

STATE OF ALABAMA
IN THE CIRCUIT COURT OF CALHOUN COUNTY

SABRINA ABERNATHY, et al.,

Plaintiffs,

CIVIL ACTION NUMBER

versus

CV-96-269
(Consolidated)

MONSANTO COMPANY, et al.,

Defendants.

-----/

COPY

DEPOSITION OF NORMAN MADISON

The deposition of NORMAN MADISON, was taken before Deborah Salers Garrett, Certified Shorthand Reporter, Registered Professional Reporter, as Commissioner, commencing at 10:10 a.m. on January 14, 1999, by the Plaintiffs, at the law offices of Merrill, Porch, Dillon & Fite, Suite 500, SouthTrust Bank Building, 1000 Quintard Avenue, Anniston, Alabama, pursuant to the stipulations set forth herein.

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A P P E A R A N C E S

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I N D E X

	<u>Page</u>
Stipulations	3
Reporter's Certificate	100

E X A M I N A T I O N S

	<u>Page</u>
Witness: NORMAN MADISON	
By Mr. Cunningham	4

No exhibits were marked for identification,
offered or attached as exhibits hereto.

S T I P U L A T I O N S

IT IS STIPULATED AND AGREED by the parties, through their respective counsel, that the deposition of NORMAN MADISON, may be taken before Deborah Salers Garrett, CSR, RPR, as Commissioner and Notary Public, Alabama at Large, at Anniston, Alabama, on January 14, 1999, at 10:10 a.m.

IT IS STIPULATED AND AGREED that it shall not be necessary for any objections to be made by counsel to any questions except as to form or leading questions and that counsel may make objections and assign grounds at the time of trial or at the time said deposition is offered in evidence or prior thereto.

IT IS STIPULATED AND AGREED that notice of filing by the Commissioner is waived.

1 STATE OF ALABAMA, ANNISTON, JANUARY 14, 1999

2
3 NORMAN MADISON,

4 after having been first duly sworn, was
5 examined and testified as follows:

6
7 EXAMINATION

8 BY MR. CUNNINGHAM:

9 Q. Sir, would you state your full legal
10 name for the record, please?

11 A. Norman Madison, Norman K. Madison.

12 Q. Very good. Have you been deposed
13 previously?

14 A. No.

15 Q. This lady here to your left is going to
16 be taking down everything that you and I
17 say so that later someone coming back
18 and reviewing your testimony here today
19 will understand fully what your answers
20 were. Okay?

21 A. Yes.

22 Q. That creates a couple of ground rules
23 for us. Obviously we want you to tell

1 the truth. And with all the stuff with
2 the president lately, some people think
3 you can color that. Let's try to be
4 very direct. Okay?

5 MR. FITE: You are not going to
6 ask him what he is --

7 MR. CUNNINGHAM: No.

8 Q. You just nodded in response to one of my
9 comments. I have to ask you to speak
10 verbally so that she can take that down.
11 Okay?

12 A. Yes.

13 Q. Great. And lastly two oddities of mine
14 that I need to be sure you are aware of,
15 I have a bad habit of cutting people off
16 in the middle of an answer. You will be
17 responding to a question of mine, and
18 what you say leads me to this brilliant
19 thought, and I just have to ask the next
20 question. We want you to feel like you
21 have gotten all of your answer in. If I
22 do that to you, by all means let us know
23 so that we get your complete answers.

1 Okay?

2 A. Yes.

3 Q. The second thing I have a habit of doing
4 is asking questions that make it sound
5 like I know what I'm talking about that
6 sometimes I really don't. Okay? So if
7 I say something and you are thinking
8 that doesn't make sense to me, by all
9 means tell us that. Don't assume that
10 I'm correct, because I ask silly
11 questions all the time. All right?

12 A. Yes.

13 Q. All right. Where do you reside,
14 Mr. Madison?

15 A. At 195 Hollow Ridge Lane, Anniston.

16 Q. And unlike my co-counsel here, I'm not
17 intimately familiar with Anniston. What
18 part of town is that?

19 A. It is west of where we are sitting.

20 Q. West of where we are sitting. Is it
21 over there near the Monsanto plant,
22 then?

23 A. It is past, about three miles west of

1 that.

2 Q. Okay. Now, I know for instance where
3 the water plant is on the road as you go
4 out past Coldwater Spring. Are you out
5 in that direction, or are you a little
6 north of all that?

7 A. I'm not that far west. That's about
8 seven or eight miles west of Monsanto.

9 Q. Are you out off 202?

10 A. Yes.

11 Q. Okay. How long have you lived there?

12 A. Thirty-some years.

13 Q. And prior to that time where did you
14 live?

15 A. 2001 Wilmer Avenue in Anniston.

16 Q. And what part of town is Wilmer Avenue?

17 A. That is north from where we are sitting
18 about fifteen blocks or ten blocks.

19 Q. Okay. So that, too, I'm guessing would
20 be three or maybe even four miles from
21 the plant?

22 A. About the same, yes, sir.

23 Q. And how long did you live there at

1 Wilmer?

2 A. Four or five years.

3 Q. Okay. And prior to that where did you
4 live? I'm taking you back into ancient
5 history here, I understand. Are you a
6 native of Anniston?

7 A. No.

8 Q. Where were you born?

9 A. Tuscaloosa.

10 Q. Okay. And have you lived anywhere other
11 than Tuscaloosa and Anniston?

12 A. Yes. I lived in Tuscaloosa until I was
13 six months old and moved to Birmingham,
14 Bluff Park area, Shades Valley. I moved
15 to Anniston when I was fifteen. My
16 father had a piping contract at the WAC
17 center at Fort McClellan, been here ever
18 since.

19 Q. When you say a piping contract, was he a
20 piping contractor?

21 A. Yes.

22 Q. And he was putting in some --

23 A. They built a WAC headquarters or

1 something as I recall.

2 Q. That is WAC, W-A-C?

3 A. Women's Army Corps. I don't remember
4 all the details. He was awarded the
5 contract to install piping of some kind,
6 steam piping, water piping, that stuff
7 in a headquarters building or something.

8 Q. Okay. And then you have lived then in
9 Anniston ever since?

10 A. Yes. That is when I was fifteen.

11 Q. All right. Do you have relatives who
12 qualify as potential juries in Calhoun
13 County?

14 A. I do not have. My wife probably does.
15 Is that what you mean?

16 Q. Right. In other words, you don't have
17 any blood relatives who reside in
18 Calhoun County?

19 MR. STEWART: That would be over
20 nineteen, Charlie.

21 Q. Right, over the age of nineteen.

22 A. No.

23 Q. Your wife's family, what is her maiden

1 name?

2 A. Echols.

3 Q. E-c --

4 A. H-o-l-s.

5 Q. Does she have a lot of clan here?

6 A. She has one brother.

7 Q. What's his name?

8 A. Donnie.

9 Q. What's his wife's name?

10 A. Judy.

11 MR. STEWART: I know them, went to
12 school with them.

13 Q. That's all right. I still think well of
14 them.

15 A. Well, in those days they had to go to
16 school where they were.

17 Q. Wherever you landed, right?

18 A. Yeah.

19 Q. Do you have any church, civic, or social
20 affiliations here in town, organizations
21 that you attend regularly?

22 A. No.

23 Q. All right. Let me take you through your

1 occupational history, please. At first
2 maybe I will start with education,
3 because that might lead us into that.
4 Did you graduate high school?

5 A. Yes.

6 Q. And where?

7 A. Oxford.

8 Q. And when would you have gotten out of
9 Oxford High?

10 A. 1956.

11 Q. And did you get any further formal
12 education?

13 A. A BS in chemistry from Jacksonville
14 State in 1964, January 1964.

15 Q. Now, that's -- There is a gap there.
16 Did you do military service or --

17 A. No. Actually I worked at Monsanto.

18 Q. Okay.

19 A. And there was a break. I was going to
20 school when I went to work at Monsanto
21 as summer relief. I then returned to
22 school while working for Monsanto and
23 completed the study in January of '64.

1 Q. Now, was that a night school?

2 A. No. I worked at night.

3 Q. You worked the second or third shift?

4 A. Yes, full-time student.

5 Q. That had to be tough. And the chemistry

6 program at Jacksonville State, was there

7 anything unique or special about that,

8 or was it just a run-of-the-mill

9 bachelor's in chemistry?

10 A. It was hard as hell. I know that,

11 especially having two children during

12 that time and working forty hours a

13 week. It was tough.

14 Q. And it I guess takes you half an hour at

15 that time probably to get there one way?

16 A. Yeah.

17 Q. Any other formal education aside from

18 that?

19 A. No.

20 Q. What about what I'll call informal

21 education? Did you ever have seminars

22 or conferences that you went to either

23 internally with Monsanto or externally?

1 A. Yes.

2 Q. Tell me about those, please.

3 A. Thirty-five years of them? There were
4 four or five of them a year for
5 thirty-five years. It included
6 instrumentation, things related to the
7 job, innovations in instrumentation, and
8 of course when they changed from
9 pneumatic to electronic instrumentation
10 and then the computer control, those
11 things, and of course always things
12 about benefits.

13 Q. What percentage of the conferences or
14 seminars that you would go to would be
15 in-house things that Monsanto put on as
16 opposed to something that Vanderbilt
17 University or Jacksonville State might
18 hold that people from various companies
19 might attend?

20 MR. FITE: Off the record.

21 (Discussion held off record.)

22 A. It was a mixed bag.

23 Q. Okay. Describe for me some of them that

1 you remember. Let's start with the
2 Monsanto in-house stuff. Would that
3 always be in Anniston, or would you
4 travel places sometimes for that?

5 A. It would be different locations,
6 different plant locations.

7 Q. And were there a lot of different places
8 you would go and learn about
9 instrumentation within the Monsanto
10 system?

11 A. No, not instrumentation. But like
12 management techniques, get to interface
13 with a lot of people from other
14 locations. Might be held at Pensacola
15 or St. Louis or one of the meeting
16 centers at world headquarters in St.
17 Louis, so you would interface with
18 people from all of them.

19 Q. And if Monsanto wanted you to know
20 something, they didn't mind having you
21 travel somewhere to learn it?

22 A. Yes.

23 Q. And you would meet people from all over,

1 maybe even the world? Did you meet
2 people from outside the U.S. at some of
3 these things?

4 A. I don't recall.

5 Q. May have, but you don't have a
6 recollection of meeting somebody?

7 A. No.

8 Q. Okay. Now, you are saying the subjects
9 that you went to these conferences for
10 that Monsanto held covered not just what
11 you did in a technical sense but also
12 broader subjects like management,
13 benefit plans, that sort of thing?

14 A. Yes.

15 Q. Do you have some idea for me just in a
16 ratio sense of how often these things
17 dealt with what your specific technical
18 expertise was as opposed to these other
19 business -- what I will call
20 business-related subjects?

21 A. No.

22 Q. Okay. Would you get handouts when you
23 would go to these things?

1 A. Yes.

2 Q. What would you do with these when you
3 got back to Anniston and got back to
4 your desk? Was there a shelf or a
5 drawer where you put these things, or
6 would they get tossed?

7 A. Probably a combination of all of those.
8 Some of them required some follow-up.
9 Many of them required some follow-up,
10 that it was a continuing program. It
11 wasn't just --

12 Q. Spend the weekend with us and we don't
13 need to talk to you any more kind of
14 thing?

15 A. Right. Many of them were ongoing
16 programs that were part of your job
17 performance goals.

18 Q. Okay. Can you give me an example of one
19 of those?

20 A. Safety.

21 Q. Okay.

22 A. That would be an example, and there was
23 a goal on your performance. And at the

1 quarterly review, you would review
2 those. And environmental.

3 Q. When you say safety, now, I want to be
4 sure we are clear, because some folks
5 use that broadly in kind of an
6 industrial hygiene sense. They mean
7 physical safety and health. To other
8 people it is a separate thing, the
9 safety and health components. When you
10 say that, are you kind of combining
11 those two? Did you cover health and
12 toxicity stuff in those conferences?

13 A. Ask that question again, please.

14 Q. Yeah. To put it in a specific context,
15 as I understand it, today out there at
16 the plant, you have the person in charge
17 of industrial hygiene, and he has two
18 people under him. One is kind of
19 focused on safety, and one is kind of
20 focused on health. Okay? And that is
21 not uncommon in my experience, that they
22 are different realms although they fall
23 under the same umbrella.

1 Did you have regular course work
2 or updates or conferences that dealt
3 with health in the context of what y'all
4 did out there, or was it strictly
5 safety, wear your goggles, wear your
6 hat, don't let temperatures get above a
7 certain level? Did you get into toxic
8 and health stuff?

9 A. I will just give you my own feeling,
10 that you can't separate the two.

11 Q. Okay. They were part and parcel of one
12 another, and you recall being told about
13 that stuff as new information came
14 available?

15 A. What stuff?

16 Q. Information.

17 A. Oh, yes, yes. I assume yes.

18 Q. As far as you know, they were keeping
19 you up to speed on this stuff?

20 A. Yes.

21 Q. Okay. You mentioned environmental.
22 When did you first recall that being --
23 Again, is that all part and parcel of

1 the same stuff, or do you have a
2 recollection that at some point that
3 became a new thing?

4 A. No. It was always the same.

5 Q. Okay. So as far back as you can
6 remember going to these things in the
7 early '60s, that was at least a
8 component in these kinds of conferences
9 that Monsanto would hold?

10 MR. FITE: If you are not sure
11 what the question is, ask him
12 to rephrase it, if you are
13 struggling with what he means
14 by his question.

15 Q. Fine. Would you like me to do that?

16 A. I thought that was a statement. I
17 didn't realize it was a question.

18 Q. It is a question.

19 A. Okay.

20 Q. Am I understanding you correctly that
21 from the beginning of your tenure with
22 Monsanto when you would go to these kind
23 of annual conferences, one part of which

1 you have told me concerned safety,
2 health, and environmental type stuff,
3 that those were all covered from the
4 beginning, safety, health and
5 environment?

6 MR. FITE: I'm going to object to
7 the form. You are asking him
8 really if your understanding
9 is --

10 Q. That is my understanding. If I'm wrong,
11 I want you to tell me. The goal isn't
12 for me to testify. The goal is for you
13 to testify.

14 A. Make it -- I don't understand your
15 question.

16 Q. When do you first remember them talking
17 about environmental stuff or waste
18 control or pollution control in terms of
19 what Monsanto was teaching you?

20 A. The day I went to work there.

21 Q. Okay. That's what I was looking for.

22 A. Okay.

23 Q. And that would have been sometime in

1 actually the mid '50s when you were
2 still in high school?

3 A. 1958.

4 Q. Okay. All right. Now, do you have
5 personally in your possession -- If we
6 went out to 195 Hollow Ridge Lane and to
7 your wife's great distress walked in
8 unannounced and start rummaging around,
9 would we find some old books, binders,
10 outlines --

11 A. No.

12 Q. -- anything of that nature?

13 A. No.

14 Q. Where might somebody find some of that
15 stuff, got any idea?

16 A. No.

17 Q. Let me take you now away from the
18 Monsanto kind of seminars and go to
19 stuff that was non-Monsanto. Can you
20 recall any one in particular that you
21 can give me that dealt with health,
22 safety, environmental pollution type
23 stuff, any of those categories?

1 A. No.

2 Q. Okay. But you do know that it happened?

3 A. Uh-huh (indicating yes).

4 Q. You remember going to outside seminars
5 but they may not have been on that
6 subject as you recall? I'm being
7 obtuse. You did go to outside seminars,
8 correct?

9 A. I don't understand "outside."

10 Q. That were not sponsored by Monsanto.
11 And to give you an example, Dr. Ford who
12 we deposed last week testified about
13 going up to Vanderbilt and giving a
14 seminar to people who would come in from
15 academia and industry to hear what he
16 had to say about the latest developments
17 in waste water control. And I said
18 would people from companies come, and he
19 said yes. I'm just trying to find out
20 if you ever got sent to a seminar.

21 A. Oh, got sent, yes.

22 Q. Give me an example of one that you
23 remember going to on those kind of

1 subjects, health, safety, pollution, in
2 that realm.

3 A. A waste treatment seminar?

4 Q. Yes.

5 A. In Birmingham. I thought I would never
6 forget the guy's name, but I have.

7 Q. The instructor, you mean?

8 A. Yes. He had written books on waste
9 treatment control. He was the world
10 authority, and I cannot --

11 MR. CUNNINGHAM: Who was the
12 fellow that Ford worked with?

13 MR. PRAUSE: Eckenfelder.

14 Q. Eckenfelder, was that his name?

15 A. Yes, yes.

16 Q. And do you recall when you went and
17 heard Professor Eckenfelder?

18 A. No.

19 Q. Do you remember learning something there
20 and thinking, "I'm going to take that
21 back to Anniston with me and improve
22 what we're doing"?

23 A. No.

1 Q. Do you remember who the sponsor of that
2 seminar was?

3 A. No.

4 Q. If you had to put that in a particular
5 decade, '50s, '60s, '70s, '80s, do you
6 have a probability for me?

7 A. I'm guessing between 1975 and 1980,
8 about that.

9 Q. Okay.

10 A. That's a guess.

11 Q. That's all I can ask for. Any other --
12 Do you think this was the only time you
13 went to a seminar that would have dealt
14 with waste control, or do you think
15 there would have been others?

16 A. That's all I recall.

17 Q. Okay. Let's go now to your role at
18 Monsanto. '58 is when you said you
19 started there?

20 A. Yes.

21 Q. Tell me about what you did there.

22 A. I was hired in 1958 for summer relief.
23 And then --

1 Q. Did everybody that did summer relief do
2 the same thing?
3 A. Yes.
4 Q. Which was what?
5 A. They worked in the plant, and you
6 covered for people who were on vacation.
7 And everybody took their vacation on the
8 midnight shift, so you worked the
9 midnight shift.
10 Q. Okay. Did people work rotating shifts?
11 A. Yes, yes.
12 Q. So everybody was going to pull some
13 midnight shift work?
14 A. Right.
15 Q. So that would be --
16 A. They run twenty-four hours a day, seven
17 days a week, three hundred sixty-five
18 days a year.
19 Q. Let me ask you about that. In other
20 words, your process equipment would only
21 go down for maintenance, basically. You
22 didn't have scheduled shutdown. If it
23 was up and running, it could

1 theoretically keep going throughout the
2 year. You didn't shut down for
3 weekends?

4 A. Didn't shut down for weekends.

5 Q. You just --

6 A. We didn't shut down just because of the
7 weekends. Is that what you are asking?

8 Q. Well, you said three hundred sixty-five
9 days a year.

10 A. Let me say that again. It was manned.
11 The facility was manned.

12 Q. Okay. All right.

13 A. And that is what I did. Whoever
14 happened to be on vacation of that
15 manning, whatever the manning for that
16 department was for that shift, if he was
17 on vacation, then I covered for that
18 man.

19 Q. What sort of responsibilities would you
20 have had there early on in your career
21 as a summer relief person?

22 A. Operating a denora mercury cell house.

23 Q. Could you spell that for --

- 1 A. D-e-n-o-r-a. It is a chlorine producer.
- 2 Q. And say it for me one more time.
- 3 A. Denora, d-e-n-o-r-a. The chlorine plant
- 4 is what they called it.
- 5 Q. Originally did you call it denora
- 6 mercury?
- 7 A. Uh-huh (indicating yes).
- 8 Q. Did it have mercury in it?
- 9 A. (Witness nods head affirmatively.)
- 10 Q. And basically your job was to make sure
- 11 things were running smoothly?
- 12 A. Yes.
- 13 Q. Open and close valves, make feed stock
- 14 go in or not go in?
- 15 A. Yes.
- 16 Q. What was the feed stock for that
- 17 process?
- 18 A. Brine, salt water solution.
- 19 Q. Okay. Salt water would go in. What
- 20 would come out?
- 21 A. Chlorine and caustic soda, sodium
- 22 hydroxide.
- 23 Q. Anything -- I mean, would there be water

1 out of the -- Was that it, just chlorine
2 and caustic soda?

3 A. Yeah.

4 Q. It was a complete conversion of H₂O and
5 NaCl into --

6 A. Well, it was a closed loop. As the
7 depleted brine recirculated, it was a
8 closed loop.

9 Q. You would just recharge it, but that is
10 all that ever came off?

11 A. Yeah.

12 Q. Okay. What did y'all do with your
13 sodium hydroxide?

14 A. Loaded it in tank cars.

15 Q. Did you sell it?

16 A. Yes, as far as I know.

17 Q. Then what did you do with the chlorine?

18 A. Used it in the plant.

19 Q. I know about PCBs obviously. Did you
20 have other products you used the
21 chlorine for?

22 A. No. I do not think so.

23 Q. Okay. Was that the only thing you did

1 as a relief person?

2 A. Yes.

3 Q. Okay. What else did you do there? What
4 was the next title, I guess, you
5 acquired working there?

6 A. Well, after that stint as the summer
7 relief, somewhere the next year they
8 called me back and offered me a job
9 there in the plant, because of my
10 chemistry background, in the lab.

11 Q. All right. What chemistry background
12 did you have as of 1959?

13 A. My association with the plant, from
14 knowledge of the plant.

15 Q. Okay. So what you knew was what you
16 learned on the job that first summer?

17 A. Uh-huh (indicating yes).

18 Q. And I thought all you were doing was
19 making sure that the brine was going in
20 and the chlorine was coming out. Were
21 you doing chemical analyses as well?

22 A. There were control samples within that
23 process.

1 Q. All right. And you would do that as the
2 operator?
3 A. Yes.
4 Q. What kind of equipment were you using to
5 do that?
6 A. A pH meter and hydrometer, gravity,
7 specific gravity.
8 Q. Those are pretty simple --
9 A. Yes.
10 Q. -- equipment, are they not?
11 A. Yes.
12 Q. They offered you a job in the lab. What
13 was your title going to be, or what was
14 your title rather?
15 A. I don't remember. Technician maybe.
16 I'm not sure.
17 Q. Okay. What did you do?
18 A. General analytical work for the plant.
19 Q. Everything you did was for the Anniston
20 plant, I'm assuming. They weren't
21 sending you stuff in from the other
22 places?
23 A. Not to my knowledge. I didn't have

1 anything to do with it.

2 Q. You would just get a sample and be told
3 we need this parameter checked, and you
4 did that?

5 A. Yes.

6 Q. Who did you work under at that point in
7 time? Do you recall?

8 A. Klemme, K-l-e-m-m-e, was his last name.

9 Q. Is that the person who kind of trained
10 you for this?

11 A. No. He was the chief chemist.

12 Everybody in the lab report to him.

13 Q. How many boys and girls are we talking
14 about in the lab back in '59?

15 A. That is why they offered me the job.
16 There were very few. For some reason
17 they were -- I can't remember. They
18 were very shorthanded.

19 Q. And I don't doubt that, but I have no
20 concept of what is shorthanded or what
21 isn't.

22 A. Same principle, it had to be manned
23 twenty-four hours a day, seven days a

1 week.

2 Q. So was the standard complement one
3 person in the lab at all times, two
4 people --

5 A. Yes.

6 Q. Okay. Would they double up like a
7 normal shift? Would the chief chemist
8 be there with someone like yourself when
9 he is there, or he just pulled --

10 A. No. He you worked Monday through
11 Friday, like eight to five.

12 Q. Okay. And what sort of things did you
13 do to occupy yourself in an eight-hour
14 shift as a lab technician in 1959 at the
15 Anniston Monsanto plant?

16 A. The samples were from the parathion
17 department. Most of them were from the
18 parathion department.

19 Q. Now, were these samples of feed stock,
20 finished product, waste streams, all of
21 the above? What were you analyzing
22 typically?

23 A. Control samples, mostly control samples

1 from each separate process.

2 Q. Okay. To make sure things are moving
3 through the way they are supposed to
4 move through?

5 A. Yes.

6 Q. And do you have -- can you give me a
7 quantitative sense of how many samples
8 you are doing in a given day? Were you
9 kept busy?

10 A. Most of the time you didn't have time
11 for lunch.

12 Q. Okay. If you did have lunch, where
13 would you eat lunch?

14 A. There was a lunchroom separate from
15 there.

16 Q. Shouldn't eat in the lab?

17 A. Absolutely not, could not, signs all
18 over the world.

19 Q. Okay. Now, do you recall doing any
20 sampling for the Aroclor department?

21 A. Yes.

22 Q. So you did do that. What sort of
23 samples were you doing for the Aroclor

1 department?

2 A. Dielectric properties of the PCBs.

3 Q. That I assume would have been on

4 finished product?

5 A. Yes.

6 Q. Anything else?

7 A. Benzene tank car samples.

8 Q. That's a feed stock?

9 A. Yes.

10 Q. What were you looking for with that?

11 A. Just ran a simple test on freezing point

12 that was an indication of the purity.

13 Q. Okay. Because if you had some

14 impurities in your benzene, that could

15 create some nasty stuff, couldn't it?

16 A. Yeah. It wouldn't be that exact

17 temperature of the point that it went to

18 crystal.

19 Q. How precise could you be with that?

20 A. Very precise with benzene, because water

21 or anything else will change the point,

22 just change it to crystal. Then it is

23 no longer pure.

1 Q. What kind of purity specification is
2 there on the feed stock benzene, then?

3 A. It had to meet that freezing point, and
4 then there was a spec sheet that
5 outlined what that freezing point
6 related to in purity, and I don't recall
7 that number.

8 Q. Well, what do they say, Ivory soap is
9 ninety-nine point ninety-nine percent
10 pure? You don't have a recollection?

11 A. It was within two-tenths of one degree
12 centigrade, within that parameter. If
13 it was without that, it was rejected and
14 returned to the supplier.

15 Q. Okay. And what other samples do you
16 recall doing for the Aroclor department?

17 A. The HB-40 samples.

18 Q. HB-40?

19 A. Yes.

20 Q. What in the heck is an HB-40 sample?

21 A. Well, it is a heat transfer fluid where
22 you do a refracted index on that. That
23 is also a measure of the purity or the

1 point which the hydrogenation cycle is
2 complete.

3 Q. Okay.

4 A. And it is a very specific range.

5 Q. What kind of equipment did you have to
6 do that?

7 A. A spectrometer. It is a prism that you
8 put a drop on and close it and light.
9 You match the colors, and then there is
10 a number that automatically -- that
11 shows -- sort of like a micrometer. And
12 then you read that number.

13 Q. Okay. And that's to make sure that you
14 are getting the right kind of molecules
15 in the batch?

16 A. Make sure it is in specification.
17 That's all I knew.

18 Q. In spec?

19 A. Right.

20 Q. And you can sell it because it is in
21 spec?

22 A. Yes. And you reported that number to
23 the department, and they handled it.

1 Q. Did you ever get batches -- apparently
2 you did -- get batches of benzene in
3 that weren't in spec?

4 A. I did not.

5 Q. You did not. But the plant did
6 occasionally?

7 A. I do not know that for a fact. I just
8 know that that is what the spec sheet
9 showed, that you reject it. And
10 everything had -- And it wouldn't be
11 used. That is all I know. I was always
12 told it would be returned.

13 Q. Did you ever have a batch of Aroclor
14 that you were testing its dielectric
15 capacity or the HB-40 refractive
16 spectrum and it not be within spec?

17 A. I don't recall any. I would have had to
18 call the chief chemist, you know, at
19 home and wake him up. And I never
20 recall. Those, you know --

21 Q. Why would you have to call him up?

22 A. That was part of the quality control.

23 Q. He would come in and check your work?

1 A. No. He just had to be notified, and the
2 department supervisor had to be
3 notified. That is the way it worked.

4 Q. Are you aware of that happening with
5 someone on a different shift?

6 A. No.

7 Q. So the entire time you recall working in
8 the lab with the Aroclor process, you
9 never had a batch that was bad?

10 A. Not to my knowledge. You remember, I
11 told you I ran the control samples. So
12 at that point --

13 Q. Well, are you aware of a batch that was
14 bad at a different point?

15 A. No.

16 Q. So the plant performed flawlessly
17 throughout the time --

18 A. On my shift, on the part I did.

19 Q. Okay. And what other things do you
20 recall doing in the lab? Was that it?

21 A. We did -- I did samples for the feed
22 stock in the waste treatment plant in
23 parathion.

1 Q. For the feed stock?

2 A. Well, that is what they called it, the
3 waste.

4 Q. You analyzed a waste water stream that
5 was going to the --

6 A. Yes.

7 Q. And what were you looking for in that?

8 A. Looking for para-nitrophenol.

9 Q. And why were you looking for that?

10 A. To give that number to the operator so
11 he could adjust the flow to the
12 treatment plant. That is what they had
13 to treat in the treatment plant. The
14 concentration in the feed basins of the
15 para-nitrophenol, they would adjust the
16 flow accordingly.

17 Q. What was the treatment process that was
18 taking care of this P-nitrophenol?

19 A. It was a return activated sludge system.

20 Q. And that was there when you got there in
21 '59 I assume? Do you have any idea when
22 it started or went on line?

23 A. No. I don't have any knowledge of that.

1 Q. What kind of equipment did you have or
2 did you use to analyze that waste water
3 stream for the P-nitrophenol? Can we
4 call that PNP?

5 A. Sure. That's what we call it.

6 Q. She will appreciate that. What
7 equipment did you use to analyze the PNP
8 content --

9 A. That was done with a colorimeter.

10 Q. Colorimeter?

11 A. Yes.

12 Q. Describe that for me, please.

13 A. It is a little box with a wheel in it.
14 You hold it up to the light, and you
15 turn the wheel. And the wheel has
16 different shades of yellow. And you put
17 a sample in a tube on the other side,
18 and you compare the two colors. Then
19 you read it as to parts per million.

20 Q. That is what its sensitivity was, parts
21 per million?

22 A. Yes. And that colorimeter had been
23 developed specifically for that PNP.

1 Q. Was that developed by Monsanto?

2 A. I don't know. I don't know.

3 Q. Okay. Was that the principal component

4 of the parathion waste water --

5 A. Yes.

6 Q. -- that y'all were worried about in '59?

7 A. Yes.

8 Q. What about parathion itself? I mean, I

9 think of that as being a greater threat

10 to an activated sludge bed than PNP.

11 Did you just not have parathion in that

12 waste water stream?

13 A. Very little. But the parathion quickly

14 converted to PNP. It was easy to break

15 parathion down to PNP, but that was the

16 dollars. That is what you were making,

17 you know.

18 Q. You wanted it to go out as parathion.

19 You didn't want that going in the waste

20 stream for sure?

21 A. Right.

22 Q. And I assume that was a goal

23 consistently in the lab, to make sure

1 the processes were working in an
2 economically efficient manner?

3 A. Yes.

4 Q. And that was made clear to y'all on a
5 regular basis, I'm sure, by management?

6 A. Yes.

7 Q. All right. Anything else you remember
8 analyzing back in that early phase, '59,
9 '60 when you were a lab tech there at
10 the plant?

11 A. The samples, the caustic soda.

12 Q. Okay. What other kind of equipment?

13 Let me shift on you a little bit and
14 talk about equipment. You have

15 mentioned the chlorimeter, the HB-40
16 device, the mass spec equipment.

17 Obviously you would have had pH meters

18 and density meters. What other kind of

19 equipment do you recall being in the lab
20 and available to you?

21 MR. PRAUSE: Object to the form.

22 I don't think he said it was
23 a mass spec.

- 1 Q. I'm sorry.
- 2 A. No, not a mass spec.
- 3 Q. A spectrometer, not a mass spectrometer.
- 4 What other equipment do you recall
- 5 having available to you?
- 6 A. We did some samples from the parathion
- 7 department that required an automated --
- 8 We did it at one time, titration, by
- 9 hand, but then we had an automated
- 10 titrator, and a gas chromatograph.
- 11 Q. Let me take those one at a time. The
- 12 auto titrator, what were you looking for
- 13 with that equipment?
- 14 A. We were looking for when the reaction
- 15 was complete on one of the steps in the
- 16 parathion production.
- 17 Q. Okay. And the titrator would help you
- 18 know that you had reached complete
- 19 reaction?
- 20 A. Yes.
- 21 Q. Do you remember what particular chemical
- 22 reaction was in question?
- 23 A. We call it thioacid. And it was --

1 Q. And my sense is that with titration,
2 depending on dilutions and such, you can
3 get pretty precise. What kind of
4 sensitivity were you working with in
5 that? Do you recall?

6 A. Again, there was a number that -- a
7 window that it was either complete or
8 not complete within that number. And
9 you reported it back to the department,
10 and they had specific instructions as to
11 what to do from that point using that
12 number.

13 Q. Okay.

14 A. And that is generally what you did,
15 report it back, and it was handled in
16 the department.

17 Q. What about the GC, the gas
18 chromatograph?

19 A. That was to check, again, the process,
20 an intermediate process in the parathion
21 production.

22 Q. And what were you looking for?

23 A. You had a standard that you injected and

1 allowed it to pass through the GLC and
2 make its peak. And then you injected
3 the sample and compared those two,
4 divide the part by the whole and get a
5 percentage and report that to the
6 department.

7 Q. Do you recall what the standard was?

8 A. No.

9 Q. Was it parathion itself?

10 A. No. It was an intermediate step.

11 Q. And do you have any recollection as to
12 what kind of sensitivity you had with
13 that particular device?

14 A. No.

15 Q. The sample you got, was it a
16 theoretically pure, equivalent to the
17 standard --

18 A. Less than.

19 Q. Obviously it must have been a mixture.

20 A. Yes.

21 Q. Okay. Was this a dedicated machine? It
22 sounds like all your machinery was
23 dedicated to a particular test. In

1 other words, you wouldn't go run
2 something else on that GC, or would you?

3 A. I didn't.

4 Q. Did you through your schooling ever come
5 across something and say, gee, I wish we
6 had one of these suckers in the lab?

7 A. Off the record. Here, you know, in
8 college chemistry and all that, you do
9 it. You sit there and make it and do it
10 and stir it. And like the old
11 alchemist, if you want to turn that into
12 gold, lay it in the gold stuff. You
13 know, what we had was so far superior to
14 what we have in college chemistry
15 classes, you know --

16 Q. That is what I anticipated, but I have
17 to -- Can we go back on the record?

18 MR. STEWART: She didn't go off.

19 MR. PRAUSE: No attorney said to
20 go off the record, so it was
21 on the record.

22 Q. That's what we are looking for. That is
23 my perception of the way of the world,

1 too, that college campuses, if they get
2 equipment, it is given to them from
3 industry when industry got the new
4 stuff.

5 A. Right, when something replaced it.

6 Q. So you felt you had the best equipment
7 that was available?

8 A. (Witness nods head affirmatively.)

9 MR. FITE: Speak up.

10 A. Yes.

11 Q. All right. So that's got us your early
12 years. Tell me what's the next
13 promotion or change in your job position
14 or responsibilities as you recall.

15 A. I did some -- when I graduated college
16 in '94 I was loaned to the production
17 department to do some instrument
18 training.

19 MR. PRAUSE: Do you mean '64?

20 THE WITNESS: What did I say?

21 MR. PRAUSE: '94.

22 THE WITNESS: Professional
23 student.

1 Q. 1964, did you get a different job title
2 then at that point, or just they said
3 here, go do some other stuff?
4 A. No. I was just on loan to the
5 production department.
6 Q. And I'm sorry. You said you did that to
7 do some training?
8 A. Yeah, training for process
9 instrumentation.
10 Q. And do you recall which production
11 departments you worked with?
12 A. I worked for the production
13 superintendent, which was the -- what we
14 call the organic division.
15 Q. As opposed to --
16 A. The agricultural division.
17 Q. And what products were in the organic
18 side of things?
19 A. PNP, chlorine, and the Aroclors.
20 Q. With the parathion falling in the ag?
21 A. Yes.
22 Q. So you worked directly with the people
23 making the chlorine and feed stocks and

1 making the Aroclors?

2 A. I trained them.

3 Q. In process instrumentation?

4 A. Yes.

5 Q. And what sort of instrumentation do you
6 remember them working with? What did
7 they have over there in the production
8 side they worked with?

9 A. Generally flows, levels, and
10 temperatures.

11 Q. Okay. How long do you recall working on
12 that project?

13 A. Less than two years, I think.

14 Q. Was this something new that had come up,
15 or you -- I'm wondering why this
16 happened at this point in time.

17 A. It was a continuation, as I understood
18 it and understand it today, of training,
19 to give the people the tools to do their
20 job.

21 Q. Do you think somebody was doing this
22 before you did it, and somebody did it
23 after you?

- 1 A. Yes, sir.
- 2 Q. All right. In '66, then, roughly,
3 sometime in the mid '60s when you are no
4 longer on loan to production, where did
5 you go?
- 6 A. I went to production foreman in the
7 chlorine plant.
- 8 Q. Okay. And what were your
9 responsibilities in that particular
10 capacity?
- 11 A. Total responsibility for the operation
12 of that department.
- 13 Q. Okay. How many people did you have
14 working under you at that point?
- 15 A. About twenty, maybe twenty-five.
- 16 Q. And really the only thing you are going
17 to be controlling equipment-wise is this
18 denora mercury chlorinator?
- 19 A. (Witness nods head affirmatively.)
- 20 Q. And you have salt water coming in and
21 caustic soda and chlorine coming out?
- 22 A. Yes.
- 23 Q. All right. How long were you doing

1 that?

2 A. About two years, I think. I didn't keep
3 a record of all this.

4 Q. We're just looking for rough estimates.
5 That kind of precision is not that
6 important. Did you get better hours, I
7 guess, when you were production foreman
8 I hope, less night shift to work
9 finally?

10 A. You get a twenty-four-hour-a-day job.

11 Q. If something happens, your phone is
12 ringing?

13 A. Yes. You are the only one.

14 Q. And I take it that that was understood
15 by people in the plant, that if they had
16 a concern they were not only free but
17 encouraged to communicate with their
18 fore-people in management to address
19 those problems?

20 A. Absolutely, yes.

21 Q. Okay. After that what did you do?

22 A. I believe I went to the biphenyl
23 department.

1 Q. Okay. Would that be a promotion or just
2 something different?

3 A. Different.

4 Q. Okay. And how many folks were working
5 under you in the biphenyl department?

6 A. Guess again, probably forty, forty to
7 fifty.

8 Q. And again, were you the total
9 responsibility foreman for that
10 department?

11 A. Yes.

12 Q. And there you're taking benzene feed
13 stocks and turning it into biphenyl?

14 A. Yes.

15 Q. What else did you use to do that,
16 chemically speaking?

17 A. Heat. It is like -- It is the same
18 principle as cracking gasoline, oil
19 cracking.

20 Q. But you weren't trying to crack the
21 benzene molecule, were you? You were
22 trying to fuse a couple of them?

23 A. You run it through a furnace.

- 1 Q. Okay. What was the -- I mean, the
2 biphenyl molecule had hydrogen on it,
3 did it not?
- 4 A. Yes.
- 5 Q. What was the hydrogen source? The same
6 hydrogen that is already there in the
7 benzene?
- 8 A. It is already there in the benzene. It
9 is liberated when it cracks.
- 10 Q. So did you have a hydrogen off-gas?
- 11 A. Yes.
- 12 Q. What did you do with that?
- 13 A. Use it in HB-40.
- 14 Q. Which was what?
- 15 A. That's the heat transfer fluid that we
16 talked about earlier, another
17 department.
- 18 Q. Okay. And then you just shipped the
19 biphenyl I assume to the Aroclor
20 department?
- 21 A. Yes.
- 22 Q. So again, a pretty simple process in
23 terms of what is coming in and going

1 out, but probably not simple like that
2 in terms of what happens in the
3 meantime?

4 A. Absolutely. I mean, you know, yes.

5 Q. Is it a -- Some chemical reactions run
6 pretty smooth, and others don't. Was
7 the process of turning benzene into
8 biphenyl one you had to monitor real
9 close?

10 A. All the processes were monitored very
11 close. Each job had a particular person
12 assigned to that particular part of that
13 process. So I don't know what you mean
14 by the definition of monitored close.
15 My impression is all of them were
16 monitored very closely.

17 Q. If you have forty or fifty people
18 working for you, even if you break that
19 up into four shift's worth over folks,
20 that is still a dozen folks, maybe ten a
21 shift --

22 A. Yes.

23 Q. -- monitoring a furnace that has benzene

1 coming in and biphenyl coming out?

2 A. Yes.

3 Q. What are those ten folks doing all day?

4 A. Well, there are some other parts, the
5 pumps, unloading the tank cars --

6 Q. Okay.

7 A. -- and observing.

8 Q. Maybe not physically doing anything, but
9 they are there just in case?

10 A. They look at that pump, and they look at
11 that pipe flange.

12 Q. And sometimes that -- Monsanto would pay
13 somebody some pretty decent money just
14 to observe something happen eight hours
15 a day, right?

16 A. Yes.

17 Q. All right. What else did you do after
18 that?

19 A. After that I transferred to the
20 parathion department.

21 Q. Okay. Any idea of roughly how long you
22 were in the biphenyl department?

23 A. Again, just a guess, a couple of years.

1 Q. Okay. Now you are over in that
2 agricultural section?

3 A. Yes.

4 Q. Did they make you change colors of the
5 uniform or start rooting for Auburn or
6 something like that?

7 A. They sure did. They had a different
8 philosophy about life.

9 Q. Really?

10 A. Yeah.

11 Q. I was joking, but were they different
12 entities philosophically as well as on
13 the company chart?

14 A. Very close-knit group. I thought the
15 others were until I got over there.

16 Q. And they looked upon you as -- like you
17 had come from Kentucky or some other
18 alien nation?

19 A. No, not that -- It was just that you
20 have to earn the respect of the family.

21 Q. Okay. How big a family are we talking
22 about?

23 A. Eighty, I'm guessing, people.

1 Q. All right. And again, were you the man
2 in the parathion --

3 A. I shared that.

4 Q. With?

5 A. Dave Williams.

6 Q. Okay. So what did -- Same kind of
7 responsibilities as before, make sure
8 things are running smoothly, monitor
9 folks?

10 A. (Witness nods head affirmatively.)

11 Q. What was the parathion process like?

12 A. Do you want a description of how it's --

13 Q. Please.

14 A. Ethyl alcohol mixed with phosphorus
15 pentasulphide. P_2S_5 reacted to form --
16 taken to complete reaction, then
17 chlorinated and distilled, and then PNP
18 added to make parathion. I don't think
19 any of this stuff is protected, is it?

20 MR. FITE: You don't get to ask
21 the questions.

22 Q. Well, they are not making it out there
23 any more that you are aware of, are

1 they? And I understand your concern.
2 You don't want to give away trade
3 secrets, but I don't think they are
4 worried about that any more.

5 MR. STEWART: Well, he has a right
6 to consult with his lawyer
7 about that if he wants to, if
8 y'all want to talk about
9 that.

10 Q. At the end of the day you should wind up
11 with this parathion molecule. And what
12 kind of waste if any or off-products if
13 any are in the process? Water, CO₂, and
14 you have some sulfur in there. Are all
15 those sulfur molecules going in the
16 parathion molecule?

17 A. We talked about that before. The PNP in
18 the waste stream to the waste treatment
19 plant.

20 Q. I knew about that one. I'm just looking
21 -- For instance, P₂S₅, we have five
22 sulfur atoms there. If I looked at a
23 parathion formula, are we going to see

1 five sulfurs in there?

2 A. Yeah. The sulfur was -- It was hydrogen
3 sulfide burned to recover the sulfur.

4 Q. Okay. And what did you do with that
5 recovered sulfur?

6 A. Reused it in P_2S_5 .

7 Q. So you made your own P_2S_5 ?

8 A. Yes, just across, yes.

9 Q. So you didn't have any -- So far in all
10 these processes you have described,
11 there is nothing coming off the
12 production line that isn't either
13 product you are going to sell or
14 something you are going to use as a feed
15 stock in another part of the plant. Did
16 you have anything that you just had to
17 box up and get rid of?

18 A. The sludge from the waste treatment
19 plant.

20 Q. Okay. What did you do with that, if you
21 know?

22 A. I don't remember what they did with it.

23 Q. Okay.

1 MR. STEWART: Can we take a short
2 break?

3 MR. CUNNINGHAM: Sure.

4 (A break was taken.)

5 (Mr. Donald Stewart left the
6 deposition proceedings.)

7 Q. Okay. We were talking about waste
8 streams or waste product. The only
9 analogy I can give you is like in
10 cooking. When you cook a roast instead
11 of cooking up a batch of parathion, you
12 have your roast and you have some fluid
13 that comes off that you might turn into
14 gravy. But at the end of the day you
15 still have some gunk in that pan that
16 you have to get rid of. Don't you have
17 gunk in your equipment when you are
18 making parathion or chlorine or
19 biphenyl?

20 A. I believe I covered that with you with
21 the sulfur and the waste stream from the
22 -- the condensation reaction is what
23 they called it, of the parathion, the

1 final stage of that and washing of it
2 and drying of it to the waste treatment
3 plant.

4 Q. You mentioned that you distilled --
5 There was a distillation process at some
6 point in the parathion manufacture. And
7 in my experience typically a
8 distillation column is going to have,
9 over time, buildup of something in the
10 bottom of it, a still bottom. Do you
11 not have still bottoms in that process?

12 A. I answered that in reference to your
13 question about the sulfur.

14 Q. So that is what would go down there?

15 A. Yes.

16 Q. I'm sorry. We are on the same
17 wavelength, then.

18 How long were you the co-foreman
19 for the parathion department?

20 A. Six or eight years, estimate, just an
21 estimate.

22 Q. Okay. Now, if my math is -- That puts
23 us into the mid '70s. Does that sound

1 about right?

2 A. Well, I may have missed something in
3 there, because I gave you estimates.

4 Q. I'm more concerned with sequence.

5 A. I forgot something.

6 Q. Okay.

7 A. I spent some time either just before or
8 just after my stint as the instrument
9 trainer as a start-up assistant to the
10 central engineering division engineer on
11 an expansion for what we call the solid
12 Aroclors, check out the start-up and
13 training of the people and the actual
14 start of it. That would have been in
15 that time '65, '66, '64 to '66, in that
16 area.

17 Q. You think this was a half year project,
18 a month? Any rough idea how long you
19 spent on that?

20 A. I think less than a year, again,
21 guesstimate.

22 Q. And again, what was your responsibility
23 or role in this start-up process?

- 1 A. As the equipment would be turned --
2 There was an interface with the
3 engineering group and the contractor
4 about what part or piece would be turned
5 over. I went through a checklist to see
6 -- to check against what was supposed to
7 be done and what had physically been
8 done and to train the operators,
9 classroom training, field training, and
10 field inspection.
- 11 Q. When you say check to make sure stuff
12 had been done, you mean in terms of
13 physically do we have the right kinds of
14 piping and flanges and tanks, or do you
15 mean testing?
- 16 A. No, physical pieces.
- 17 Q. Okay. And that I assume wouldn't have
18 been even necessarily a daily thing,
19 would it?
- 20 A. I cannot recall if I shared that along
21 with the instrument training. I cannot
22 recall that.
- 23 Q. And then you trained the operators of

1 this expanded process in instrumentation
2 and operating principles?

3 A. Yes.

4 Q. And was this just identical in terms of
5 the hardware to the existing solid
6 Aroclor equipment but more of it, or was
7 there something different?

8 A. Basically the same.

9 Q. And what is solid Aroclor?

10 A. It's solid at ambient temperature.

11 Q. I was going guess that.

12 A. That is all I know.

13 Q. You don't know what makes it solid at
14 ambient temperatures as opposed to
15 liquid or viscous like other Aroclors?

16 A. No.

17 Q. Okay.

18 MR. FITE: Are you asking about
19 its chemical properties?

20 MR. CUNNINGHAM: Just what made it
21 solid, if he knew.

22 MR. PRAUSE: The laws of physics
23 and chemistry.

1 Q. But not all Aroclor is solid, is it, or
2 was it?

3 A. No.

4 Q. And as we sit here today, you can't tell
5 me chemically why some of it is liquid
6 and some of it is solid?

7 A. No.

8 Q. When I hear Aroclor, I'm thinking of
9 something that every molecule in the
10 barrel is a polychlorinated biphenyl
11 molecule. Am I wrong in that thinking
12 or right in that thinking?

13 MR. PRAUSE: If you know.

14 A. I do not know.

15 Q. Who would know something like that?

16 A. I do not know.

17 Q. All right. So I take it even though you
18 were helping people with the expansion
19 of the process, in terms of the
20 chemistry of making Aroclor, that wasn't
21 your bag?

22 A. No. As I explained earlier, it was from
23 an engineering standpoint of the

1 physical pumps, pipes.

2 Q. You in turn would train somebody how to
3 watch the dials to make sure that the
4 pump was operating at the correct
5 efficiency?

6 A. How that instrument functioned to do its
7 job.

8 Q. All right. What else did you do? Once
9 we get past when you were working in the
10 parathion department, where did you go
11 next?

12 A. To PNP.

13 Q. And were you the foreman of that?

14 A. Uh-huh (indicating yes).

15 Q. And roughly how long did you do that?

16 A. A guess, five or six years. I don't
17 know what this is adding up to, you
18 know.

19 MR. FITE: Don't ask any
20 questions. Just answer his.

21 Okay? No comments, please.

22 Q. It is all right. Again, I wouldn't know
23 if this would have been a lateral move

1 or a promotion. What was your sense of
2 it?

3 A. My boss told me to go.

4 Q. Fair enough. How many folks were you
5 taking care of and supervising?

6 A. Thirty to thirty-five.

7 Q. At the time you were doing this, was the
8 PNP y'all were making just as a feed
9 stock to make parathion?

10 A. Yes.

11 Q. And tell me how you make PNP or how did
12 you make PNP?

13 A. You react para-nitrochlorobenzene in the
14 presence of caustic and make
15 para-nitrophenol.

16 Q. The caustic is acting as a catalyst?

17 A. Yes.

18 Q. So it is not doing anything. It is
19 still --

20 A. Well, actually you make sodium
21 nitrochlorophenol.

22 Q. And that is the compound that acts as
23 the catalyst?

1 A. Then you wash the sodium out of it and
2 make the PNP.

3 Q. Okay. So at the end of the day you
4 still have caustic, but it is broken
5 down, done something, and come back
6 together, the salt has?

7 A. You recycle that as feed stock to the
8 next batch.

9 Q. And when we do a mass balance on this
10 process we have the compound, the
11 para-nitrochlorobenzene coming in and we
12 have caustic soda coming in. Anything
13 else have to come in to the reactor to
14 make this stuff?

15 A. Just the medium for the reaction, which
16 is some material from the previous
17 batch, the waste stream in the water.

18 Q. Okay. And what do we have coming out,
19 obviously PNP, obviously the recycled
20 sodium?

21 A. You have sodium PNP. And you wash the
22 sodium and make the PNP.

23 Q. Just wash it with water?

1 A. Yeah.

2 Q. So I assume you have a water effluent in
3 this process?

4 A. It is collected in carbon towers. It is
5 collected in tanks and goes to carbon
6 towers where the PNP is recovered. Then
7 that water goes back to be used to make
8 up the next batch.

9 Q. Okay.

10 A. Activated carbon.

11 Q. You have a closed loop with that waste
12 water basically?

13 A. Uh-huh (indicating yes).

14 MR. FITE: Say yes.

15 A. Yes.

16 Q. Again, no kind of gunk at the bottom of
17 the reactor vessel that has to be
18 cleaned out every so often, don't have a
19 gaseous phase of stuff that is coming
20 off that you have to deal with?

21 A. No.

22 Q. All right. What did you do after the
23 PNP department?

1 A. Went to P_2S_5 department.
2 Q. And how big --
3 A. Thirty-seven people. I remember that.
4 That was my last.
5 Q. Okay. And how did you make P_2S_5 ?
6 A. Mix phosphorus and sulfur.
7 Q. And the sulfur I take it is coming back
8 from whence you sent the P_2S_5 ?
9 A. Yes.
10 Q. You might buy some every year, but for
11 the most part you are recycling it
12 internally?
13 A. Yes.
14 Q. And where is the P coming from?
15 A. Silver Springs, Idaho.
16 Q. And that got consumed, so you had to
17 keep supplying that in the reactor?
18 A. Yes.
19 Q. What form did it come in?
20 A. Tank cars.
21 Q. Was it pure phosphorus?
22 A. Yes.
23 Q. And when you made that compound did you

1 have -- Again, going in we have the pure
2 phosphorus coming in from Idaho, and you
3 have the sulfur coming back in from the
4 parathion department, I guess. Anything
5 else going in to that process?

6 A. No.

7 Q. Anything else coming out besides the
8 P₂S₅?

9 A. No.

10 Q. And I take it throughout these stints
11 with the different departments when you
12 needed laboratory work done, you didn't
13 do it. That got sent to the lab?

14 MR. FITE: At that time?

15 Q. Yeah, when you were serving in these
16 other capacities.

17 A. Ask that question again, please.

18 MR. FITE: When you were a
19 foreman, did you do lab work?

20 THE WITNESS: No.

21 Q. Thank you. But you had lab work done by
22 the lab department, correct?

23 A. Yes.

- 1 Q. And those results were reported back to
2 you and the people working under you?
- 3 A. Yes.
- 4 Q. Okay. And did I understand that that
5 was your last position with the company?
- 6 A. No.
- 7 Q. Okay. What did you do when you left the
8 P₂S₅ department?
- 9 A. I became the trainer for the whole
10 plant.
- 11 Q. Do you remember when that happened?
- 12 A. No.
- 13 Q. If -- '80s or '90s? Can we break it --
14 Do you have a feel for that?
- 15 A. '80s.
- 16 Q. Okay. And what kinds of things did you
17 train folks in?
- 18 A. Instrumentation.
- 19 Q. Okay.
- 20 A. And reviewing and updating SMPs,
21 manufacturing processes, and operating
22 instructions.
- 23 Q. So those were your two basic tasks in

1 that capacity? You didn't go out and
2 training people in how to unload tank
3 cars, or did you?

4 A. No, no.

5 Q. But you might have trained people in any
6 department on how to read a pressure
7 gauge?

8 A. Yes, yes.

9 Q. And how to record what they were seeing,
10 what to do if they need to at a
11 particular point, that sort of thing?

12 A. More like how it worked.

13 Q. Okay. At that point did there cease to
14 be someone doing instrumentation
15 training within the particular
16 departments and you just kind of took
17 care of it for everybody? In other
18 words, they created this new position
19 and carved out work other folks had been
20 doing?

21 A. The other work continued too.

22 Q. So you were like another layer of
23 training?

- 1 A. Yes, yes.
- 2 Q. All right. Who would you report to in
3 that capacity?
- 4 A. The plant production superintendent.
- 5 Q. Okay. And what did you do after that?
- 6 A. Went to shipping and distribution.
- 7 Q. And when did that happen?
- 8 A. '88, something like that, '89, in that
9 -- late '80s.
- 10 Q. And what were your responsibilities in
11 shipping and distribution?
- 12 A. Getting all materials in, getting
13 finished goods out, and really anything
14 in between, and some purchases.
- 15 Q. You would communicate with Idaho about
16 getting phosphorus in and whoever about
17 getting benzene in, that sort of stuff?
- 18 A. (Witness nods head affirmatively.)
- 19 Q. Except I guess you didn't need the
20 phosphorus any more at that point?
- 21 A. That's right, yes.
- 22 Q. And what was your next responsibility?
- 23 A. That's was it.

1 Q. Are you still there?

2 A. No.

3 Q. Are you retired?

4 A. Now I am under contract as a consultant.

5 I still go out and do some work in

6 shipping and receiving and export

7 shipments and that.

8 Q. All right. And I don't need to know

9 some important secret, but I'm just

10 curious. What would they have you come

11 back -- Give me an example where they

12 would call and say let's call --

13 A. Well, the person that replaced me,

14 vacation.

15 Q. When did you retire?

16 A. 1994.

17 Q. So how many weeks would you guess you

18 have worked there since 1994?

19 A. Forty.

20 Q. Okay. And all forty of those weeks on

21 shipping and distribution kind of stuff?

22 A. Yes.

23 Q. They haven't asked you to come back as a

1 special consultant in the lab?

2 A. No.

3 Q. Okay. I think I asked you earlier. You
4 have never previously been deposed or
5 given testimony in a court of law; is
6 that correct?

7 A. I believe that to be correct.

8 Q. Okay. I represent a lot of folks who
9 live down in Calhoun County and some
10 down even in Eastaboga. Do you know of
11 anyone you have talked to who is a
12 plaintiff in the related cases we are
13 here about today?

14 A. No.

15 Q. Let me talk to you a moment about what
16 you have done as far as getting ready
17 for this deposition, please. Who did
18 you talk to prior to coming here today
19 about this deposition?

20 A. (Indicating.)

21 Q. Mr. Prause?

22 A. Yes.

23 Q. And when did you and he chat?

1 MR. FITE: Just a minute. Who
2 else did you talk to?

3 Q. And Mr. Fite?

4 A. Yes. I wasn't through.

5 Q. See, I told you I would do that. I
6 would cut you off in mid-answer. So who
7 else have you chatted with?

8 MR. FITE: About being prepared
9 for the deposition?

10 A. That's it. My wife. She knows where I
11 am.

12 Q. That is an honest answer. Most guys
13 never bother to mention that. You
14 didn't call anybody that you used to
15 work with at the plant and say, "I've
16 been trying to remember such and such"?

17 A. No.

18 Q. And how long ago did you first talk to
19 anybody about this?

20 MR. FITE: About the deposition,
21 you mean?

22 Q. About testifying.

23 A. I have my notes at home, but I don't

1 remember. A couple of weeks.

2 MR. FITE: Just your best

3 judgment.

4 Q. Weeks versus months versus years. A
5 couple of --

6 MR. FITE: A couple of weeks, is
7 that about right?

8 THE WITNESS: I believe that's
9 right.

10 Q. Are you aware you have been identified
11 as someone who is going to testify in
12 this case or been asked to testify in
13 this case on behalf of Monsanto?

14 MR. PRAUSE: He just testified
15 today. You mean at trial?

16 MR. CUNNINGHAM: Yes.

17 Q. As a witness at trial.

18 A. No.

19 Q. Has anyone talked to you about what you
20 would be able to say as a witness at
21 trial?

22 A. No.

23 Q. Have you reviewed anything in the form

1 of documentation or records?

2 A. No.

3 MR. FITE: Now, think about that a
4 minute. We looked at some
5 stuff yesterday. Do you
6 remember?

7 MR. PRAUSE: Not with --

8 MR. FITE: Am I wrong?

9 Q. Let me ask you something. Whether you
10 reviewed anything for this case or some
11 other case, what I want to make sure is
12 that everything you are telling me is
13 based on your independent recollection
14 of stuff and not something that was
15 refreshed very recently by something I'm
16 not able to look at. So far is
17 everything you have told me today so far
18 and in the future going to be based
19 totally on your independent
20 recollection, or have you looked at
21 documents that some of your answers
22 could well be taken from?

23 A. The first question is I have not looked

1 at a document.

2 Q. Okay. Have you read depositions that
3 other people may have given in the case?

4 A. No.

5 Q. So obviously the only thing you could
6 testify from is our own independent
7 recollection?

8 A. Yes, that's correct.

9 Q. Is there anything that you requested or
10 you -- when they started talking to you
11 about what subjects might be covered and
12 you said, "Well, I would like to see X,
13 Y, or Z that will help me"?

14 A. No.

15 Q. Is there something as you sit here today
16 that you would like to see that you
17 think would help you refresh your
18 recollection about what you are going to
19 testify about at trial?

20 A. No.

21 Q. What is it you have brought with you?
22 You have Mr. Prause's card I see and a
23 note pad there with you. Is there

1 anything else in there, or is it all
2 blank pages?

3 A. It is all blank pages.

4 Q. What do you understand the scope of your
5 testimony will be at trial?

6 A. I don't understand it. I don't know
7 anything about it.

8 Q. So no one has asked you questions to try
9 and figure out what you could even
10 testify about at trial. Is that your
11 testimony?

12 A. That's right, yes.

13 Q. I was going to ask you how Aroclor was
14 made, but it sounds like that is the one
15 thing out there that you didn't do.

16 A. That's right.

17 Q. You don't know how Aroclor was made?

18 A. I never worked there in that department.

19 Q. Okay. And you can't tell me, I'm going
20 to bet, the difference between Aroclor
21 1242 and Aroclor 1262. Can you?

22 A. No.

23 Q. Okay. If an inquisitive guy like me

1 wanted to know stuff like that about
2 Aroclor, do you know of somebody who is
3 still alive who knows how they made it,
4 what the process generated, how you made
5 one versus another, how you tested it?

6 MR. PRAUSE: I think he told you
7 he knew how. He did some
8 testing on Aroclor.

9 Q. Sure, as far as the dielectric capacity
10 and the HB-40 test.

11 A. Ask your question again. Do I know how
12 it is made?

13 Q. I assume you understand that they take a
14 biphenyl molecule and they chlorinate
15 it. And that makes Aroclor.

16 A. Yes.

17 Q. But do you know what else if any things
18 are involved in terms of catalysts, feed
19 stocks, what the waste streams would be?

20 A. No, I do not. I know chemically how it
21 is done.

22 Q. I mean, you don't how they make 1242
23 versus 1262, or if you do, I would like

1 to know.

2 A. I believe it is the amount of chlorine
3 added, but I'm not positive.

4 Q. And I think you are right about that,
5 but I don't know how they -- I was
6 hoping you could tell me how they
7 differentiate between the amount of
8 chlorine they have in a particular
9 batch. But I'm guessing you are not the
10 man to ask that.

11 A. I'm not.

12 Q. But I'm hoping you might know the man
13 who is and give me a name.

14 A. I can't.

15 Q. Back in the '60s when you were
16 supervising some workers and working in
17 the lab and teaching people about
18 instrumentation and such, what kind of
19 personal protective equipment was
20 available at the plant?

21 A. Safety shoes, gloves, hats, glasses,
22 goggles, respirators, gas masks, self
23 contained breathing apparatus.

1 Q. I'm going to assume that some of those
2 were mandatory for everybody at all
3 times and others were used as necessary.
4 Is that correct?

5 A. Yes.

6 Q. Things like safety shoes, hard hats,
7 goggles, if you are out in the plant you
8 had to have those on?

9 A. Yes.

10 Q. What sort of folks would be having the
11 respirators, the masks, and the self
12 contained breathing apparatus?

13 A. Somebody who might be hooking up a
14 chlorine tank car in case something
15 happened.

16 Q. Okay. I have seen documentation talking
17 about -- and this may have been
18 Illinois, one of the Illinois plants --
19 the toxic departments, that some
20 departments were considered a toxic
21 department and others were not. Do you
22 ever recall anything like that in
23 Anniston?

- 1 A. No.
- 2 Q. You mentioned that you weren't supposed
3 to eat in the lab. Was there a
4 designated place to eat for the
5 production workers?
- 6 A. Yes.
- 7 Q. Again, away from the production?
- 8 A. Yes.
- 9 Q. Smoking I'm sure was not permitted?
- 10 A. Designated areas only.
- 11 Q. Any of these departments have
12 ventilation systems designed to keep
13 fumes to an acceptable level for the
14 workers?
- 15 A. None that I'm aware of.
- 16 Q. What about medical testing? Did you
17 ever get physicals or any kind of
18 medical testing that you can recall?
- 19 A. Yes. I was routinely tested for
20 cholinesterase levels while I was in
21 parathion.
- 22 Q. And what is your understanding of the
23 purpose for that?

1 A. To guard against and alert any exposure
2 to the cholinesterase inhibiting
3 parathion.

4 Q. And that is a live enzyme?

5 A. No. It is the motor systems, your
6 nerves.

7 Q. Okay. That's right. Because that is
8 what parathion does to little bugs.

9 A. Yes.

10 Q. If your cholinesterase level got to a
11 certain level, what would happen?

12 A. I don't know. It never got there.

13 Q. Congratulations.

14 A. Obviously. I'm here.

15 Q. Any other -- When you say routinely, how
16 often would that be done?

17 A. Quarterly. I'm guessing. I don't
18 remember. I just don't recall.

19 Q. Any other kinds of, like I say, annual
20 physicals, chest x-rays?

21 A. Yes, all of that.

22 Q. Where would that be conducted?

23 A. At the plant medical facility.

- 1 Q. On-site?
- 2 A. On-site and different areas in Anniston,
3 labs, a combination of all those.
- 4 Q. You didn't do x-rays at the plant I
5 assume?
- 6 A. No.
- 7 Q. All right. Was some baseline work done
8 when you started there in the '50s?
- 9 A. Yes.
- 10 Q. Have you to your knowledge had your
11 serum or fat analyzed for PCB content?
- 12 A. No.
- 13 Q. You talked to me about the waste water
14 stream coming off the parathion
15 department that went to the activated
16 sludge treatment system that you
17 analyzed when you were in the lab so
18 many years ago. Any other waste streams
19 that you recall analyzing while you
20 worked there at Monsanto?
- 21 A. No.
- 22 Q. Would I be safe in assuming that a
23 substantial portion of your income

1 consists of a pension from Monsanto?

2 A. No.

3 Q. So you have no pension with Monsanto?

4 A. Yes, I do. But the answer to your
5 question was -- Your question was --

6 Q. Was it a substantial portion of your
7 income?

8 A. What is substantial?

9 Q. It is not what I think. Do you consider
10 it to be a substantial portion of your
11 income?

12 A. No.

13 Q. Do you -- Have you discussed whether or
14 not you will be compensated for your
15 time testifying in the case?

16 A. No.

17 Q. What about your time here today?

18 A. No.

19 Q. You are not going to be or have not
20 discussed it?

21 A. Have not discussed it.

22 Q. Did you ever visit -- Strike that.

23 To your knowledge the departments

1 that you ran in Anniston, the biphenyl
2 department, the chlorine department, the
3 parathion department, et cetera, did
4 they have companion type facilities in
5 other Monsanto plants in the U.S. or
6 around the world?

7 A. P₂S₅.

8 Q. Are you familiar with how that
9 department worked at the other place
10 that Monsanto --

11 A. Yes.

12 Q. How are you so familiar?

13 A. I visited the site.

14 Q. Where is that other site?

15 A. East St. Louis, Illinois.

16 Q. Is that the Krummrich plant?

17 A. Yes.

18 Q. When do you recall visiting that, when
19 you were doing the P₂S₅ department?

20 A. Yeah.

21 Q. That would have been mid '80s roughly?

22 A. Yes.

23 Q. Did it strike you that the Krummrich

1 plant was comparable to Anniston or
2 better or worse?

3 A. It was older.

4 Q. Okay.

5 A. But that's the only thing that I saw,
6 that I compared, is it was older, but it
7 was as efficiently run. Nothing -- No
8 is the answer to your question.

9 Q. When is the first time you remember
10 going to Krummrich?

11 A. When I was in the chlorine plant back in
12 the mid '60s or whatever that was.

13 Q. Okay. Did you see anything at Krummrich
14 in the mid '60s and remember thinking,
15 wow, that is not the way it is done in
16 Anniston?

17 A. They had full-time firemen. That's one
18 thing that struck me.

19 MR. PRAUSE: Full-time what?

20 THE WITNESS: Firemen.

21 Q. I assume at Anniston you just had staff
22 people who in the event of a fire would
23 put on a hat basically and become

1 firemen?

2 A. Yes.

3 Q. Anything else about the lab -- I mean,
4 did you get a chance to see the lab back
5 then?

6 A. No, no.

7 Q. So you can't compare what was available
8 to y'all in Anniston -- That is probably
9 not fair. We were talking about
10 something different.

11 Do you know how the laboratory
12 equipment and staffing and facilities in
13 Anniston compared to those that we would
14 have found at other Monsanto facilities
15 in the '50s?

16 A. No.

17 Q. What's the first time if ever that you
18 can recall visiting a laboratory
19 operated by Monsanto other than the one
20 in Anniston?

21 A. I never did.

22 Q. Do you know if they had a research
23 laboratory somewhere in the United

1 States in the '50s or '60s?

2 A. My understanding is they had a research
3 group in the St. Louis area.

4 Q. What about Dayton? Ever heard of --

5 A. Dayton, Ohio?

6 Q. Yeah.

7 A. Dayton labs?

8 Q. Yeah. What is that?

9 A. I don't know. In the telephone
10 directory it is listed as one of the
11 locations. That's all I know.

12 Q. They certainly weren't providing you any
13 support that you knew about?

14 A. Not me.

15 Q. When you were foreman of these various
16 departments, was one of your jobs to
17 basically police the neighborhood, to
18 make sure that things looked decent?

19 MR. FITE: Excuse me. What do you
20 mean by neighborhood?

21 Q. Your department. In other words, if you
22 are in charge of the parathion
23 department, one of the things you are

1 going to make sure of is that it didn't
2 look trashy around the parathion
3 department?

4 A. Yes.

5 Q. In fact that is good engineering
6 practice, isn't it, to keep your area of
7 responsibility looking sharp?

8 A. Yes.

9 Q. Who would have had responsibility in the
10 broader sense of outside the particular
11 departments, the broader -- the plant
12 facility? Do you know who would be in
13 charge of making sure it is properly
14 policed and kept neat and orderly?

15 MR. FITE: At any point in time?

16 MR. CUNNINGHAM: Yes.

17 Q. I'll take any name or a position.

18 A. There was a position. I don't recall
19 what it was called, but there was a
20 position for that.

21 Q. And this would be the person who would
22 be responsible for the physical
23 facilities outside the individual

1 departments?

2 A. Yes, yes.

3 Q. Okay. Did you ever have anything to do
4 with the landfills?

5 A. No.

6 Q. Do you have any idea of where the
7 landfills were?

8 A. It was across the road from the plant.

9 Q. Across which road?

10 A. 202, Highway -- Well, it was 78 and then
11 202. But it is across the highway from
12 the plant.

13 Q. And what went up there as far as you
14 know, if you know?

15 A. I don't know. I had nothing to do with
16 it.

17 Q. Okay. What kind of a library did they
18 maintain at Jacksonville State in the
19 area of chemistry?

20 A. Library?

21 MR. FITE: When it was started?

22 Q. When you were there. Were you one of
23 the first people to go through and get a

1 chemistry degree at Jacksonville State,
2 or had they been teaching that a while
3 there?

4 MR. PRAUSE: How about letting him
5 answer the question about the
6 library first.

7 MR. CUNNINGHAM: Okay. I'm sorry.

8 A. I would say adequate.

9 Q. And how long had they been teaching and
10 awarding chemistry degrees at
11 Jacksonville State?

12 A. I don't know.

13 Q. You don't have any sense that you were
14 one of the first guys through?

15 A. Absolutely not.

16 Q. Did you ever find yourself resorting to
17 that library to look something up when
18 you were involved in the lab at
19 Monsanto?

20 A. No.

21 Q. You had the resources you needed right
22 there on-site?

23 A. Yes.

1 Q. Do you know who Mr. Mullally is,
2 M-u-l-l-a-l-l-y?
3 A. Yes, I do.
4 Q. Who was he or is he?
5 A. A very good friend.
6 Q. Okay. I'm going to bet you would tell
7 me he is a good guy.
8 A. He is the reason I retired.
9 Q. Because he retired?
10 A. No. He had cancer and had less than six
11 months to live. And he died, and I just
12 thought I needed to take care of some
13 business.
14 Q. Okay.
15 A. He was a very, very, very good man.
16 Q. Okay. But you said he is the reason you
17 retired.
18 A. It doesn't have any business here. We
19 were just close friends, and I had never
20 even thought about retiring when he had
21 cancer. He told me the day we were
22 supposed to leave and go pheasant
23 hunting that he had six months left. I

1 just thought "I don't need to work any
2 longer."

3 Q. Other things you needed to be doing?

4 A. Right.

5 Q. What kind of cancer did he die of?

6 A. Tumor, stomach tumor, very fast growing.

7 Q. What were -- There was a dump task force
8 created in the early '70s, and I have
9 seen a document that describes him as
10 the chairman of that task force. Do you
11 know in the early '70s what his real
12 title would have been or what he would
13 have been doing?

14 A. I think he was in maintenance, would be
15 my guess.

16 Q. Do you know what his educational
17 background might have been?

18 A. No.

19 Q. How about Hal Brazelton? What was his
20 job?

21 A. In the maintenance department, I think.

22 Q. And education-wise, do you have any idea
23 what he would have been trained in?

1 A. I believe he was a chemical engineer. I
2 believe that.

3 Q. Is he still at the plant?

4 A. No.

5 Q. Still around?

6 A. I haven't seen him for twenty years.

7 Q. J. L. Etheredge?

8 A. Can we come back to that? That
9 doesn't --

10 Q. T. W. Lawrence?

11 A. Tom Lawrence?

12 MR. PRAUSE: What's the question?

13 MR. CUNNINGHAM: If he knows them.

14 Q. And what did Mr. Lawrence do at the
15 Monsanto plant?

16 A. I believe Tom was in safety when he --
17 He was engineering and safety, I
18 believe.

19 Q. Is he still around these days? No?

20 A. I do not know. He is not at Anniston.

21 Q. J. H. Powell?

22 A. Yes, I know him.

23 Q. What did he do?

1 A. He was a foreman in shipping, I believe,
2 a night superintendent.

3 Q. Education-wise what do you think --

4 A. I don't know.

5 Q. Do you know if he is still in the
6 Anniston area?

7 A. I know that he is not.

8 Q. Where would one find Mr. Powell, if you
9 know?

10 A. I do not know.

11 Q. You mentioned Mr. Lawrence is not in
12 Anniston. Do you know where he is?

13 A. I don't.

14 Q. And E. G. Wright, I guess they deposed
15 him earlier. He is still around, is he
16 not?

17 A. He is in Chattanooga.

18 MR. CUNNINGHAM: That's all I
19 have.

20 MR. PRAUSE: We have no questions.

21 (The deposition concluded at
22 12:20 p.m.)
23

1 I do hereby certify that the witness
2 whose attached deposition was taken before me
3 was by me first duly cautioned and sworn to
4 tell nothing but the truth in the cause
5 aforesaid; that the testimony contained herein
6 was by me reduced to writing in the presence
7 of said witnesses by means of stenography and
8 afterwards transcribed by means of computer
9 aided transcription. The foregoing is a true
10 and accurate transcript of the whole of the
11 testimony given by said witness, as aforesaid.

12 I do further certify that I am not
13 connected by blood or marriage with any of the
14 parties or their attorneys or agents and that
15 I am not an employee of any of them, nor
16 interested in the matter of controversy.

17 IN WITNESS WHEREOF, I have hereunto set
18 my hand and affixed my notarial seal at
19 Gadsden, Alabama, County of Etowah, this 18th
20 day of January 1999.

COPY

21 _____
22 Deborah Salers Garrett
23 Certified Shorthand Reporter
Registered Professional Reporter
Notary Public, Alabama-at-Large
My Commission expires: 3-7-2001

WITNESS ' CERTIFICATE

I, the undersigned, NORMAN MADISON, do hereby certify that I have read the foregoing deposition transcript and that to the best of my knowledge said deposition is true and accurate with the exception of the following corrections listed below:

Page	Line	Reason for Change or Correction
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
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1. NAME 2. DATE 3. TIME 4. LOCATION 5. WEATHER 6. MOON 7. STARS 8. PLANETS 9. COMETS 10. OTHER 11. REMARKS 12. SKETCH 13. DESCRIPTION 14. MEASUREMENTS 15. CALCULATIONS 16. CONCLUSIONS 17. SIGNATURE 18. DATE 19. TIME 20. LOCATION 21. WEATHER 22. MOON 23. STARS 24. PLANETS 25. COMETS 26. OTHER 27. REMARKS 28. SKETCH 29. DESCRIPTION 30. MEASUREMENTS 31. CALCULATIONS 32. CONCLUSIONS 33. SIGNATURE 34. DATE 35. TIME 36. LOCATION 37. WEATHER 38. MOON 39. STARS 40. PLANETS 41. COMETS 42. OTHER 43. REMARKS 44. SKETCH 45. DESCRIPTION 46. MEASUREMENTS 47. CALCULATIONS 48. CONCLUSIONS 49. SIGNATURE 50. DATE 51. TIME 52. LOCATION 53. WEATHER 54. MOON 55. STARS 56. PLANETS 57. COMETS 58. OTHER 59. REMARKS 60. SKETCH 61. DESCRIPTION 62. MEASUREMENTS 63. CALCULATIONS 64. CONCLUSIONS 65. SIGNATURE 66. DATE 67. TIME 68. LOCATION 69. WEATHER 70. MOON 71. STARS 72. PLANETS 73. COMETS 74. OTHER 75. REMARKS 76. SKETCH 77. DESCRIPTION 78. MEASUREMENTS 79. CALCULATIONS 80. CONCLUSIONS 81. SIGNATURE 82. DATE 83. TIME 84. LOCATION 85. WEATHER 86. MOON 87. STARS 88. PLANETS 89. COMETS 90. OTHER 91. REMARKS 92. SKETCH 93. DESCRIPTION 94. MEASUREMENTS 95. CALCULATIONS 96. CONCLUSIONS 97. SIGNATURE 98. DATE 99. TIME 100. LOCATION 101. WEATHER 102. MOON 103. STARS 104. PLANETS 105. COMETS 106. OTHER 107. REMARKS 108. SKETCH 109. DESCRIPTION 110. MEASUREMENTS 111. CALCULATIONS 112. CONCLUSIONS 113. SIGNATURE 114. DATE 115. TIME 116. LOCATION 117. WEATHER 118. MOON 119. STARS 120. PLANETS 121. COMETS 122. OTHER 123. REMARKS 124. SKETCH 125. DESCRIPTION 126. MEASUREMENTS 127. CALCULATIONS 128. CONCLUSIONS 129. SIGNATURE 130. DATE 131. TIME 132. LOCATION 133. WEATHER 134. MOON 135. STARS 136. PLANETS 137. COMETS 138. OTHER 139. REMARKS 140. SKETCH 141. DESCRIPTION 142. MEASUREMENTS 143. CALCULATIONS 144. CONCLUSIONS 145. SIGNATURE 146. DATE 147. TIME 148. LOCATION 149. WEATHER 150. MOON 151. STARS 152. PLANETS 153. COMETS 154. OTHER 155. REMARKS 156. SKETCH 157. DESCRIPTION 158. MEASUREMENTS 159. CALCULATIONS 160. CONCLUSIONS 161. SIGNATURE 162. DATE 163. TIME 164. LOCATION 165. WEATHER 166. MOON 167. STARS 168. PLANETS 169. COMETS 170. OTHER 171. REMARKS 172. SKETCH 173. DESCRIPTION 174. MEASUREMENTS 175. CALCULATIONS 176. CONCLUSIONS 177. SIGNATURE 178. DATE 179. TIME 180. LOCATION 181. WEATHER 182. MOON 183. STARS 184. PLANETS 185. COMETS 186. OTHER 187. REMARKS 188. SKETCH 189. DESCRIPTION 190. MEASUREMENTS 191. CALCULATIONS 192. CONCLUSIONS 193. SIGNATURE 194. DATE 195. TIME 196. LOCATION 197. WEATHER 198. MOON 199. STARS 200. PLANETS 201. COMETS 202. OTHER 203. REMARKS 204. SKETCH 205. DESCRIPTION 206. MEASUREMENTS 207. CALCULATIONS 208. CONCLUSIONS 209. SIGNATURE 210. DATE 211. TIME 212. LOCATION 213. WEATHER 214. MOON 215. STARS 216. PLANETS 217. COMETS 218. OTHER 219. REMARKS 220. SKETCH 221. DESCRIPTION 222. MEASUREMENTS 223. CALCULATIONS 224. CONCLUSIONS 225. SIGNATURE 226. DATE 227. TIME 228. LOCATION 229. WEATHER 230. MOON 231. STARS 232. PLANETS 233. COMETS 234. OTHER 235. REMARKS 236. SKETCH 237. DESCRIPTION 238. MEASUREMENTS 239. CALCULATIONS 240. CONCLUSIONS 241. SIGNATURE 242. DATE 243. TIME 244. LOCATION 245. WEATHER 246. MOON

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