is a true record of the testimony given
18 by the witness; and signature of the witness was not
19 waived.

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

1 Q Line, layer development?

2 A Early research, early development phases.

3 Q It was common for him to say, we are

4 not going to do this or you find a better way to do it?

5 A That's right.

6 Q The development stage, then, is a

7 fairly important stage in determining the risks of a

8 product or risks associated with a product, is it not?

9 A It's that phase that you certainly

10 are gathering information that would hopefully lead to

11 understanding more about the chronic nature of any

12 possible harm.

13 Q All right. You're Vice President of

14 Technology in 1967, it's a corporate position. How long

15 did they let you stay there?

16 A Until July of '77. Then I assumed

17 my present job.

18 Q Which is?

19 A I'm Senior Vice President for the

20 Environmental Policy.

21 Q Is that a relatively new function,

22 environmental policy?

23 A (Nods head affirmatively.)

24 Q When did that come about?

25 A July of 1977. I'm afraid I created it

1 for myself. If I had been smart, I would have said
2 nothing. As it turned out, you can guess the rest of
3 it if you do any reading, but in the early '70's it
4 became clear that, to me at least, that we had to in-
5 stitutionalize some of our efforts, a lot of them. I
6 made the mistake of suggesting to Hanley once too often,
7 I guess, that we had to do something about it because
8 we were reacting to problems instead of anticipating
9 them. He said, what do you think we should do. I
10 developed a small group to study it for a couple of
11 months, what we would do. In July of that year I made
12 a presentation to the administrative committee and it
13 was accepted, and I was assigned the task of organizing
14 it, putting it together. We have been at this business
15 since that time.

16 Q And this Environmental Policy Committee,
17 I suppose, would be in keeping with the spirit of your
18 windows of anticipation way of expressing?

19 A Yeah, we use that a lot now.

20 Q Now, what is your basic responsibility
21 as Senior Vice President of Environmental Policy?

22 A Well, as the name implies, it's my
23 role to establish both policy and guidelines, to have
24 the corporation act in a socially responsible manner in
25 terms of compliance with existing law. It's also our

1 role to deal with the regulatory aspects of the law and
2 interpret those regulatory aspects for the operational
3 people so that indeed they can comply in the most cost
4 effective way. It's also my responsibility to have
5 folks work with various congressional subcommittees
6 when the authorization of the laws come up to offer
7 opinions, technically from a practical point of view
8 on how the law could be done more effectively. We also
9 carry out all of the medically related work. Now the
10 Department of Medicine is called Department of Medicine
11 and Environmental Health, and it's responsible under
12 my general supervision for all occupational medicine,
13 industrial hygiene, epidemiology, toxicology. And
14 so under one head, Dr. George Koush, we have in place
15 an organization now that can integrate all of the re-
16 sources in order to come up with, you might say, resolu-
17 tion of problems that may exist and prevention of ones
18 before they do become problems. We also do some other
19 things which you might suspect. We are trying here to
20 become the spokesman for the corporation on a national,
21 international basis on matters of the environment. We
22 do this on a worldwide basis, incidentally, in terms of
23 policy. All of our Monsanto-owned affiliates around
24 the world will operate with the law of the land on en-
25 vironmental and health issues or on Monsanto rules,

1 whichever are the more stringent, and that is a policy
2 we hold to with great respect. We also, then, are the
3 focal point for problem resolution, although, it's our
4 purpose and we have been working diligently for the
5 last six years, is to infuse the operation of environ-
6 mental safety into the operating units as much as possible.
7 We have some 1300 professionals within environmental
8 efforts throughout the corporation which I look over
9 on an oversight basis through an environmental network.
10 We have an Environmental Policy Committee, which is
11 essentially half of the administrative committee,
12 the most senior people in the corporation who share
13 with me the judgment and the evaluation of how well
14 we are doing these things.

15 Q Now, this organization that resulted
16 in the DMEH, was that created also on or after July 1st,
17 1977?

18 A DMEH was modified in about '75 to
19 include -- It had aboard with it industrial hygiene
20 and occupational medicine. I believe it had one toxic-
21 ologist or maybe two at that time, and in '74 as Vice
22 President for Technology I had had a team study and
23 made a decision to build our own toxicology facilities.
24 That went on before we created the policy staff. So
25 when we created the policy staff, then we decided to

1 strengthen epidemiology materially, strengthen toxicology very materially and we have beefed up our
2 occupational medicine very materially. So really
3 the modern DMEH as our acronym calls for, that really
4 should begin somewhere in the early '77 period.
5

6 Q Now, during the time the Medical
7 Department was a freestanding, was there a corporate
8 level vice president or some such person that it was
9 answerable to?

10 A Yes.

11 Q Would it have had a name?

12 A Well, they were called different things,
13 but Vice President of Administration was one thing given
14 to those people.

15 Q Would that have been true in the
16 1950's, for example?

17 A Yes, but I couldn't remember who that
18 might be.

19 Q But it would have been like, say, a
20 Vice President of Administration that would have done that?

21 A Yes.

22 Q And if a whistle was blown, it would
23 be that person who in the organizational scheme of things
24 would have been reported to, "I'm going to blow the
25 whistle on this"?

1 A He probably would have known it.
2 I would imagine at the time -- this is just a guess --
3 I would think in '55 Emmet Kelly must have reported
4 to the President because we were much smaller in those
5 days. That was sort of a theme of freestanding corpo-
6 rate departments. They were to assist corporate manage-
7 ment in doing the staff work necessary to make those
8 decisions.

9 Q And material problems, such as blow-
10 ing the whistle on something already in commerce, would
11 be something that would have found its way, I guess, to
12 the Vice President or the President?

13 A Oh, the President would have been
14 involved in that for sure.

15 Q And has that kind of a corporate
16 organization been characteristic of Monsanto? I know
17 Mr. Harbison told me under the Management By Rewards
18 Program lower level management people are expected to
19 handle problems until they can't and it's passed up
20 and so on until things he called material problems
21 would reach the highest levels. Has that been kind of
22 a true management attitude?

23 A Yeah. Each kind of management has got
24 an authorized list of what he's accountable for and
25 what money he can spend, decisions he can make and the

1 like of that. It's also part of our culture that there
2 is a certain amount of collegueality that still prevails.
3 So you don't do any of these things in a vacuum. But
4 Earl's given you in essence. I would think that any-
5 thing that has to do with what we are discussing this
6 morning in today's terms, I got to tell you I make it
7 my business to see Mr. Hanley knows pretty much these
8 things going on, particularly what will result in public
9 release of information through the media. It's nice
10 not to get him blindsided. Of course, as time has gone
11 on, this kind of issue has taken on a different dimen-
12 sion than it did thirty and forty years ago.

13 (Whereupon a short recess was taken,
14 after which the following proceedings were
15 had:)

16 Q (By Mr. Calwell) Mr. Throdahl, I'm
17 now handing you what's been marked Plaintiffs' Exhibit
18 366 (Monsanto #8322918, #8326238, #8323145, #8323146,
19 #8323203 through #8323205, #8323234, #8323235, #8323245
20 through #8323243, #236205 through #236208, #236212
21 through #236215, #8323313 through #8323315, #832318
22 through #832320, #8323334 through #8323336, #8323340
23 through #8323342, #8323370 through #8323372, #8323392
24 Through #8323394, #236245, #236246, #236249 through
25 #236252, #8323748 through #8323751, #8323831, #8323832,

1 Harbison is, and Lee Miller was a General Manager that
2 worked for Harbison at that time. What I was trying
3 to do here was to deal with a number of events that
4 were occurring, some of them that had media conse-
5 quences and that I felt was simply going to be necessary
6 for us to have the appropriate attention given so that
7 we could pull together an appropriate resourcing of
8 both human resources and money to either correct alle-
9 gations that were not correct or to continue to work
10 at problems which, I guess, in an earlier time we might
11 have thought were behind us. Dixie was hotting up.
12 Remember, by that time Yonokone had been active and
13 the Agent Orange suit, and Agent Orange was, and dixie,
14 was really kind of a, I guess, a focal point around
15 which a lot of this was put together. But at Nitro
16 we had a number of problems of this kind, and I just
17 felt that we had to have someone to focus the effort
18 because I was going to be the grand masteral key myself
19 that was going to try to assure myself from a corporate
20 point of view we were doing what we should be doing
21 and communicating what we were doing so that indeed
22 the Nitro Plant was to be seen by our workers at Nitro,
23 by our workers elsewhere, by the public insofar as we
24 can persuade them, that Nitro was a safe place in which
25 to work, that we were giving due attention to the new

1 issues that were constantly arising on a daily basis. And
2 so with that rather broad response to your question,
3 that's why it was put together. You look at the sub-
4 ject matter and they go along week in and week out,
5 you can see that there is an attempt here -- It may
6 seem to be disjointed -- but there are themes that run
7 through it. I guess you have been involved in this
8 long enough to know that environmental problems are
9 going to probably never go away so long as our society
10 is in the mood that it's in now and that there will
11 always be new things to know about what you thought
12 was, quote, safe. We are in the uncomfortable posi-
13 tion in all of these things of having to prove negatives.
14 I don't know what your legal training was beyond the
15 law, but proving a negative is something that you never
16 reach, and we are always trying for it. I'll be glad
17 to go into more detail in these things if you like.
18 Our whole attempt here was to simply assure myself and
19 then for me to assure my colleagues on the policy
20 committee and my colleagues on the Board of Directors
21 that indeed we were doing our level best to correct
22 problems that needed it and to prevent problems if we
23 could anticipate them.

24 Q Whose decision was it to create the
25 task force?

1 A I think.

2 Q And it was at your suggestion at the
3 very beginning that this be done, is that right?

4 A Yes.

5 Q And did you have to get clearance
6 from anybody else to embark on this, or was this clearly
7 within your realm of authority?

8 A No. I have that authority. I think.
9 I took it.

10 Q In the first paragraph --

11 A You're looking at the top one?

12 Q Yes, sir. On page 1. You observe
13 that you have asked Drs. McCarville and Callis to lead
14 this group.

15 A Yes.

16 Q And I quote, to think through and
17 formalize a strategy and a plan that will make certain
18 all appropriate resources within or outside the corpora-
19 tion are being applied to resolve the many interrelated
20 and difficult situations surrounding the Nitro Health
21 Study involving trichlorophenol.

22 A Uh huh (yes).

23 Q Now, have you told me in your general
24 statement what the interrelated and difficult situations
25 were that you were concerned with?

1 A You say have I told you?

2 Q Yeah.

3 A Well, I think if you go through the
4 thread of what I've said, yes.

5 Q Is there anything else you want to add
6 to that?

7 A Around this time Irving Selikoff was
8 asked by one of the Unions, I don't remember which one
9 now, but one of the Unions to make a health study at
10 Nitro. We likewise were going to have Dr. Suskind
11 do similarly. The timing of this is now not clear in
12 my mind. I don't know whether I did this before Selikoff
13 performed his work or after, but it's awfully
14 close, somewhere in there. As I remember it, the
15 Selikoff people, Dr. Moses in particular, came to the
16 Nitro Plant some time around that summer and did some
17 of that study, and attendant with that was an awful
18 lot of misinformation, was an awful lot of information
19 which was misinterpreted and, I suppose, some of it
20 was valid; but at any rate, we knew whatever we did
21 that we thought was within our purview of social res-
22 sponsibility was going to be misunderstood by the media,
23 and it was, all sorts of media, local, regional, so on.

24 Q Where did you get your motivation
25 to create this task force? Just from the media or was

1 there any other?

2 A No, no. I'm not sure what the exact
3 event was that triggered it, I honestly can't remember.
4 I think ~~the~~ way, I watch a lot and when things start
5 repeating themselves -- I have a quiet time before you
6 get up, probably, that I ponder about a lot of these
7 things, and that's when I do a lot of this. There was
8 a series of things to come together, and I guess I
9 said to myself, well, I've got to have some specific
10 attention on this one because our standard organiza-
11 tions aren't doing it. We had our fellow that looks
12 after environmental law and there's a fellow that --
13 Well, there's a public relations man, a guy named
14 Holzapfel, who at that time was the Manufacturing
15 Superintendent, we had a man named Jessee who was our
16 specialist on hazardous waste, McCarville is my surro-
17 gate, he's kind of like an advance scout. He pokes
18 around anywhere and when he sees something begin to
19 repeat itself, he says, gee, this is something we
20 better put our attention on. It's that anticipation,
21 as much as possible. No matter what we did or how well
22 we organized, we couldn't anticipate everything. In
23 fact, I wouldn't be prudent to try to do it. Anyway,
24 I can't tell you exactly, but there were a series of
25 events that pointed to me I needed some help. I got

1 some more things going in other areas now, but only for
2 the purpose of trying to do a better job.

3 Q This June 1st, 1979, memo, which is
4 the first page of Exhibit 366, was this sort of the
5 first formal memo to get this thing kicked off and rolling?

6 A To my recollection it is. I know I
7 discussed this with other people beforehand, but the
8 fact that I wrote to the Managing Director, Harbison,
9 is my way of saying, Earl, I can't order you to agree
10 to this but these are my intentions. As I recall,
11 Earl was very supportive of it. I don't know that he
12 would recall having seen this, but that's been the whole
13 substance of it.

14 Q During your hours of contemplation
15 in the early morning did you hearken back to the early
16 days at Nitro as you thought about this problem?

17 A No, probably not. I've thought about
18 that myself. You know, it's like a chapter in a book
19 that's been closed. I remember living there, working
20 there, and when I go back it's sort of like Brideshead
21 Revisited, I remember something about it but I don't
22 really attach myself to it much any more.

23 Q Is this vehicle that you created called,
24 it became known as the Nitro Task Force or Health Study
25 Task Force?

1 A Probably.

2 Q Did you refresh your recollection about
3 the occurrences at Nitro?

4 A No. I think we had so many problems
5 that were of the contemporary style that that was
6 sufficient. It comes to pass as time has gone on. I've
7 been reminded of events that occurred, some of which
8 happened while I was there.

9 Q You were there in Nitro in 1949 when,
10 as we understand it, some kind of a pressure vessel ex-
11 perience a runaway chemical reaction that ultimately
12 liberated products of unknown decomposition and caused
13 some considerable damage to the vessel and spewed a
14 substance over an area. Do you recall that incident?

15 A Yeah, I recall that it happened.

16 Q You were working in the rubber lab
17 at the time?

18 A Uh huh (yes).

19 Q Following that explosion there de-
20 veloped a number of complaints by the men who were
21 either directly involved or associated with the ex-
22 plosion or subsequently involved in the cleanup of the
23 materials that were liberated. Do you recall that?

24 A I recall a cleanup occurred, but there
25 was some, as I remember it, there was some time lapse

1 between the cleanup and what later became known as
2 chloracne.

3 Q And you saw chloracne on people while
4 you were there?

5 A Oh, yes.

6 Q You remember that?

7 A Yes.

8 Q You also remember that there was
9 chloracne associated with the 2,4,5-T manufacturing
10 process itself separate and apart from the failure of
11 the pressure vessel in 1949?

12 A That's a specific. I don't know
13 whether you can separate those two. I don't think the
14 esterification step, that doesn't yield what now is
15 known as dioxin.

16 Q Maybe you misunderstood. There were
17 people who worked in the 2,4,5-T process who were not
18 present at the time of the explosion and did not take
19 part in the cleanup of the '49 incident.

20 A I see.

21 Q So were you aware that those folks
22 also developed chloracne?

23 A No, no. That's more specific than my
24 memory would permit.

25 Q Do you remember what complaints, if any,

1 these men with chloroform made at the time?

2 A I think the immediate reaction was
3 how to get some treatment, you know, to reduce the
4 visual effects and the discomfort of the chloroform.
5 But I do not remember any of the confrontations that
6 may have occurred or may not have occurred, I really
7 don't.

8 Q Did you later learn about those things?

9 A Yeah, indirectly. Many, many years
10 later.

11 Q In what context did you learn about
12 those things? Where were you, how did it come up?

13 A This is all very fuzzy to me. I
14 really can't say. I think a lot of it, and I'm not
15 being evasive here, I think a lot of it has come to
16 be in the last three or four years where this has been
17 regurgitated on a basis of hearsay or other people
18 telling about. So, again, while I was there, it's
19 incredible, but I do not remember any of those events.
20 I do remember that the medical people, I suppose it
21 was Kelly, contacted Dr. Suskind who was an expert in,
22 I guess, he called himself a dermatologist at the time
23 but I think of a dermatologist as being somebody that
24 looks after more cosmetic effects, but I know he was
25 called in to give treatment. There was somebody else,

1 but I don't remember the name of the person at all
2 that was involved. I think this was done as a very
3 responsible means, very much like, as I recall, Kelly
4 did when the PAB thing became suspect. I was part of
5 that program with PAB and still am. So I guess I took
6 that in stride and said, well, O.K., something has
7 happened, they are getting the specialists in to help.
8 But beyond that I don't have any recollection.

9 Q Did you have any recollection of
10 studies regarding the Mellin Institute?

11 A You mean the Pittsburgh Mellin?

12 Q Yeah.

13 A You mean that Monsanto sponsored?

14 Q At the time you were at Monsanto
15 in the early '50's.

16 A No.

17 Q Did you ever see Dr. Suskind at the
18 Nitro Plant in the early '50's when you were there?

19 A No. I didn't meet him until much,
20 much later.

21 Q Do you know if Dr. Kelly came to the
22 Nitro Plant about this time of the explosion?

23 A I do not recall specific meetings
24 I might have been present with Kelly, but I would have
25 assumed he'd come. I don't recall any such incident

1 personally.

2 Q Do you know if any changes were made
3 in the 2,4,5-T process following the '49 failure?

4 A Well, as an afterfact, I have been
5 told that there were changes made. I believe they
6 selected a different vessel, but, again, this is long
7 after the fact. I was not aware of it at the time.

8 Q Now, when you first went to Nitro
9 in 1949, you were in the Analytical --

10 A '41.

11 Q I'm sorry. I keep looking at '41
12 and say '49. Then in '42 you went to the rubber
13 laboratory?

14 A Uh huh (yes).

15 Q And in '45 you became a group leader?

16 A Uh huh (yes).

17 Q Now, during this period of time when
18 you were, I guess, through 1950, '51, when you were
19 fairly well intimately associated with laboratory work,
20 do you recall when the 2,4,5-T unit was started at the
21 plant in Nitro?

22 A Well, there was some pilot plant work
23 done earlier than '49.

24 Q The pilot was one of the laboratories?

25 A No. It was actually a small scale

1 plant with small scale plant equipment. It is unlike a
2 lab that would be devoted largely to glassware and so
3 on. I know that occurred in the pilot plant back in '48.
4 It may have been even earlier than '48, I don't remember
5 that, but I think it was 1949 that the production began
6 in the plant that had the ruptured disk.

7 Q Now, in terms of what developed to be
8 the Development Department that we talked about earlier,
9 in 1949 would this herbicide 2,4,5-T have been a product
10 that was in the development stage as opposed to the
11 market stage?

12 A I don't know. You see, that would
13 have been controlled out of the St. Louis operation,
14 and I don't know when we began -- well, it may have
15 been, it may not. I just can't say. See, 2,4,5-T
16 was a known chemical, and when Monsanto made its first
17 beginnings at pesticides, I know they made DDT for a
18 while and they probably acquired that process from some-
19 body; and I suppose they did the same thing for 2,4,5-T,
20 but that goes beyond my direct recollection. I just
21 don't know who had the responsibility for it in '48, '49.

22 Q And in '48 or '49, would that respon-
23 sibility have been under the Director of Research in
24 terms of bringing this product along?

25 A Yes.

1 Q And when you became Assistant Director
2 of Research in, when was it, 1950, '51?

3 A Yeah.

4 Q Were you aware of any work in con-
5 nection with the 2,4,5-T process at Nitro?

6 A I'm sure I was aware it was going on.
7 You could not be, the place was that small. But I
8 could be aware of something and not be directly con-
9 cerned with its progress or whatever. Yeah, I must
10 have been aware of it.

11 Q If there were any problems with the
12 process, even if you were copied with memoranda that
13 may show that you were aware of them, wouldn't it
14 have been your job to take any action with reference
15 to 2,4,5-T?

16 A Not unless I might have had some
17 special knowledge of it. We used to have a number of
18 meetings of small groups, and I'm certain that I sat
19 in on some of those, but remember that if you relate
20 this to a runaway reaction, we made a product called
21 mercaptobenzothiazole which was made under pressure
22 conditions.

23 Q You call that MBT?

24 A Yeah. And anything that's made under
25 really difficult conditions, whether it's pressure, high

1 temperature or whatever, you're conscious of the fact
2 that these things are crucial and critical, so you're
3 aware of them but they are being handled. We were
4 handling carbon disulfide, which is a very inflammable
5 material. That was part of that pressure reaction.
6 So, yeah, you're aware of them but you don't pay that
7 much attention, and people are talking about problems
8 of that sort constantly. It's part of the day-to-day
9 conversation.

10 Q And were there discussions about the
11 chloracne outbreak in that context?

12 A No, not that I'm aware of; although,
13 I know that one or two of my very close supervisory
14 friends were involved in the cleanup, and one of them
15 had some serious facial contamination which he lived
16 with. I saw that through his experience.

17 Q On the carbon disulfide, do you recall
18 what information was available for the people who would
19 have been working with this at that time as to the dangers
20 of working with it, whether it's hazardous or toxic or
21 anything like that?

22 A Well, in all these processes there are
23 production manuals, and the production manual, if you've
24 seen one, is a, I guess you'd call it, a fancy recipe
25 book in which it gives you very explicit instructions on

1 how to load the reactors with various reactants, under
2 what conditions, under what safety procedures and so
3 on and on, and it gives you that in great depth, and
4 people are trained along that line in the early stages
5 of a process. Start up the process chemist from a
6 laboratory, they are part of that startup themselves,
7 they trained operators on all the processes. This
8 is just common practice. So, yeah, you're taught how
9 to handle flammables like carbon disulfide in that
10 way. It starts with the process manual, it starts
11 with people being trained and retrained and retrained
12 and retrained. It's just ongoing. We are very con-
13 scious of making certain that people follow safe
14 practices insofar as they possibly can.

15 Q Do you know if people at Nitro during
16 the time you were there were advised as to any suspected
17 or real long-term health effects from repeated exposure
18 to carbon disulfide?

19 A I can't recall that as an explicit
20 answer to your question. I just would assume so because
21 carbon disulfide has a bad effect of knocking you out
22 if you walk through an atmosphere of it, so does hydro-
23 gen sulfide. We use both of them there. —

24 Q And if there was to be any advice to
25 the workers about repeated long-term, you know, health

1 effects, long-term health effects from repeated exposure
2 to carbon disulfide, it would appear in the production
3 manual?

4 A Yeah, but in the case of your explicit
5 question, carbon disulfide reacts on you instantly, so
6 there are no long-term effects.

7 Q Even at low levels of exposure, is
8 that your understanding?

9 A Yeah. I don't know what those levels
10 are quantitatively.

11 Q Your understanding of the toxicity
12 of it is if you get in it, it knocks you out immediate-
13 ly and that's that?

14 A Uh huh (yes).

15 Q And what about persons who were
16 knocked out more than one time by it, is there any
17 accumulative effect of that, as far as you know?

18 A Not to my knowledge.

19 Q And if there were, if Monsanto knew
20 that there were, that kind of advice would appear in
21 the production manual, is that right?

22 A Yeah, but now -- I'm trying to answer
23 your question fairly. I would think that somebody that
24 had been involved accidentally once, it would be unusual
25 for them to be involved in it any more than once.

1 Q And why would that be an unusus'
2 occurrence?

3 A Well, I've never been knocked out by
4 it, but working with it in the laboratory you sometimes
5 get something. It's part of your own protective sen-
6 sibilities. So you can write these things in manuals
7 about safe handling and you can teach people how to
8 do this, but we still kill people in automobiles on
9 the same basis. It's the same kind of thing.

10 Q Did Monsanto have a policy at this
11 time when you were at Nitro not to reexpose someone
12 who had been exposed to a level of carbon disulfide
13 that would perhaps knock them out?

14 A Oh, I don't think that's a right
15 question. Do we have a policy not -- I think we have
16 a policy of safe practices. It would be hard for me
17 to say yes or no to that one.

18 Q You have no plan where persons are
19 known to have been exposed to, for example, carbon di-
20 sulfide or a substance in the workplaces that causes a
21 dermatitis or a chloracne, to remove them from further
22 exposure to those substances, is that not one of your
23 practices?

24 A Well, now you're getting into the
25 deportment area, it seems to me. I don't quite know how

1 to answer your question, really. Do we have a policy
2 that if someone is exposed once that he's forever for-
3 bidden to go back again.

4 Q I'm asking you if he's removed from
5 further exposure.

6 A As I interpret your question, you're
7 saying if he's exposed once to anything, he's ~~immediately~~
8 removed and never permitted back there?

9 Q Or if he's permitted back, under some
10 kind of a monitoring program or under a medical obser-
11 vation program. That's a principle of industrial hy-
12 giene, is it not?

13 A Oh, sure.

14 Q Was that the practice at Nitro when
15 you were there?

16 A Well, I guess your question is not
17 clear to me as to what you're really asking me. Sorry
18 to be thick about it, but I don't really understand you.

19 Q Well, if you had an outbreak of chlor-
20 acne at the Nitro Plant and it was associated with a
21 product, did you have any plan to not reexpose those
22 workers or at least if they were reexposed to place them
23 under a monitoring plan? Did you ~~take~~ any action like
24 that?

25 A I honestly don't know the answer of how

1 that was handled because now you're talking about time
2 that's passed. If you use carbon disulfide, that's
3 instant and you can determine cause and effect; and
4 I think that's got to be the response to your question,
5 is there a definite causation established, and if there
6 is, I would believe it ought to be the policy certainly
7 to avoid that. But now you're asking me about an
8 operating practice that I wasn't close enough to to
9 really know did they or didn't they.

10 Q Now, do you know what Monsanto's either
11 policy or what Monsanto in practice did when it was con-
12 fronted with a situation, for example, like the 2,4,5-T
13 situation in Nitro when you had a large group of
14 workers who obviously broke out in chloracne? Was it
15 Monsanto's practice to remove those men from further
16 exposure?

17 A It was Monsanto's practice to do some-
18 thing about the process, first of all, to make it safer
19 so the runaway reaction would not occur; and once that
20 was contained, I believe they would take the view that
21 we now made it safe and we ask them to go in and work.

22 Q Did there come a time that you knew
23 that Monsanto knew that in fact the chloracnegen
24 associated with 2,4,5-T was a dioxin?

25 A I don't think I became aware of dioxin

1 as an entity until some time in the mid '60's. I've
2 tried to recall that. So I couldn't answer you as to
3 whether or not Monsanto's manufacturing management
4 became aware of the presence of a thing called the
5 dioxin. It certainly wasn't known in '49.

6 Q And how did you become aware of that
7 in the mid '60's?

8 A Again, I think it's just by the fact
9 that there was more reported in the press on dioxin.
10 The Vietnam war was coming to a close. I think that
11 literature was becoming more frequently concerned with
12 dioxins one way or the other.

13 Q In the mid '60's?

14 A Somewhere along in there.

15 Q In '64 and '67 you were Assistant
16 General Manager of the International Division?

17 A Uh huh (yes).

18 Q Then you became Corporate Vice President?

19 A Uh huh (yes).

20 Q International Division. Now, in that
21 position did you have any relationship or connection
22 with the movement of materials from Monsanto for use
23 in the Vietnam war, such as Agent Orange or herbicides?

24 A No.

25 Q Did you keep abreast of those

1 developments?

2 A No.

3 Q What literature and media were you
4 looking at in the mid '60's that made you aware of
5 dioxin?

6 A I can't recall specifically.

7 Q Did you talk with Dr. Kelly about it?

8 A No.

9 Q Did you talk with Dow Chemical Company
10 about it?

11 A No.

12 Q Were you aware that Dow Chemical Com-
13 pany was testing 2,4,5-T for dioxin at that time?

14 A No.

15 Q Were you aware that Monsanto was test-
16 ing for 2,3,7,8 tetrachlorodibenzo-para-dioxin at that
17 time?

18 A (Shakes head negatively.)

19 Q You have to say no.

20 A No. I answered all the questions no,
21 I didn't know that. I didn't know Monsanto was or
22 wasn't testing for it.

23 Q But your recollection is that you first
24 became aware of it in the mid '60's?

25 A That's my recollection.

1 Q And did you ever learn that dioxin
2 or some isomer of it did in fact cause chloracne?

3 A You're asking me when did I learn that?

4 Q Uh huh (yes).

5 A I guess it was probably about the same
6 time that I was aware of it myself. I'm trying to think
7 about of what did I know at the time and trying to ig-
8 nore what I know now, and that's what makes my time
9 recollection so fuzzy there because I really had no
10 direct responsibility for those things. I may have
11 been aware of some things and it would be subliminal
12 in my mind at the time. Actually, the presence of
13 something in miniscule amounts such as we are now
14 dealing with in terms of the 2,3,7,8-TCDD is in many
15 ways an abstract, and you can turn your mind off rather
16 quickly on some of those things. I guess I must have
17 done that.

18 Q Were you aware in the early '50's of
19 a similar autoclave problem at the BASF Plant in Germany?

20 A No.

21 Q Did you later become aware of a similar
22 problem that developed there at the BASF Plant?

23 A No.

24 Q Is this the first time you ever heard
25 of the BASF incident?

1 A I know there are probably recorded
2 a number of instances, but I'm not familiar with those.

3 Q Did there later come a time after the
4 mid '60's that you found out that it was dioxin in the
5 autoclave that blew up in 1949 and that it was dioxin
6 associated with the ongoing process of the manufacture
7 of 2,4,5-T that was causing the chloracne at Nitro?

8 A I think I became more aware of that
9 when the Suskind study in the '79 period, Suskind came
10 to us, I believe, for reasons I don't recall now, but
11 something about representing his experiences. He had
12 some people he looked at at an earlier time and wanted
13 to reexamine them, and he came to us. At that point
14 the definite relationship between dioxin -- When we
15 use that term now, it's 2,3,7,8 tetrachloro -- I guess
16 by that time I became quite aware that was the one thing.
17 But, you know, pure 2,3,7,8 probably was never made
18 until about 1980 or '81. So all of the things that you
19 have been asking me about is under the assumption that
20 there were no other products present in that mixture.

21 Q During the quiet time in the morning
22 when you were contemplating the problems that led you
23 to suggest to Mr. Hanley that you needed to develop
24 this environmental policy committee, was problems in-
25 volving the trichlorophenol process at Nitro one of