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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
BEAUMONT DIVISION

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| PAUL MAJOR, et ux, | ) | |
| | ) | |
| Plaintiffs, | ) | |
| | ) | |
| vs. | ) | No. 93-CV-315 |
| | ) | |
| ALCO STANDARD CORP., et al., | ) | |
| | ) | |
| Defendants. | ) | |

IN THE DISTRICT COURT
OF JEFFERSON COUNTY, TEXAS
136TH JUDICIAL DISTRICT

| | | |
|---|---|---|
| RITA MAE SCHMIDT, et al., | ) | |
| | ) | |
| Plaintiffs, | ) | |
| | ) | |
| vs. | ) | No. D-145,280 |
| | ) | |
| AC&S, INC., et al., | ) | |
| | ) | |
| Defendants. | ) | |

Video Deposition of Witness
JACK T. GARRETT
On Behalf of the Plaintiffs

December 16, 1993

Reported by:
JULIE E. STELFOX
Certificate of Merit Reporter

METRO COURT REPORTING, INC.
20 South Central Avenue, Suite 202
St. Louis, Missouri 63105-1715
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Jack Garrett deposition 12/16/93
P. 11 Monsanto Chemical/I.H 1953-1988

54-56 } showers &
212-214 } & clothes
for insulation
exposed workers
→ "We didn't want it (the dust)
at home." (213)

# INDEX OF EXHIBITS*



*Original exhibits attached to original transcript.

VIDEO DEPOSITION OF JACK T. GARRETT, produced, sworn and examined on the part of the Plaintiffs, pursuant to Notice, and pursuant to the following stipulation between the hours of eight o'clock in the forenoon and six o'clock in the afternoon of Thursday, December 16, 1993, at the Stouffer's Concourse Hotel, 9801 Natural Bridge, in the County of St. Louis, State of Missouri, before me,

JULIE E. STELFOX
Certificate of Merit Reporter
of
METRO COURT REPORTING, INC.

A p p e a r a n c e s

| | |
|---|---|
| For the Plaintiff: | Herschel L. Hobson<br>Joseph Blanks<br>Attorneys at Law<br>2190 Harrison Avenue<br>Beaumont, Texas 77701 |
| For the Defendant:<br>Monsanto Co. | Martin P. Zucker<br>Inhouse Counsel<br>800 North Lindbergh Blvd.<br>St. Louis, Missouri 63167 |
| For the Defendant:<br>Monsanto Co. | G. Joseph Ellis<br>Woodard, Hall & Primm<br>7000 Texas Commerce Tower<br>Houston, Texas 77002 |
| For the Defendant:<br>North America | Paul Fogarty<br>Fulbright & Jaworski<br>1301 McKinney - 5100<br>Houston, Texas 77010 |
| For the Defendant:<br>Goodyear & O&I | David A. Oliver<br>Strong, Pipkin,<br>Nelson & Bissel<br>1400 San Jacinto Bldg.<br>Beaumont, Texas 77701 |
| For the Defendant:<br>Mallinckrodt | H. Tracy Richardson, III<br>Jenkins, Grove & Martin<br>P.O. Box 26008<br>Beaumont, Texas 77720-6008 |

# Appearances (Cont'd.)

| | |
|---|---|
| For the Defendant: Ferro Corp. | William B. Gaudet<br>Adams and Reese<br>1100 Louisiana - 5100<br>Houston, Texas 77002 |
| For the Defendant: ARCO | Claude R. LeMasters<br>Orgain, Bell & Tucker<br>470 Orleans Street<br>Beaumont, Texas 77701 |
| For the Defendant: Shell & Texaco | Steven M. Duble<br>Hays, McConn,<br>Rice & Pickering<br>400 Citicorp Center<br>1200 Smith Street<br>Houston, Texas 77002 |
| For the Defendant: Met Life | John Hall<br>Liddell, Sapp,<br>Zivley, Hill & LaBoon<br>Texas Commerce Tower<br>Houston, Texas 77002 |
| For the Defendant: R.T. Vanderbilt | James M. Corbett<br>Giessel, Stone,<br>Barker & Lyman<br>2700 Two Houston Center<br>909 Fannin<br>Houston, Texas 77010-1063 |
| For the Defendant: Alco Standard | David K. Vallance<br>McLeod, Alexander,<br>Powel & Apffel<br>Box 629<br>Galveston, Texas 77553 |
| For the Defendant: Armstrong, et al | Rustin Polk<br>DeHay & Elliston<br>1500 Maxus Energy Tower<br>717 North Harwood Street<br>Dallas Texas 75201-6508 |
| For the Defendant: M.H. Detrick | James E. Brown, Jr.<br>Johnson & Associates<br>4900 Woodway<br>Houston, Texas 77056 |

Appearances (Cont'd.)

| | |
|---|---|
| For the Defendant: Dupont | John Muir<br>Mayor, Day,<br>Caldwell & Keeton<br>700 Louisiana - 1900<br>Houston, Texas 77002-2778 |
| For the Defendant: Flint Kote Co. | Jan E. Dodd<br>Sandberg, Phoenix &<br>von Gontard<br>One City Centre - 1500<br>St. Louis, Missouri 63101-1880 |
| For the Defendant: | Rebecca R. Jackson<br>Bryan Cave<br>One Metropolitan Square<br>211 North Broadway<br>St. Louis, Missouri 63102-2750 |
| For the Defendant: Fibreboard Corp. | Jim Powers<br>Roberts, Markel,<br>Folger & Powers<br>24 Greenway Plaza - 2000<br>Houston, Texas 77046 |
| For the Defendant: Monsanto | Edward M. Carstarphen<br>Woodard, Hall & Primm<br>7000 Texas Commerce Tower<br>Houston, Texas 77002 |
| Videographer: | Warriene Flatt<br>Legal Images<br>105 Hunters Court<br>Lumberton, Texas 77656 |

S t i p u l a t i o n

Before the taking of the within deposition, the parties, by their counsel, stipulate and agree that the same is being taken pursuant to Notice. Counsel further stipulate same may be taken in stenotypy and thereafter typed, signature of the witness being expressly waived by consent of counsel and the witness in his own behalf, and regularly filed in the case.

(Plaintiff's Exhibit Number 230112 GARR, marked for identification, JS.)

JACK T. GARRETT

being produced, sworn and examined on behalf of the Plaintiff, deposeth and saith:

MS. FLATT: The date is December 16. It is 9:25. We are on the record.

THE REPORTER: And if everyone would please identify themselves and who they represent starting with the gentleman on my left.

MR. BROWN: Jim Brown, M.H. Detrick Company.

MS. JACKSON: Rebecca Jackson, Coltec Industries, Inc. and Garlock, Inc.

MR. FOGARTY: Paul Fogerty, Elf Atochem, North American, Inc.

MR. OLIVER: David Oliver. In the Major case, it will be Goodyear. In the Schmidt case, it will be O&I.

MR. LeMASTERS: Claude LeMasters, representing ARCO in the Schmidt case.

MR. RICHARDSON: Tracy Richardson, representing Mallinckrodt in the Major case.

MR. POWERS: Jim Powers, I represent Fibreboard in the Schmidt case.

MR. DUBLE: Steve Duble for Shell and Texaco.

MR. ELLIS: Joe Ellis representing Monsanto and the witness.

MR. ZUCKER: Marty Zucker, Monsanto.

MR. HALL: John Hall, Met Life.

MR. MUIR: John Muir, Dupont.

MR. CORBETT: Jim Corbett, R.T. Vanderbilt in the Major case.

MR. GAUDET: Billy Gaudet representing Ferro Corporation in the Major case.

MR. VALLANCE: David Vallance representing Alco Standard Corporation in the Major case.

MR. POLK: Rustin Polk, representing the Armstrong World Industries, A.P. Green, GAF, Flexitallic, Asbestos Claims Management Corporation, T&N and U.S. Gypsum in the Schmidt case.

MS. DODD: Jan Dodd representing the Flint Kote Company in the Schmidt case.

MR. HOBSON: I'm Herschel Hobson. I represent the plaintiffs in these cases and in attendance with me is Mr. Joseph Blanks.

DIRECT EXAMINATION

BY MR. HOBSON:

Q. Would you introduce yourself to the group, please, sir.

A. My name is Jack T. Garrett, and I'm a retired -- retiree from Monsanto and I'm a consultant at times.

Q. Mr. Garrett, my name is Herschel Hobson and I represent some people who've brought a lawsuit.

One of the defendants in the case is Monsanto. That's your old employer, so you realize I'm on the other side of this lawsuit from your old employer?

A. Yes.

MR. OLIVER: Herschel, if I may, you were not serious --

MR. HOBSON: I was not. One objection is good for all --

MR. OLIVER: Thank you.

MR. HOBSON: -- and take the deposition pursuant to Texas Rules of Civil Procedure if that's --

MR. ELLIS: Agreed.

MR. OLIVER: Agreed.

Q. Also ask you, Mr. Garrett, would you like to read and sign your deposition so we have all the little formalities out of the way?

A. I haven't seen it yet.

Q. Yes, sir. That's -- what happens is this young lady that's taking everything down will put it in a book, send it to you and you can read it and there will be an eratta sheet, and any changes that you would like to make, you have the privilege of writing on the eratta sheet and resubmitting.

A. Okay.

MR. ELLIS: Why don't we just handle it this way. If you would send his copy of the deposition to me, and I'll arrange having him read and sign the original signature page and return the signature page.

A. If you send it to me, he's going to get it anyway.

MR. CORBETT: Herschel, if I could

ask, as a housekeeping matter, were you planning on splitting up this deposition according to these cases -- your questions in any particular way, one case in the morning, one in the afternoon, anything like that?

MR. HOBSON: No. We're going right on through and getting done.

MR. CORBETT: Just every other question.

MR. HOBSON: Something like that.

THE REPORTER: Sir, what is your name?

MR. CORBETT: Jim Corbett.

THE REPORTER: Okay.

MR. GAUDET: One additional matter --

THE REPORTER: What is your name, sir?

MR. GAUDET: Billy Gaudet, representing Ferro. We wanted to reserve our right to object to the introduction of the video ultimately. By not objecting to it earlier, we wouldn't want it to act as a waiver to our later objection.

MR. HOBSON: What's the basis of your objection, sir?

MR. GAUDET: I'm reserving my right to object to it. I don't know what it will be until

after you finish the -- the video. There may be numerous objections to its introduction.

MR. HOBSON: You're not claiming you didn't get notice.

MR. GAUDET: No, no.

Q. Mr. Garrett, may I have the date that you first began working for Monsanto, please, sir?

A. It was 1950, I believe, and I can't -- huh. Well, I graduated from the University of Tennessee in -- with my Master's and it had to have been in the end of the summer, so it had to have been either August or September.

Q. You've provided me before we started here this morning a copy of a resume which I've now marked as Exhibit Number 230112 G-A-R-R, and would it help you, sir, to look at your resume to get those dates?

A. October 1953.

Q. October of '53? And may I ask when you left Monsanto's employment, sir, as an employee?

A. Thirty-five years after that.

Q. So somewhere around 1988?

A. It was '88 -- I believe '89, but I'm not absolutely sure. Wait a minute. Let's look

again, see if I've got a better memory than my own.

Everything but the date I left out.

Q. '88 or '89?

A. Yes.

Q. As I ask you questions, Mr. Garrett, I know that some of the things I'm going to be asking you about happened a long time ago and you may not have a exact recollection of everything or even precise dates, so if you could just give me your best recollection, and if you're estimating, just tell me when you're estimating, I'd appreciate that, sir.

A. Okay.

Q. How did you get the job with Monsanto?

A. Well, when I graduated from the University of Tennessee with my Master's, I had a doctorate set up at the university -- at Oak Ridge to do a doctoral dissertation in rare earth materials with the -- what's known as the nuclear energy for the propulsion of aircraft.

Now, that's a misnomer. It's NEPA. All of their unusual research went under that guise, and during the latter part of my Master's degree work, the whole system collapsed.

The American first big post war recession hit. The government was withdrawing their support. The two people I worked with out there to get this job headed -- I had my Ph.D. thing agreed upon and everything. They -- I couldn't even find them.

One of the -- the University promptly sent him back to his home university, which happened to be the University of Illinois. So I had to go get a job.

I was married and had two kids, so I went off on foot. Went over to my father's home in southeast Oklahoma, Durant, and went with him, who was a salesman for fractional horsepower engines, for lawn mower manufacturers.

Went with him on -- down on a trip to Houston because I didn't have the money, and I stayed in his hotel room and his employer apparently paid for it, used his car while he spent all day in his -- went around Houston, all the way down to Texas City, interviewed everybody along the line, and -- and Monsanto offered me a job on the spot.

Q. And that must have been in October 1953, thereabouts?

A. That's right.

Q. When you walked in the gate, did you have in mind what you wanted to do when you made your application?

A. I wanted to do research.

Q. Did you get to do research?

A. Damn little. An inorganic physical chemist in a primarily organic laboratory is -- does all the spare parts work.

Q. And that's where you found yourself.

A. That's right.

Q. Is that what you did then is you started working in the laboratory there at the Texas City plant?

A. The research lab for the Texas Division of Monsanto at the time.

Q. What kinds of things did they have you doing when you began working at the research lab there?

A. I did a lot of explosion limit work, physical chemistry. Mixture work. I finally ended up doing pilot -- a lot of pilot plant work for the processes that were being developed.

Q. Is my appreciation that ultimately you got into industrial hygiene with Monsanto, is that

right?

A. Well, everything I did at the beginning I guess was a mistake. I was ordered by my boss to go out and find out -- I don't know why. I don't have any idea -- but to go out and find out all the materials handled in the plant both as primary raw materials, intermediates, identifiable intermediates and final products, and to write a treatise defining the safety and health problems connected with each one of them.

So I wrote a famous research report that had absolutely nothing to do with research, but it was the biggest one they ever had written, I guess, and I -- and I'd research -- reports at the time in Monsanto went to the plant manager or to my boss, the research director for the Texas Division of Monsanto, and copies went to St. Louis, both to the then vice-president of research and to the corporate research file.

These research things are all double signed. Every page has to be double signed and all that legal nonsense. And it was on health and safety, and somebody sent a copy to Dr. Kelly, who was the medical director of Monsanto.

And he wanted to know who in the hell

was interfering in his business, I guess, so he came to Texas City, talked to me along with Elmer Wheeler, who was then director of industrial hygiene or was the corporate industrial hygienist because there was nobody else working for him, and a couple weeks later I got offered a transfer to St. Louis.

Q. About how long after you got to Monsanto in Texas City did you start your research report that led to this odyssey?

A. Gosh, I don't know. Maybe a year.

Q. And about how long did it take you to do the work for the research report?

A. I spent most of my time in the library in Houston at the University of Houston library and over at the hospital there, which is now that big hospital center.

I think that was the old Baylor Medical -- Baylor Medical School branch, and I spent a good deal in their library.

Q. Did you utilize the library down at the University of Texas medical branch in Galveston?

A. No, I was over there. I had been in that hospital many times, but -- and had talked to

a couple people, but their library was not nearly as extensive at -- in this subject.

Now, you're talking toxicology now, not really medicine. Not nearly as good as the University of Houston at that time, and the other -- the university there -- that university center, which is now that big diagnostic center was then, I believe, attached to Baylor, but I'm not sure, and they had the best library.

Q. There's a library there now called Jessie Jones Memorial Library.

A. That could very be -- very well be it, or the beginning of it.

Q. Had you had any training or experience in the area of toxicology before you began this research report?

A. I had training in respect to the -- to the methods of keeping yourself reasonably clean and alive in research and at that university, believe it or not, we had university safety people at the University of Tennessee, Knoxville Campus, and the research chemists on research jobs got lectured and given the documents necessary for their -- and the TLVs for their materials that they were handling, and we stuck within that to

the degree that we could do that for sampling.

TLV means threshold limit value.

Q. Did any of your course work that you took as a student before you came to Monsanto teach you about how to do scientific research?

A. Yeah, I did a lot of sci- -- I produced the scientific -- researched my report myself.

Q. So by the time --

A. It was published -- published in the Journal of Physical Chemistry. It's on radiation chemistry, the measure of radioactive materials in layers, the differential effect of layers, the absorption effect of layers themselves.

Q. So would it be accurate then, Mr. Garrett, that by the time you got to Monsanto you were well trained and schooled in how to do scientific research, how to use a library, how to find really what was available in the -- in the scientific literature?

A. Or do it myself.

Q. Yes, sir.

A. Keep in mind I did some work on pollution control all along in this same issue, so -- and that way we did it ourself. We went to

the State of Texas and with their laboratory facilities and their research biologists set up programs of testing chemicals in expected developments at the Texas City plant.

We did the -- the marine toxicology work on a number of them, including a number of cyanide compounds.

Q. When you went to the University of Houston, as you described earlier, in doing the work for your research report, would you recount for me as best you can recall how you found that facility from a toxicological research standpoint?

A. You track it through chemistry is the way I did it. I was interested in a great many chemicals, and if you track the chemicals back far enough, you will find references to some kind of government documents or other documents and if you can look them up or have them shipped, and we had a great many shipped on loan.

We could find out what the threshold limit values were, how they were done, who did the work and so forth. So that was where we did it.

I had a great leader there, by the way. Monsanto had a consultant at the University of Houston named Sawin, S-a-w-i-n, known as Hod.

I don't know what his first name was.

He was a tremendous biologist, and he had knowledge in where you could find a great many things in a university web that I did not know although I had been through the same ruckus at Tennessee.

Our laboratory system at Tennessee is much different than the University of Houston's. Our library system in Tennessee was centralized. Theirs was scattered within the individual colleges at that time.

Q. Yes, sir. And did you have the feeling that you, in fact, through the University of Houston and over at the Medical Center library that you say could have been associated with Baylor at the time, that you really did have access to pretty much all the literature that you needed?

A. Yes. I think I did, and I got put on a bunch of committees that I didn't even know existed by my boss in Texas, and one of them was a Manufacturing Chemists Association committee on pollution, and this was primarily at the time pollution control standards was the -- was the work of the day, if you know what I mean.

And I went to a number of those meetings and met some very good and efficient people from Dupont, particularly from Dupont, and from Standard Oil of New Jersey, and they helped me along as well.

Here I'm an inorganic physical chemist who didn't even know anybody cared and I'm now beginning to be a toxicologist.

Q. In the Houston area when you got there in the early 1950s, did you encounter anyone else other than Dr. Sawin that you told us about who you found to be helpful or knowledgeable in doing this toxicological work?

A. There was a guy -- there was a man at Humble then which is then and even now fully a part of Standard of New Jersey but then it was -- even then, but it was called Humble & Refining Company.

It was headquartered in Houston and whose primary refinery was there. I can't remember his name.

Q. What was his --

A. He was their -- he was their industrial hygienist.

Q. James Hammon?

A. Yes, it was Jim Hammon, and he led me through a great deal of the labryinth of where you get and why you get there in this business and where you get the data, because the data on early -- in those days was pretty -- was there but it was -- you had to dig like the devil to find it.

It was in reports. Lots of it was in the hands of chemical companies and oil companies, and if you had access through -- and Jim introduced me to that committee of the API which Monsanto later put me on, was the support committee for the American Petroleum Institute.

Q. The medical advisory committee?

A. Yes, only it was primarily meeting of loudmouth industrial hygiene and toxicology people. We blew the M.D.s out of the place.

Q. I take it you mean that in a constructive sense?

A. Well, no, they -- believe it or not, they -- we organ- -- they organized a committee that included all of us and then they went to play golf. The doctors always play golf.

Q. Left you guys to do the serious work?

A. That's right. So we did all the work

in connection with toxicology and the work necessary guiding lights toward what kind of work needed to be done to produce adequate controls and this sort of thing and who was doing what and so forth.

And some of the research projects later put on by the API was largely due to the toxicology committee or whatever they want to call it. It was the non-medicals anyway.

Q. Can you put a time period on that, of course, Mr. Garrett, when you worked with the API, '56?

A. I was a member of the API committee probably for fifteen years in the late '50s, had to be into the early '70s. Okay?

Q. Yes, sir.

A. And the meetings largely enough then were in Chicago. I bet I went to twenty meetings in Chicago, in Chicago or Fort Worth. Why, I don't know. Don't ask me.

Q. Were there other people besides Jim Hammon that you recall working with on these activities?

A. Oh, yes. The best group that I knew was the -- was the Standard Oil group. That was

the -- in New Jersey, and their people in Columbia and Venezuela, which was also a subsidiary of theirs, called Creole Production Company, I believe.

And they had a great group down in South America, and we got -- we worked with them along -- now, we, I'm talking about the chemical crowd.

This is the Dupont, Monsanto and all the bunch of that group with the oil group, but it really pretty well merged that throughout all the AP -- the committees, including the committees on standards. We probably -- I probably knew all these people personally and a great many of them I had been in their homes. I knew their wives and kids and everything, so it was that kind of relationship.

Q. Did you mention that Dupont was also part of this API work?

A. Oh, yes.

Q. Were there other chemical companies involved with the petroleum industry through the API?

A. No. Dupont -- in the API group was a group of people representing -- in my opinion, the

most forward and good companies -- represented a group that the chemical industry group represented together in -- with the American Industrial Hygiene Association in their committees on standards, and that group was -- were friends.

I was a personal friend of the Dupont man, as a matter of fact. Been in his house. Been in his home.

Q. Who was that, sir?

A. Oh, God. Don't ask me that question. His name, his name. You'd have to look it up from the records, I guess.

Q. Dow Chemical, would that be one of the companies?

A. Dow was -- Dow was the best treater in the business in pollution control. Now, keep in mind we're working both sides of this street. Now, this is not true with everybody else, but it was true with a great many people, including Monsanto and Dupe and some of the others. We treated this as a single issue. Dow did not.

Dow had a strictly pollution engineering group and a toxicology industrial thinking group. They knew each other. Don't get me wrong. I'm not -- and they frequently went to

the same meetings because of the crossing of information and need.

But Dow was the people that had done a lot of very difficult treatment studies and they were wide open to anybody in the industry. They taught us a great deal about treatment of organic chemicals in treatment of plants, which we -- some we didn't know. Some we did know.

We turned over to them a lot of experience in connection with some products as well.

I also had been frequently in their plant in Freeport, Texas.

Q. Down in the same area of Texas Union Carbide has a large facility. Did you have any encounters with Union Carbide personnel?

A. Carbide is a funny company. Of the big chemicals. They did a lot of work in this area but they did less coordinating with other companies than most big companies.

They did by zone. We had a great group in Texas. We had a good group in the Kanawha Valley of West Virginia with Dupont and Monsanto and Carbide and the like, but as a corporate structure, it was difficult to find

whoever was supposed to be the boss man of pollution or industrial hygiene in Carbide at the time.

They had people, some very, very good people. They attended our API -- or our -- they attended our industrial hygiene meetings, but it wasn't coordinated really.

Their companies were separate companies. I guess legally a great deal more separate than Monsanto's divisions were and/or other companies.

Q. Now, this work that you were doing with the American Petroleum Institute and I think you said also the Manufacturing Chemists Association, this was -- was this after you transferred to the corporate offices of Monsanto?

A. Well, it was during the period -- and I don't know. I went to -- I made an API meeting in Fort Worth before I went up there and was talking with their -- largely with their toxicology people, and now you're talking industrial hygiene, not pollution, okay?

Q. How would you be able to tell us the differentiation between industrial hygiene and pollution as you use those terms?

A. In some cases you couldn't because some companies grew up. Like Monsanto grew up from Dr. Kelly into the -- into the industrial hygiene pollution and then the pollution thing finally fell over into engineering.

Same was true I know, for example, with Dupe because Dupont's people were engineering people and they were from Newark, Delaware.

They were not in the main plant. They were down at the engineering offices in Newark, and when I wanted to visit them, I had to go down there to that -- to the Newark operation.

In the petroleum companies -- an interesting thought, who was -- their headquarters people, these were the kingpin people in what would be considered the good, good companies, like Standard.

Standard Oil of New Jersey had a set-up where their people in New Jersey working out of that New Jersey office and the labs there represented all of their subsidiaries except that many of their subsidiaries, like Humble -- but Humble grew up as a separate company that was owned by them, which is the same thing with their set-up in South America.

And so they had the same kind of people there, and how they merged them, I don't know. But we did deal with them very much. They had Dupont -- I mean Standard probably had the best trained young physicians.

MR. OLIVER: Objection, nonresponsive.

Q. Would you tell us, Mr. Garrett, as best you recall, how it was when you would go to meetings through these organizations or others in exchanging information between companies.

Was this something that was done, not done? How --

A. It was done wide open. Wide open. We -- I had a letter one time -- and I don't know who it was from -- to tell them anything they want to know because it's a business that has to be done and done right by one of our executives.

So we did -- we told them any data they want. I've given them complete research pamphlets connected with that specific toxicology.

Q. Did you find that there were some companies that were just as open about Monsanto -- as Monsanto was and others at work or how did that work?

MR. FOGARTY: Objection, calls for

speculation.

THE REPORTER: What's your name, sir?

MR. FOGARTY: Paul Fogerty.

A. We had a group of people we worked with us in detail. I don't remember anybody telling us we didn't -- they wouldn't give us their data or information.

Q. Was it your perception at the time that the folks that you have told us that you worked with at these other companies, that these other companies were just as open as Monsanto was in sharing that?

A. Yes.

Q. You said that this initial research report that you -- that got you into the health and safety, and later I guess pollution even area, your charge was to go out and find all the materials used at the Texas City plant?

A. (Nodding head.)

Q. Can you tell me how you went about doing that?

A. I went from unit to unit and asked them, got their engineer out and had him define and diagram his unit. And where he actually peeked at or sniffed at any of the products, we

took them down and checked them, but the report's about -- hundreds of pages long.

Q. Did that report have a title to it so that we could identify it?

A. God, no, I don't think so. I have no idea what the report title was. I didn't even know that Kelly'd had a copy of the damn thing.

You know, you do -- I'm a young chemist doing a job. I'll do the job they tell me to do. I recognize that I was a spare part because I was the inorganic physical chemist in a largely organic laboratory and I got all the oddball jobs, and that was one of them.

Q. When you said you used all the -- you inventoried all the materials used at the plant, were these process materials that we're talking about?

A. Yes, primarily purchased or modified. If they purchased one product and modified it, we did them both. If there were known analyzed-for comtaminants, we did those if we could find it. If we didn't, we did the work ourselves.

Q. And what about items that were used, not in actually as raw material to make a product or as a finished product or intermediate, but

things like catalysts or filter aids?

A. We did three catalysts and we did some of the spents where you get two of them and get them. We did a lot of raw material, or we gathered the data.

Now, keep in mind we're gathering data for this thing. You'd be surprised at the number of sources you can tap and surprised I think even more at how even then -- you're talking 1950s now -- even how open they are.

We had no trouble, for example, in respect to any of the dusts that we usually handled, asbestos, cement, that sort of stuff.

The people that -- they give you what they knew and they'd give you any data they had, and, in fact, they'd give you probably literature resources if those were available.

Q. Asbestos was a material that was used at the Texas City plant?

A. Yes.

Q. You-all use it in chlorine manufacturing?

A. We didn't manufacture chlorine at Texas City.

Q. You didn't? How did you use asbestos

at the plant, as you recall?

A. As an insulating material.

Q. Oh. But not in manufacturing products?

A. No.

Q. You say that you were given information freely about things like asbestos dust.

A. That's right.

Q. What did you get and how did you go about doing it? How did you get to this impression?

A. Well, we got -- we got told -- and I'll tell you the truth. I can't tell you who told me -- to look up the TLVs, and the first time I ever saw TLVs was during that setting. I didn't even know they existed.

Hell, I'm a darn fool. Come out of the Army and -- with too many kids and needed a job. So I found out that they used asbestos.

I got -- looked it up, found out the threshold limit value, and all of those things that we could find a TLV for or that any company had established one for, we used and was in the report.

Q. When you say you found out "they" used asbestos, who were you talking about?

A. Our maintenance people used it to maintain the pipe equipment.

Q. Were you aware that there was asbestos in insulation materials --

A. Yes.

Q. -- before you came to Texas City?

A. Yes.

Q. What do you recall learning about asbestos?

A. Well, as a matter of fact, we were dealing -- we were making some reactor tubes at the University of Tennessee, and we got lectured on that to use respirators or use it inside of hand glove compartments in a hood.

If we were going to do it before -- well, we mixed it up in the mud because most research laboratories use a lot of it to cover heat sensitive equipment as a mud.

Q. And this occurred even before you went to Monsanto?

A. Oh, yes. I used it before. Yes, I did.

Q. Do you remember what was told to you

when you were at the University of Tennessee about the reasons for handling asbestos this way?

A. Don't breathe it.

Q. I'm sorry?

A. Don't breathe it, or use a mask. "Come to the head of this particular section, the research of engineering section. Go see him, they get you a mask."

Q. Is there some point in your career, Mr. Garrett, where you learned about the hazards that were associated with asbestos exposure?

A. Well, if you're told to do a research report on the toxicology and hazards and safety features of all the products in a complicated plant, you're going to learn about asbestos and cement dust and catalysts, spent catalyst dust, and about half a dozen other dusts, and we're going to check them out.

And the primary test period was the surface toxicology, what was retained on old catalysts. Believe it or not, not much.

Second, what was the base catalyst made of? Is it -- was it made of some rock substance or asbestos in pellets, in little half moons -- God, we've seen it in every shape you can

imagine -- upon which something is then laid or sprayed or cooked on, which is subsequently the catalyst, which much of the solid catalysts today or in those days were in catalyst beds, and those beds were made up of some kind of rock or base with the material stuck to it somehow.

Generally by vapor, and then that constituted the catalyst used.

Q. Are you saying that some of the catalysts that you used there at Monsanto, the base material was made with asbestos?

A. Some of it had to have been. I don't know. I couldn't tell you that. I've seen so many different kinds that you can shake a stick at.

They're made out of cement base. Some of them are made out of -- with asbestos in a blender. They're sort of solid. The stuff is then absorbed to it and that constitutes catalyst, and it's used in beds or trays in a vapor stream.

Q. In looking through your -- let me start over. In doing your research report that you told us about at the Monsanto plant there at Texas City and going to the University of Houston and the other libraries, can you still recall some

of the sources of information that you found?

A. The primary source was the Manufacturing Chemists Associations' hazard data sheets. I later found out that the American Petroleum Institute also had hazard data sheets, but that was too late to help my report, but it wasn't too late to help me find some of the things they used that we did not in the chemical industry normally used.

Q. You're talking about the toxicological reviews that the API had?

A. Yes, tox reviews of theirs and the chemical safety data sheets that the old MCA had. They still have them today under the Chemical Manufacturers Association, CMA today.

Change of name doesn't change the organization much.

Q. Do you recall seeing any literature from the Industrial Hygiene Foundation?

A. Yes.

Q. Is that a source that you would have been able to --

A. Well, when I got transferred to St. Louis, and Dr. Kelly, after he came down to look at my report and gave me hell for writing it

because I wasn't supposed to be qualified, then he transferred me to St. Louis as an industrial hygienist, which doesn't make a whole lot of sense, but what the hell.

I went up there and then I ran into my -- the boss I had there was a certified hygienist named Elmer P. Wheeler. Elmer is now dead.

He took me through the system, and I learned about toxic data sheets that were published by a great number of people, including many companies published them as well.

And if you stacked them all up, even available then -- this you're talking now in the mid '50s -- it would crunch this table down with the ones that are published by the API, the MCA, and a great number of organizations that are not that very well known, the Organic Chemical Manufacturing Company organization, the drug manufacturing people.

There are thousands of them, and then there are all these great ones that are available freely from most companies, and we ended up with piles of the darn things.

There was no lack of safety

information on individual compounds even in the '50s. It became a great deal more elegant and a great deal more staffed later.

MR. OLIVER: Objection, nonresponsive.

THE REPORTER: Your name, sir.

MR. OLIVER: David Oliver.

(Discussion was held off the record.)

MR. ELLIS: You can just ignore what they say. They just have to say some things for the record to get it on the record. That's all.

MR. BLANKS: They don't really have to.

MR. HOBSON: They do it.

Q. What he's saying, Mr. Wheeler --

A. I forgot to bring my dugidgits. I hate the damn things and so I don't wear them if I don't have to.

Q. What he's saying, he's objecting saying that your answer is not responsive to my question. He thinks you're answering something I didn't ask you I guess is what it means but --

A. You asked me about data?

Q. Yes, sir.

MR. BLANKS: I thought you did a good job.

A. And it reminded me of literature.

MR. OLIVER: Object to the side bar.

MR. FOGARTY: Object to the side bar.

Q. That's what it means.

A. Okay.

Q. You were moved from Texas City to Monsanto's corporate headquarters. That's St. Louis, right?

A. Yes, sir.

Q. And you started working for Mr. Wheeler?

A. I started working for Elmer P. Wheeler, yes.

Q. And Mr. Wheeler was working for Dr. Kelly?

A. Dr. Kelly, yes.

Q. Was that the staff?

A. That was the staff. In 1954 that was the staff.

Q. And would you have any recollection, Mr. Garrett, as to how long Mr. Wheeler had been with Monsanto in his capacities as an industrial hygienist?

A. He came to Monsanto right after the war from the Chemical Warfare School. He was a

CWS officer. He was actually an artillary officer that came back from Africa and was in -- since he had trained a hygienist and had worked for the north -- for the New Hampshire Health Department, they put him in their hygiene school where part of -- God knows what part of the military he was in, and they had a school and they did a pretty good job.

By the way, they also published documents that are way -- they're years old. Some of them are excellent up to the date documents for literature research.

Q. "They" being who?

A. Being the Army's industrial hygiene laboratories, which I believe was in the CWS, Chemical Warfares set-up in Virginia, and that's where Elmer came back to and Dr. Kelly hired him out of there as soon as the war stopped.

Q. Was it your impression, Mr. Garrett, that Mr. Wheeler worked in New Hampshire before the war, after the war, during the war?

A. No, before the war. He worked as a hygienist to the degree that they were defined as hygienists in the 1930s. He graduated in chemistry, as I did, from the University of New

Hampshire.

Q. Would you give us, sir, your best impression of how knowledgeable you felt Mr. Wheeler was when you joined the staff in 1954 as an industrial hygienist?

A. He was a very good manager. His knowledge was very deep. He expected me to gather a great deal of knowledge and become knowledgeable in things that he was not in.

We had -- we were three people running that show, Dr. Kelly, Mr. Wheeler and myself, and later we got broke up and we had a great big -- lots of people and big files. Big files.

So he -- he gave me the API meetings to go to. He went to the AIH meetings. We all went to the -- to our credited meetings.

I could have gone to the Chemical Society meetings. I'm a member of the ACS, have been for eighty, hundred years, but I did not because they -- until they began to get into -- to have some committee work on occupational health.

Q. Were there any other organizations that you found had information to share in industrial hygiene, toxicology area, such as the American Public Health Association?

Did you ever go to any of their meetings?

A. Yes, I've been to AHS meetings. I would say the states -- this is one -- let's take this -- you people may not like this, but there are some states whose records and files were excellent. Texas was one of them.

They had an industrial hygiene group in their health department. I can't remember that man's name. He was a first class man. He showed me their records and their -- and I used them, too, by the way. I went up to Austin and they showed me their records.

The State of Missouri wasn't very wealthy in that area.

The State of Illinois had excellent facilities and records also in the area of toxicology. Some of these belonged to their university, some belonged to their state health department.

And when you work on pollution control and industrial hygiene as did I in those days, you probably run into what's known as the Bureau of Sanitary Engineering of all the various health departments, and that's what I did in Texas. It

was true in Illinois.

It was true in Iowa; true in California by districts, by zone. Six, I believe, zones in California or areas, they call them. They had individuals for each of these zones.

Q. Did you run into Dr. Carl Nau, N-a-u, at Texas?

A. Uh-huh, I sure did.

Q. That might have been the man you were trying to think of?

A. Yeah. Hey, he was a great guy, too.

Q. I was asking you about organizations where you might have attended meetings to be able to share information. I asked about the APHA. Any others that come to mind?

A. Well, we did it on the ba- -- Dr. Kelly took the medical meetings, and primarily this was the MCA or the CMA's medical meeting, and he despised the American Medical Association for some reason. I can understand why, but -- because I had to go to the meetings to supernume (sic) him, and I can understand that in his -- they were pretty much all out playing golf.

I mean the meeting wasn't very -- I mean me and two doctors talked to the guy that was

the chairman and he was waiting -- he had his golf clubs around his shoulders.

So we -- Dr. Kelly didn't think much of that. I'm not sure he was a golf player anyway, but so I went to some of those meetings to cover him in committee meetings because those people would go astray if you weren't careful.

Q. And these were AMA meetings?

A. Yes.

Q. Was there a part of AMA that dealt with occupational health industrial medicine?

A. There's a great -- I'm teasing a lot about it, but it's true. They -- they got almost all the institutional doctors to go to it.

None of the people that practiced medicine went to those meetings. The people that practiced medicine in corporations and for insurance company stuff went to those occupational health meetings.

It's much better today. They've got some fine committees on just on toxicology and occupational health and the effects of various things, upper respiratory effect.

All the individual colleges in surgery and everything probably have toxicology subgroups

that work on materials that are -- that impinge on their specific area. So there are plenty of places -- and even then there were plenty of places you could get if you dug enough.

Now you could find the base of the information. It was available. You could find who was working on trying to increase or improve that information, and that was -- to put it together was difficult.

Today it's together in a vast number of books and documents that contain -- that did what we tried to do as a committee under the MCA. We wrote MCA data sheets, for example.

MR. FOGARTY: Objection, nonresponsive.

MR. BLANKS: Wait, stop here.

A. MCA means Manufacturing Chemists Association, now CMA, and they were one of the groups along with the API who published group documents, short, terse, six, eight pages, some of them. Some of them twenty pages, some of them five pages of the toxicology and hazards involved in handling individual materials.

The API did likewise. The Organic Chemical Manufacturing Association did also

publish a bunch, and these were largely on die chemicals because they're oddballs and they're also quite toxic because they're largely organic amine compounds.

So there are a lot of people -- and these were available, but you had to participate to get ahold of them, so we participated a lot.

Q. The impression I'm getting, Mr. Garrett, is that there wasn't a lot of this information out there being spoon fed to people but if you had someone that wanted to find it, you could get it. Is that accurate or not?

MR. FOGARTY: Objection, leading.

A. If you ask for it within the realm of those materials, you got it readily from the people or they would give you copies of the documents they helped make with one of these organizations.

I'll bet between the API and the MCA put out thousands of copies of those things a year, as did almost anybody that made those kind of documents.

Now, some of them were pretty tight within their organizational system because that's the only one that knew who they were there.

The Organic Chemical Manufacturers Association, which is largely the die merchants, you didn't realize they did a lot of work on a lot of raw chemicals that were used in dies.

And that turned out to be chemicals some of us manufactured, so when we found that out, we began to work with them as well, and the document -- the information that had been done in the past was well documented in those -- in those particular issues -- publications that they issued, and everybody had a different name for them.

Q. You at Monsanto and working with Mr. Wheeler and Dr. Kelly, I take it in your participation you began to gather together quite an assembly of information.

A. We sure did.

Q. How did you handle that information there at the company and the volume that you had it to be able to use it?

A. We had files full and they had -- we had them -- we filed them by chemical compound name.

Q. And this was certainly in the age before computers.

A. Yes.

Q. Did you have them indexed in some way?

A. Yes, we had them indexed by -- by their best chemical name. The chemical -- the American Chemical Society name is what we used.

Q. You mentioned American Chemical Society. You've told me you're a chemist and that you're a member of that organization?

A. Yes.

Q. I take it that Chemical Abstracts something you learned how to use quite early then?

A. Yes, yes.

Q. And would Chemical Abstracts have been something that you continued to use after you got to Monsanto?

A. Oh, yes, sir. That's the best way to peruse a whole flock of chemical data out of the American Chemical ACS documents. In fact, we contributed to -- we were asked usually to contribute a summary to some of the stuff that --

Q. For those who might not be familiar with Chemical Abstracts, would you tell us what those were in the '50s.

A. Chemical Abstracts is a document published by the American Chemical Society since

the turn of the century abstracting all -- their word, not mine -- all of the known reputable chemical literature on a periodic basis.

And they do a good job because the Chemical Abstracts come out about ten times a year. I don't think it comes out every month, and it must be a thousand pages in the durn thing now.

Q. Were there other abstracting services that you became familiar with that were useful in your work?

A. Well, some of the other societies, some of the other people did this, did the abstracting. We saw a lot of company abstracts that they used for their safety and health groups in the handling of materials and in handling chemicals, particularly the very toxic ones.

You're talking now stuff that would absorb through the skin and which is the most hazardous thing people handle by far.

Q. Can you give us some examples what you mean by those company abstracts?

A. Well, we had a bunch of company abstracts. We made them for years. I don't know how many files full of the damn things.

A lot of those were those abstracts

that we already -- we abstracted a whole bunch of abstracts to get the data, the best raw data that we could find and put together.

Q. Would this information that Monsanto put into abstracts, would that be shared with customers of Monsanto?

A. If we put it out, it would be shared with anybody that wanted it, including most of the technical agencies. We wrote many of the MCA data sheets for them of Monsanto products that were -- that we would consider primary manufacturer at our request or theirs.

Q. How would you at Monsanto make it known to the general consuming public that you had this information available and that it could be gotten?

A. I never thought we really had to because we got so many requests for it. The plants knew we had it because we had a safety man in every plant and/or a hygienist later on in the day.

We had industrial hygienists in the plants and in the divisions of Monsanto, which later became the companies of Monsanto -- same damn thing, different name -- had their own people

and we worked then from inside with them in getting data back and forth.

There was a blossom time after World War II where there was enormous new compounds discovered and put into use. I don't think -- I think it's a lot easier to track it today than it was then, but we -- we had data in our data files on virtually every compound there had been produced, and I might have -- I might say that most of the other companies that I knew had the same affair, and we traded our own in-company documents.

We were told by our own company nothing is secret connected with health and safety. Nothing.

MR. OLIVER: Objection, nonresponsive.

Q. You mentioned earlier about asbestos and how it was used in catalyst and insulation materials. Was that something that would have been included in your first research report even?

A. I suspect it was, but I'm not absolutely sure. We, working in the pilot plant of Monsanto, dealt with asbestos insulation materials and with asbestos muds and the asbestos workers in the plant there.

We had a crew called insulators, and they did the insulation work --

Q. And that was --

A. -- in the pilot plant operations.

Q. That was about 1953, '54 time frame you're talking about?

A. Yes, some time through there, yes.

Q. Did you find that the insulators there at Monsanto were essentially following the same kind of practice that you'd experienced in Tennessee?

A. They had been ordered to work on the standard established by the MCA or established by whoever established the standards. I could -- to tell you the truth, I don't know on any one of the individual materials because they had been running around so many times, but the asbestos dust was on the list for the -- of the toxicology materials and from -- put out by the American Industrial Hygiene Association, TLV list, and we always stood -- we always maintained at least that level as our standard.

Q. Did you find that the insulators there at Monsanto in the '50s when you first came were wearing respirators like you had been taught at

the University of --

A. They had respirators. Now, I never saw them insulating, so I don't know if they wore them. They had them and they had them hanging around their neck, okay?

Q. Yes, sir. Were the insulators, to your knowledge, were they given protective clothing of any kind or work clothing?

A. Well, the company furnished work clothing to everybody.

Q. Why would that have been done at Monsanto, if you know, sir?

A. What, you mean clothing?

Q. Yes, sir.

A. Well, there's a lot of reasons. Some of which you may not like. It's the best way to get a man to take a shower.

Q. How is that?

A. Give him clothes if he does to wear.

Q. Sort of a incentive to take a shower, is that what you mean?

A. Yes, we've got wet shower houses for all of them. We had some objections that some of them didn't take showers and the enthusiasm for being up in a close, tight place on a hot day with

them wasn't too hot, so it encouraged them to take showers and to clean off.

And particularly people -- we made lots of people take showers. We made the -- the insulation workers had to.

Q. Why is that, sir?

A. What?

Q. Why would you do that?

A. Because they were -- all the dusty operations had to because the dust got inside their clothing. They all had MSA approved dust respirators, but they get it inside. They get it in your hair. I've been in too many places, I know. I didn't get any clothes issued.

Q. So you're saying that this was a way of decontaminating the insulators?

MR. POWERS: Objection.

A. In a way it was a way to encourage them to clean up. We had rules where they had to in some places and particularly true organic manufacturing plants.

But it was hard to -- the unions were pretty tough. I don't know why they fought that issue, but they did.

Incidentally, some of the unions had

some darn good data, too, available to them. I don't know where they got it, but they probably assembled it themselves.

I've worked with unions, industrial hygienist, late -- years ago. Not early because they didn't know. They didn't know, but later on I worked with some union people. Good people, too.

Q. After you came to St. Louis and got into -- I guess would you call it corporate program?

A. Yes.

Q. After you got to St. Louis and got into the corporate program and began to see the things that Dr. Kelly and Mr. Wheeler had been doing, would you describe for us what you recall in the '50s about how the Monsanto employees were being followed from an industrial hygienist's standpoint?

A. Well, all the plants had a safety director and so many of them had extra people. They had a safety engineer and several so-called inspectors. They had different names for them, but they were their grunts. They did the grunt work.

We worked with the inspectors and with the safety directors of each of the plants. We did a survey of each of Monsanto's plants, and we surveyed every individual job classification in a plant.

In the East St. Louis plant there's over four hundred job classifications, so our document was about that thick. Covered each job, what they were provided safety and health, what data they had been given, their safety training programs, whether they had company clothing or not, and so forth.

And these data were absolutely witched again. Took my hygiene crew damn near a year to get a set of them, and then we were ready to go for another set, and they turned out to be great.

Well, the one on two of the plants exceeded one volume, and there were more than one volume. Had every -- now, we were not interested in the production. We were interested in the job classifications and what that job classification required them to be exposed to, what they were provided with, and the data, and a number of times at their safety meetings they mentioned their material and went over the thing again.

And I set up a lot of those things, the short and abrupt and dirty explanations for these chemicals.

I used to take a bottle of very light oil and show them how much it would take for one of the amine compounds to kill them if they mopped it on their hand.

And we did it -- I did it in every plant. I did every one of Monsanto's plants, and there was sixty-one of them at the time in the U.S.

By the way, I did all the foreign plants in Britain and in Belgium.

MR. FOGARTY: Objection, nonresponsive.

Q. In what time period are you talking about?

A. Huh?

Q. What time period are we talking about?

A. '60s, '70s.

Q. The --

A. By the way, the British had a pretty good deal themselves. The European was a little different. They're so darn competitive. They didn't want anybody to do anything except Belgium.

Belgium was worse.

The Brits were pretty good. They had also -- they had some darn good technical people in the British company, and particularly in pollution control.

Q. Did you ever have any interface with the folks at the British Occupational Hygienist Society?

A. Yes, yes. Which, by the way, are good first class people. Don't get me wrong. I'm not arguing about that. I ran into some of the best hygienists in this company working for the States and working for the federal government.

Q. The work that you just told us about a few moments ago looking at different jobs in a plant as opposed to I guess the processes themselves, you say you looked at each job.

Are you talking about like different operators?

A. That's right.

Q. Different --

A. Class A operators, Class B operator, Class C operator, department 22.

Q. And you would profile the exposures of each one of those?

A. Absolutely, profiled each one.

Q. And would you do the same thing for maintenance workers?

A. Yes, we went through the maintenance workers, but here you can't set them up unless they're zoned, and in the bigger plants they'll be zoned.

Those guys will live and die in zone 3, and if that's true, zone 3 handles some particular materials at zone 3, then they get special type of clothing and/or helmets and/or respirators.

Q. When you were first relocated to the corporate headquarters in St. Louis, is that when you first became aware of being able to take air samples and that sort of thing, profile workers exposures?

A. No. We knew it in Texas City and did some testing. We didn't have very good equipment. We had to use the old bubblers, dual bubblers and that sort of stuff, which are awfully -- awfully cumbersome things to be handling around a busy chemist manufacturing operation. We did it.

Later we began to use the better portable equipment and then we did long term, like

full switch -- I'm sorry, full shift. We did all three shifts, by the way, in certain areas.

Full shifts had to be done when the hygienists -- a very busy year for the hygienists in Texas City to go around through this processing unit because you're -- although they only manufactured two or three products, they used some very, very, very dangerous intermediates, and they had to go around and test every one of them.

And we did it as much as we could every year to see that changes had been made. And those were done probably by the chemist after I left, probably by the hygienists assigned to the plant.

Q. So even when you first arrived at Monsanto, Texas City in 1953, air sampling capability already existed there --

A. That's right.

Q. -- as well?

A. They had air sampling equipment there.

Q. And that would be for dusts and gasses and both?

A. That's right. Primarily for dust and for -- and bubblers, which if you could analyze the results. And those analyses were done

elsewhere, not at the plant at the time.

Now, I'm sure all the plants can do their own.

Q. Once you got to St. Louis, is that when you, yourself first began to do air sampling?

A. No, I did some in Texas City, but not much. I did it in St. Louis with the plant safety man. We made him go along. You have to have somebody in the plant tied down to it.

When I left, we had, in most of the large plants, had professional industrial hygienists. The plant staff by this time had broken down into three sections and I was the director of industrial hygiene section and had about fifteen employees in the central office, and I had access to a laboratory, and I had what I think was the best sound man in the country and that sort of stuff doing the work.

And we did this, we put on shows for the individual plant safety and health people and/or their groups. I did it for the organic division plants many times for their groups that handled this spread of chemical, and we stuck to that spread of chemical.

They were making amine compounds at

the East St. Louis plant. We did them a job on amine compounds, and we had an awful fewer cases than I think we probably would have had if we hadn't been as alert as we were.

We also probably cost Monsanto a million dollars in uniforms.

Q. And that was probably a good investment in preventing disease?

A. I think you're absolutely correct. It was a good investment, because if you stained that uniform with some of the amines, you could tell it in a minute.

Most of them are purple or that darn die in denim will turn the oddist colors you've ever seen. That will give a man a quick trip that he's been doused and then he goes through the scrub and down business whether he likes it or not.

So as near as I know, we've, in my tenure, we never lost anybody in the organic operations.

Q. What do you remember, Mr. Garrett, about the first air sampling that you did in Texas City?

A. Well, it was pretty crude, but the

system was crude as it was defined in the literature at the time, and we did -- you did insoluble sampling in water.

And it was a damn difficult thing to filter. You had to triple filter, then you had to dry that damn thing out and get rid of that filter material. It's not an easy task.

I think the reason we did that was because the results were probably higher than they would have been had you been able to get rid of some of the filter material. We figured that it was higher and, therefore, it was safer.

Then the sampling and the analytical procedure began to improve vastly. And in the '50s I believe they probably -- and the '60s, the analytical methods, analytical hardware, analytical reagents, improved enormously so that it got to where we could do these -- we tested squeeze tubes, I'll bet you, by the millions.

I've tested those darn -- hundreds of sulfide tubes and some of those things so that we could test them against our sample.

If they didn't work, we put out a note through the company, do not use so and so's sampling tubes. They are very good for very

excellent reasons because they're quick and their reasonably accurate, and you could save somebody's life that's messing around with something they didn't need to be.

MR. FOGARTY: Objection, nonresponsive.

Q. The sampling that you first did when you joined Monsanto, some of that was insolubles. You mean by that dust?

A. That's right, we collected in water. Collected in water median.

Q. What kind of dust samples do you remember doing?

A. You could collect almost any dust. One of the biggest problems was separating the dust.

In other words, what dust are you talking about, Texas City dust itself, particularly with a bunch of trucks around and two or three days with no rain? The dust -- you've got much dust on the ground from the streets and around.

You get a great deal of solid material from the ocean, believe it or not. You don't believe that, but it's true. You'd be surprised.

So that you have to separate out of your solid sampling material and make some kind of judgment as to what was the product -- the targeted product. I found that out early.

Q. Did you, yourself do --

A. Some of it.

Q. Did you use a microscope to do your dust count?

A. I used a dust counter, which is the old Bausch & Lomb microscope hook-up for dust counting and a plate.

Q. Yes, sir.

A. We used it as a first step piece of equipment for dust sampling because it gave us a quick fix on what we had. It is not a very good gravimetric sampling system. It will give you a very good idea of your dispursion of particle sizes.

Q. This Bausch & Lomb dust counter, would you describe for us how that works and how long it takes to take a sample with it.

A. Well, you had a plate -- that you had these plates. It looked like circular straight view plates for microscope, and you took this machine and over a period of time you inspirated

into the material the atmosphere.

Then you took and you had a counting grid in the machine. You never took the plate out. You turn it on and you counted it with a microscope attached to the affair itself and made counts, and there was a method published by Bausch & Lomb for the counts and we used their method of counting.

Q. About how long from start to finish would it take someone experienced in this device to actually test it?

A. Well, it wouldn't take long to take a sample. It takes some time to do the counting. Now, a first class man could probably do it and count it in fifteen minutes.

Q. Pretty much know what's there and types of exposures.

A. That's right. Now, he has to clean the plate off if he's going to use it again because he has the stuff on it.

We also used the old -- oh God, what is that darn blood counting thing? The blood counting affair for the regular upright microscope is a -- I can't recall what they call it, but you have -- there's a gravical in there that you can

count a number of specific spaces and calculate the total dust load in particles and into a certain extent the size.

The same was true, by the way, at Bausch & Lomb. You get a fair idea of the size distribution, and when you're coming to inorganic -- to inert dust, you're looking for size because it's the size that gets further down in the system, and if you want stuff that gets into the pulmonary system, you're going down to some small sizes.

And this is what we did called dust counting. They're a pain in the neck to do, but it's done -- it's still done to a lot -- to a great extent today by a classification of dust in sizes.

Q. Now, the Bausch & Lomb device, that's the device that you had?

A. It's long since went out of business, yeah.

Q. But you had that in 1953, '54?

A. Yes, yes.

Q. I take it that there was already someone in Texas City there before you got there that was the safety in this kind of thing?

A. Yes, safety director.

Q. Who was that? Would you recall, sir?

A. Mooney Stallings was the safety director. Mooney Stallings.

Now, in this case, keep in mind, that in the early days of the chemical industry, at least in my experience, and this has been in other companies as well, is to get a safety -- there was no safety people to be trained.

Nobody trained anybody. Texas A&M didn't start their safety engineering school until way after this. So to get a safety man, it was customary in our industry -- now, this is maybe not true in others -- to take a first class foreman and make him the safety director, and he ran it.

We had probably the best safety people we had, some of them were those foremen. We had one in Tennessee. Even the foreman lost his arm in a car accident, and he was such a bright guy they made him one of the deputy safety directors. He graduated when the safety director, head of safety -- he was first class, and his record -- our record down there was first class for a plant that manufactured phosphorous from ore was first

class.

Q. Would you know, Mr. Garrett, how these men that were made safety directors or in lines that led up to be safety directors, how they were trained in areas of health concern?

A. They were trained, believe it or not, by the federal government during World War II in the manufacturing burst that occurred, as you can imagine. Those people were trained and they trained a scad of people as safety people.

Now, this was the guy like Mooney Stalling, bright guy without a college education that probably became a better safety man than a hell of a lot of people with college degrees because he did it through experience.

And a lot of Monsanto's foremen -- and this was not Monsanto only. I know this is from Dallas through Dupont, great many there, their safety people started as foremen in their plants.

Good first class alert foremen, and they went into -- then into the management group and became poorer paid than they were when they were in the early group, but that's beside the point.

Mooney was a pretty good safety

director. He later got a industrial hygienist assigned in there and then they got a trained safety director out of one of the graduate schools that graduated safety director -- safety engineering, and they also had a full time hygienist when the plant was sold.

Q. The Monsanto plant in Texas City I guess then at some point in time did get a full-time industrial hygienist?

A. Yes, sir.

Q. About when was that, sir?

A. Oh, gosh, I don't know. I couldn't even -- I might give you the -- I suspect it was in the '60s, late '60s, but, boy, that could be wrong.

Q. Before they got a full-time industrial hygienist at Monsanto, Texas City plant, whenever it was --

A. They had a full-time engineer there then by that time --

Q. If someone --

A. -- and a safety director.

Q. And those people, the safety director and the engineer, they were doing the industrial hygiene kind of work?

A. They were doing the stuff that we in our staff was doing when I first came to St. Louis. We had an excellent staff of people at the Kearny plant in East St. Louis.

They had generated them themselves because of lack of corporate involvement in that business until after World War II, and then corporate involvement got in and started helping them and they ended up with professional industrial hygienists -- no, professional safety man and my man assigned to the organic division.

The old organic division was over there any time that they needed and that safety director would have him any time he wanted him.

Q. I think you told me that there became a time when you started doing plant surveys yourself and going out and doing inspections?

A. Well, we had to find out what the hell was going on in the plants. Who would -- what were they doing? How were they doing it? What were they doing it with?

Three very, very good questions that you have to ask yourself today, and in today most companies do this on a routine basis.

You can go into a plant in Monsanto

now and ask one of their supervisors, even an area supervisor can tell you in detail what they do in each of their processes.

This wasn't very true -- I can remember one time a man told me in one of our plants you can tell the people working the acid department by the holes in their pants, you know.

That may very well be great, but by God, that's not very good industrial hygiene.

MR. FOGARTY: Objection, nonresponsive.

Q. The occasions when you would go out and do your survey work in the plants, I take it you wrote reports of those visits?

A. We went --

Q. Wrote reports of those visits, did you?

A. Oh, I'm sure, yes, we did, but those reports went into the -- I suspect the fire, but I don't know. Yes, we wrote detail.

What we needed was the individual operating units and those processes. That way when we built a plant making the same stuff somewhere else -- and this is where the Europeans got into it because we built plants over there to

make products that we made in the U.S. Their enthusiasm for our interference was zero.

We couldn't speak to them because they would not, even if they knew English, wouldn't speak to us in English, particularly them damn Belgiums.

We shouldn't have fought the Belgiums. We should have fought just with the Germans I guess there.

MR. FOGARTY: Objection, nonresponsive.

Q. I've had the same experience, Mr. Garrett, with the Belgiums in spades.

A. We took them over to Great Britain and had the meeting.

Q. I should have thought of that.

A. Took them over to London and had the meeting. Oh, we had great luck with the British. We provided them with the information. They did a job of their own.

All you had to do with them was to get -- they had some of the best people. They had one of the best pollution engineers I've ever seen working in one of our plants in great Britain.

Well, he worked at the plant but he worked for the whole British company. First class man.

Q. If I understand what you're saying then, your -- part of your job was to go out and do survey work, learn about things that were either problems or potential problems and then if you built a new process doing the same kinds of things, incorporate engineering controls?

A. We tried to do that beforehand, and we got to the point where we had, the last twelve, thirteen years I was at Monsanto, we went to process meetings where we went over the design of every process in Monsanto unit by unit.

We objected -- we made the vice-president madder than hell, but we objected anyway, and we stopped that crap of putting an arrow in the air that says "To air" and the one going this way says "To water."

What water? "To waste." That's another goody. "To waste." Just arrow. Here's a long process designed with fifty arrows saying "To waste." Where to waste?

I mean are they going to go through waste treatment somewhere or are they going to

just dump them on the ground or are we going to put it in dumpsters?

So we went over that and made them and we had the vice -- the president -- the vice-president of the operating -- executive vice-president on our side, too, by God.

They'll approve it when you agree. Show us something. Show us a pollution treatment operation or get off the stick.

And so it was a graduate system from the 19- -- World War II return where a lot of safety was generated by the manufacturers of very hazardous materials to people who were not manufacturing that kind of material, started the safety engineering business which graduated then in the '50s from the foreman type person to a graduate trained engineer or hygienist and to today to a staff.

And the staff has the right at the plant for process to go to the corporate staff and say, "Hey, help us with this thing and make damn sure that we don't put someone's head in a trap with this," and so the corporate staff joined with the plant staff, and they do anyway because they're working it from the other end of the

stick, and they finally get together and decide what's to be done, and it's written out in the construction plans.

MR. ELLIS: We've been going about an hour and a half. Can we take --

MR. HOBSON: It's up to Mr. Garrett. I'm happy to if he is.

MR. ELLIS: Well, I need to go to the restroom so...

THE WITNESS: Good. I'm glad you say so.

(Temporary recess was held.)

MS. FLATT: We're on record.

Q. Mr. Garrett, you mentioned the American Industrial Hygiene Association. I take it that you've been a member of that organization for a good number of years?

A. Probably thirty-five, forty years, yeah.

Q. What kinds of activities have you done with that organization that you can tell us about, sir, in your career?

A. I've written a number of papers for their journal. I've reviewed papers for them, like most people that you get on review groups

from time to time, and up through the time until I quit and even a couple years afterwards, I went to their national meetings.

Q. Were you on any of the committees of the American Industrial Hygiene Association?

A. Many of them, and to tell you the truth, there's so many, I don't know whether I could tell you what it represented even.

I was on the -- the development committee for a while in an effort to find out who was in hygiene regardless of what they claimed to be or accepted as their fate, and I think they do pretty well today in getting those people in.

I've been on the -- one of the review committees for papers. My boss for very many years was president of the IHA and through all of that persequential office system.

And when he was president, I had to do his job, too, but I've been involved with them ever since I joined -- went to St. Louis.

Q. Do you recognize the publications of the American Industrial Hygiene Association to be authoritative?

A. I have run into no -- very few that were not.

Q. You're aware of like the Hygienic Guide series that they published?

A. Yes, I am.

Q. Have you written any of the Hygienic Guides?

A. Yeah.

Q. I take it you would find those to be authoritative?

A. Well, they certainly -- we had a hell of a time getting them approved by Monsanto, but they finally let them go as is. Kelly -- Dr. Kelly got them through actually.

We did most of the PCB's and that sort of stuff, but we only made -- not every company did. The stuff they only made or the stuff they were primarily -- not primarily, but well known in, we did that on our products or when we were asked.

By the way, we did some for the Organic Manufacturing Association, too, I think, but I'm not sure. I didn't do it. One of my troops did it.

Q. Had you had any occasion to work with the American Conference of Governmental Industrial Hygienists, the ACGIH?

A. Yes.

Q. What have you done with that organization, sir?

A. Well, I went to their meetings. I wrote some stuff for their -- some editorials for their journals, for journals they can put things in, and they had a very good handle because they ran the show because they were the primary people that operated the state and federal agencies that set the standards.

And ultimately they -- we set them voluntarily for years. Nobody had any -- then suddenly they began to set them as a legal issue, but by that time they'd been washed and cleansed pretty well in respect to what they meant, what they did.

I think their standards are probably the best set of standards there are available, and they're pretty much used world wide.

Q. The ACGIH threshold limit values, that I take it you find those to be even more current than OSHA's work?

A. Well, I guess I have a very different view of OSHA than most. I think the ACGIH represented a group of good professionals doing a

good professional job.

I cannot say the same about the governmental agency.

Q. You still feel that way today?

A. Yes, I still do. Don't get me wrong. There are a great many great people in the federal agencies involved in this business, and God knows without some of them we wouldn't have got where we are today in respect to protecting people's lives that work for a living, but they have too many political nit wits get in there, also, and stir around that sort of thing once in a while. They try to stop them.

MR. FOGARTY: Objection, nonresponsive.

A. I've been in that building in Washington, D.C., many, many times up and down the halls. I was on one of their advisory committees, the Water Advisory Committee, drinking water, Standards Advisory Committee.

Q. Did you ever have any input to establishing threshold limit values through the ACGIH TLV committees?

A. Yes, we did. We turned over to them any data we had in connection with anything they

were working. If you recall some of the processes, they would come out and say we're going to do -- they would show a span of materials they were after, and actually they looked up I guess in the blue book us and every other chemical and petroleum company and found out if they made it, they sent us a note saying we're going to work on the chloro-aromatics.

So we said, yes, we'll do it, too, and participate, and we'd participate with them and give them our data and our views. We never gave our data away without a few views. Neither did anybody else.

So we -- yes, we participated with them. We participated with them making up some of the standards. We disagreed with some, but not very many, believe it or not. Boy, some of them were tough.

Q. The National Institute for Occupational Safety & Health, is that an organization you recognize, sir? NIOSH?

A. Yeah.

Q. They have come out from time to time with a number of criteria documents, various materials. Are you familiar with those as well?

A. Yes. I've seen some of their criteria, which kind of -- blue papers.

Q. Did you ever make any comments or contribute to any of the writing of this criteria documents?

A. Well, at their request we did some work on organic chemicals that were manufactured in East St. Louis and we dittled with those people for fifteen years.

We finally went over there and made a survey of the people that lived over there, and our results didn't jive with their predictions, so they didn't publish our results.

MR. FOGARTY: Objection, nonresponsive.

Q. From time to time did you have the opportunity to work with customers of Monsanto's regarding Monsanto products and their use?

A. Yes, many times.

Q. Tell me how that worked, Mr. Garrett, when it came to dealing with your customers.

A. Well, if I got a -- we were, as you know, a staff department of the corporate headquarters in St. Louis.

Someone in one of the sales groups or

product groups, as they were called, generally the sales section, said to Emmet Kelly "We need somebody to go help so and so in a certain procedure connected with handling something Monsanto manufactured."

So I got told to go out and help somebody do something, and I did that not as many times as you might -- as you might imagine.

We did get a -- we answered an awful lot of letters and we were -- we -- the president of Monsanto told us, "You tell them what you know, period. I don't give a damn if it's good or bad. Tell them what you know."

So we did. We never had anybody complain inside Monsanto to us either. So we helped the customers any time.

Many of them were states. I had more requests from states about this thing -- these things. We got thus and so in our state. You get involved now in maybe messing around with one of your customers, but we did anyway.

Q. The products that you sold at Monsanto, certainly some of those had health effects that they could cause if they were improperly handled or if exposures were excessive,

I take it.

Did you ever, as a Monsanto employee, go out to customers and sort of precheck them to see if they were capable of handling your materials that were particularly hazardous?

A. I went to many, many of them connected with probably die chemicals more than anything else because the die makers are little companies. Primarily small operations.

And we talked to them about some of the amine and nitro aromatic compounds we manufactured, and I did this with many of them. I did -- they have an organization, by the way, that I went to twice and talked to them.

Anybody that asks for help from Monsanto got it from us, and we did the medical or industrial hygiene sort of stuff, Kelly and I and Emmet and the rest of the doctors and the rest of the hygienists.

And about -- when I retired, I had fourteen people working for me, and I had, I suspect, a good 15 percent, maybe even more of that, was done from customer relations, and that was direct.

And we weren't out to sell stuff. We

were out to sell safety and health because it damaged our product name if somebody turned up purple. And we just weren't going to have it.

So, yes, my whole staff probably spent 15, 20 percent of their time with customers.

Q. Can you recall any circumstances where you would find people who either wanted to buy or were buying Monsanto products and you just said, "These people aren't capable of dealing with it and we're not going to sell to them"?

A. Well, we had some people, companies, that were pretty irresponsible in our opinion, and we were very careful.

It's difficult to do what you're saying. But it's not only difficult, it's legally difficult, so, yes, we did. We worked with our own law department on some of those at their request or at ours.

Q. And actually ceased sales in some instances?

A. Indeed we did. They wouldn't let us look at their operation. They had a problem that we knew about. We ceased.

Q. Can you give me some idea how far back in time these kinds of activities would have gone

at Monsanto?

A. I guess Kelly probably would -- was doing that for he and Elmer Wheeler before I came. When I came, we did some -- we did some work with -- we did most -- well, a great portion of our work with customers connected with products and changes they wanted to make in the chemical composition.

We didn't want them to stick amine groups on everything and that sort of thing. Arsenides or something like that. PCB's. We wanted a great deal less foolishness.

I did a great deal of work with PCB's in tunnels, in transformer manufacturing places, that sort of stuff.

Q. So at least by 1954 you had personal knowledge that Monsanto was working with its customers in trying to find problems with customers in some cases --

A. When I came up to St. Louis, I quickly found out that the customer in any -- like any other place that's pedaling, was pretty much the king through our professional technical staff that did the selling.

Monsanto sales people, I'm sure --

most big companies do the same. Most of them are pretty well knowledgeable about the materials they're selling because they're probably chemists or chemical engineers to start with, and we did a lot of work with them.

I did a lot of work with people that wanted to make preformed insulation and tunnel people and tunneling in some areas. They wanted some help.

We did a lot of work with some of the electrical companies because of the transformers in tunnels. You don't realize -- I mean a lot of people don't. My -- like your wife probably doesn't realize that 90 percent of all the electricity in downtown whatever is in tunnels.

In fact, so is the heat. Nobody has a heating plant. They buy steam from some guy way off over the boondocks somewhere that's making steam, and you get into those tunnels and you start getting into crowded conditions, and you get tunnel crews.

And I've spoken to the tunnel crews, which, by the way, are separate in most electrical companies. That's a separate gang of people, you know. It may be wierd, but they're pretty good at

it, They know their business.

And I've lectured many Union Electric's people, TVA's people, in connection with particularly in restricted use of transformer fluids. Yes, many times.

Q. The work that you would do as an industrial hygienist in talking to Monsanto employees or customer -- customers of Monsanto's products, did that involve training people quite a bit?

A. Well, we did -- we put on training programs, and we did, when we were using a product we felt was hazardous, putting it in a new plant -- we put on a dog and pony show for them, Kelly and I and/or Elmer or a whole crowd of us.

Later on we had a big staff. We had staffs in there, too, and their staffs, whoever they were going to have in whatever plant, their safety and health staff, and we had -- I know lots of people used contract physicians and we did, too, in some of our plants.

Some of them we had first -- in some of the early days some of the plants had full-time physicians even.

That was a leftover from World War II,

by the way, I suspect, but we had -- we had to do more training, I suspect, to those contract physicians than most.

Kelly did it but he'd bring the hygiene crew along and we'd scare hell out of them or something, so they'd do what we had to do.

Q. So the intent was to make sure that these contract physicians that were servicing Monsanto employees, they knew the hazards and knew what to look for?

A. Knew so they could diagnose rapidly if -- so we didn't lose somebody in transit.

Q. Did you become familiar, Mr. Garrett, with how the Monsanto medical records were basically kept? I'm not talking about in a person's folder, but how in general they were reviewed?

A. The physician or the assigned physician at the individual plant and the physician assigned by Kelly if he had -- from his own staff or himself would handle that affair. Now, we talked to the physicians -- and I knew all of them personally, but as far as messing with those medical records, buddy, it was no thanks, because you're diddling with something that Dr.

Kelly didn't have allowed.

We would look at it from a generalized standpoint. If we got a couple people with us that showed symptoms, okay, but looking up a whole twenty-five or thirty people's medical records was no. Kelly would do it or his physicians, but our hygienists would not or did not.

And I was perfectly happy with that when I directed my own group -- when I directed the group.

Q. Was there a system within Monsanto that you can tell me about that allowed for you to know how many particular incidents of whatever medical condition occurred and how that -- how was that tracked?

A. Well, we got all of that -- Kelly automatically got anything connected with what was considered an associated -- a sickness that you could directly prescribe or ascribe to one of the products we were making or one of the processes we were using.

And from that we tracked -- a lot of the work my crew did was on those -- plant would say "We've got problems here. We seem to have two or three guys that -- showing some kind of

symptoms connected, our doctor says."

My hygiene crew -- I'd send my hygienist assigned to that division to that plant and work with the plant assigned hygienist, find out what the hell was going on, and if they needed one of the physicians, Kelly would send one of his physicians along. Yes, we did.

We were never shown their names, and I didn't want to see their names. They marked them out. We did not deal with -- directly with medical records of anybody by name unless it was a terrible mess.

Q. Did your job at all involve claims of occupational diseases that might arise by Monsanto employees?

A. To a degree. I handled accidents. Always did. Don't know why I got mixed up in that mess, and I've seen some messes. Rail accidents you wouldn't believe and truck accidents, you know, fishing a truck out of the Ohio River loaded with chemicals and drums, hoping to God the drums are still in the damn truck when you pull it out so you don't have to send a diver down to get each one of them individually. We've been there.

I've been in wreck sites, probably all

over the country, particularly rail wrecks because if our tankers are sitting in that wreck, we've got to know where they are on the wreck and whether they've been bashed or not. If they've been bashed, what the hell is in them and where that drainage is going.

And we had -- we tested some darn stuff over in Illinois where a railroad accident had occurred before I ever come on the site. We tested water around there and that soil and found it was there. Sure enough it was there.

We had a hell of a mess cleaning that, and it was years after it occurred. So we didn't want that to happen again, and we tracked -- everybody in the business did that.

I don't suppose -- I met a American industrial -- American cyanide hygienist at a wreck in Atlanta at one time. "What are you doing here?"

He said, "I'm trying to find my tank car. You found anything?"

I said, "No, I don't think ours are here. I think somebody must have shipped them off on the side somewhere." Well, we go back -- he and I worked it together.

So we -- I knew him personally, and he was trying to do the same thing I was. Big mess.

We checked the wrecks. We always tracked those wrecks. I'll bet you I've been on some of the funniest airplanes you've ever seen in your life getting to some of the funniest places you ever saw in your life.

"There ain't know road there."

"Yeah. How do you get there?"

"On the train."

"How the hell you going to get there on the train if the damn train is wrecked?"

"I don't know. Get on the horse."

Get down that damn track from Pensicola across to -- they ought to put that thing out of business. Across the Panhandle in Florida. Oh, I think it's on floating on mud, but that's beside the point.

MR. ELLIS: Jack, why don't you let him ask another question here. We can get on with something.

MR. CORBETT: Objection, nonresponsive.

THE REPORTER: Who said that?

MR. CORBETT: Me, Jim Corbett.

Q. Did you ever get involved in any of the Workers' Compensation claims, Mr. Garrett?

A. If it reflected on more than a single claim, if it reflected a trend of any kind, yes, we got involved in it. Tried to find out if it was indeed our problem and, if it was, get it stopped. Get it put back to bed where it belonged.

Not very often, oddly enough.

Q. But was there a system that you were aware of where the Workers' Compensation claims that involved occupational diseases or claims of occupational diseases were made known to you in the medical department?

A. It went to Kelly or it went to Dr. Johnson when he was there and he came to us, and I -- and if it was -- if it was one of my people -- if I had a person assigned directly to that operation, I'd send him because he knew more about it than I did.

Oddly enough, there wasn't a lot -- well, I don't know. It's hard to say.

Q. What about keeping up with people who were long time Monsanto employees and who would retire and then with the passage of time those

folks would pass away, would you have access to their death certificates?

A. No. We did some and we did some purposely, and we did some in cooperation with NIOSH in East St. Louis and somewhere else. I can't remember the other place.

I can't remember, but we would have and did operate with them connected with processes that might have occurred from a individual chemical or an area where there was a number of identified employees because Monsanto's system, like every big company's insurance and so forth system, handles wherever they are.

We've tracked some down. I don't know why they all live in Florida and Texas, but they do after they leave. I don't blame them if they lived in Illinois for moving to Florida or Texas, but that's beside the point.

Yes, we've helped, but it wasn't -- we got into it probably after everybody else had dug around in the mud, so I don't know. I worked on processes where have you seen any -- an unusual number of thus and so's and we went to the physicians of a community through their medical -- local medical association and asked them if they'd

help us.

We've never had any turn downs. They really -- it really isn't easy to do. You go look at the medical records and the insurance records are, my personal opinion, shouldn't exist, but they do.

And what do you do -- what is a person in for if he's got a respiratory disease? And he's eighty-two years old. You know, that sort of thing. I don't know.

It may be they are significant and maybe it can be done. We did the big OSHA study twice for -- with them. Nothing ever came of it.

We were looking at that -- at really at age and we're looking through the medical records to find out what caused the cessation of age in some of these people and really never came to much of any conclusions.

Q. This OSHA project dealt with what, sir?

A. What?

Q. What did the OSHA project deal with that you said you did twice?

A. There were -- really it was NIOSH that was after it.

Q. I'm sorry.

A. It was do you have -- do you have any residual? And they looked into some magic ball and said that people in certain areas have a tendency to stay in those areas more than they do in most areas.

So we -- they'd pick one of our plants and they were working -- they wanted to know about some of the products that are made in the plant anyway, but that particular -- they have to be -- they have to be right because that particular area, an awful lot of those people are still alive, still living in that area.

I wouldn't think in the retirees from St. Louis -- from Monsanto that retired from the main office, I don't think nearly as many percent wise would have stayed in the St. Louis area, but a lot of those people did over there. It's a very clannish place, I guess. I don't know.

Just -- and they wanted some studies done and they -- and we did them, provided the data. Nothing ever came of it, that I ever knew.

Q. Would it be accurate --

A. But we would have done it if they'd have wanted us to.

Q. Would it be accurate to say, Mr. Garrett, that at least from your perspective of seeing things, you learned more about any kinds of disease processes in Monsanto employees that were in the current work force as opposed to anything that would have existed in retirees or people who left Monsanto's employment?

A. I don't know. That's a difficult question to answer. I'd probably, from point of view of incident -- of incidences, yes.

From a point of view of studies and desire to know whether things are happening, no, we probably looked at it. I didn't. I didn't have access to the medical records either, and Emmet Kelly is one of the toughest guys in the world that don't allow anybody to look at anybody's personal medical file, and I don't blame him.

Q. Was there any way for you at Monsanto when you were doing industrial hygiene work to be able to see if there was any correlation between any of the exposures that you were measuring and monitoring and any resultant diseases that might be occurring?

A. We did with some of the contract

doctors. Kelly did it. He had a bunch of -- he hired doctors, and they were largely contractors in the individual areas, and he had a tic sheet for them.

If anything had happened that they thought was unusual, I ended up at the plant trying to find out what the hell it was.

But as far as looking at those records, I didn't get a chance to do that. At least with any names on them I didn't.

Q. Did you have, after you started doing the profiling and surveying of plants, did you identify certain groups of workers that ultimately, either through Dr. Kelly or others, were given certain kinds of physical examinations because of the kind of work they did?

A. We had -- we had those people, yes, and those people were in -- when we checked the plant, we knew when we went in that department X-1 or X-2 had a certain screen, physical screen, through the physician, whether he was Monsanto or whether he was contract. Made little difference. He dealt with those records.

We did it on PCB's. We did it on amine and nitro -- aromatic workers. We did it on

chlorine workers, too. By government asked us to do that.

Q. Was there ever a time while you were a Monsanto employee that you did one of these physical screens for people who worked with asbestos?

A. Well, asbestos was a product that everybody in every plant had to use because of the insulation problems.

As far as I -- and I'm not sure in my own mind, I don't believe we ever had very many catalysts that used asbestos or asbestos form carriers, pallets, if you know what I'm talking about.

We sold the pallet, cook it and then use it for cattle. I don't think so. What we did do in these areas was we made sure, and we -- I lectured eight thousand times about the TLV levels and their darn respirators, and they were issued respirators by name and the respirators were periodically cleaned and recartridged even if they had not shown use.

It's the only way you can run a respirator program, and it's like helmet programs. We had the same problems there.

You know, you go visit a guy in the hospital in some place, he's got a crushed skull, and he's got a perfectly good helmet and, of course, it wasn't on his head, and when the rock hit his helmet, it didn't hurt anybody, which was on the ground, of course, not on his head.

So we did some of that. That was largely the safety people, and the safety people got -- their system corporately grew like the industrial hygiene and medical system grew, and we went together frequently in looking at the safety and health aspect of something because it's awfully difficult to separate.

Are you doing something here that's making a person be exposed too much? The safety guys, some of their guys could do a lot better job than our hygiens could do in connection with what they did and, therefore, where they interfaced with an individual compound that was hazardous.

Q. If I could get you, Mr. Garrett, to do it for me as best you can, if we can kind of go back in time to the mid 1950s after you came to St. Louis and were in the corporate program.

What would be the typical thing that you could tell us that you would be telling

workers working with asbestos about TLVs and wearing respirators and --

A. Respirators, respirators, respirators. Helmets with respirators because the helmet rule Monsanto is absolutely universal and we could enforce that.

We could enforce the respirator rule. We also could scare them a bit because it's a scary material. And we lectured. I lectured them on lots of things, including asbestos. I lectured the East St. Louis plant periodically about that and about amine compounds.

Q. Can you give us just your best recollection of what you would say about asbestos in the '50s?

A. Tell them it's a hazardous material only if you inhale it. "If you inhale it, it becomes a very hazardous material and you will maybe regret it down your life span. It will certainly shorten it if you inhale enough of it.

"So the respirator is given to you for that purpose. Wear the damn thing," and it was essentially that, but the safety people in the plants did a good deal better job than I did.

They had records and they had -- I

don't know where they got some of the films they had, but they had some films that -- Dr. Kelly wouldn't have allowed us to use films showing people that were dying of asbestosis, but some of the plants could get them, and I think I did a pretty good job, you know.

We had -- we had asbestos, to my knowledge, in every plant in Monsanto. I watched a bunch of people redoing some valves in our main office, and that was the worst looking mess I ever saw, and we stopped that.

We got the contractor in and he either changed his manner or out he went. We'd get another contractor. So I don't know. I've never -- we talked it. It was one of the talking problems.

If you were handling problems where you were in the racks changing insulation all the time and we had insulators that were by -- in some of the unions they were individuals that were classified as insulators.

In our case in one of the -- I don't know who -- I don't know what union is what in these cases, but we had one called asbestos workers, and then one of them were called

insulators, and in the insulator system they used asbestos insulation.

We used preform a lot. Later as we came down the tube, we began to use preform because it created less problem of smearing and mudding joints and so forth.

And so as far as I know, our plant safety and health people did a first class job of raising cane about asbestos. So did we. It's one of the routine raised cane things.

It's like cyanide and Monsanto made enough cyanide or used cyanide. So, yes, we did it.

Q. So when you said earlier, respirators, respirators, respirators, how did you mean that?

A. Anybody that in any way installed or took out any asbestos for any reason, however small, wore a respirator. They were issued a respirator and they wore it, and they changed it each day.

They turned it in even if they did not use it and it was recartridged if that was on a project where they were insulating.

Q. Would that be true whether they were called insulators or asbestos workers or anybody

else?

A. Yes, because in the plant you're looking at a process unit here that's manufacturing aniline compounds.

If the insulators are in there insulating, the process people have got to -- that are running the process, have got to have respirators too, and they're issued them and they're issued them from our safety supply people, and that's the way we keep records, the way we've always kept records.

Q. How far back in time can you tell us that that was done at Monsanto this way, the wearing the respirators?

A. No, I can't. I can tell you that in the last fifteen or twenty years they've been doing it. What happened prior to that, I do not know.

All I know is they had them, and in most of the plants where I was at, the respirators were issued so they had a record of it.

Q. At Texas City when you were there in the '53-54 time period, was it your experience that asbestos was handled as you've described in Texax City?

A. When the two Americans came into my pilot plant to take loose the asbestos, when we checked it, you had to have two insulators come in. I had two electricians disconnect this and pipefitters and so forth.

The insulators came in, took off the insulation, they both had respirators. As a matter of fact, one of them told me to go get lost while they took it off.

Q. Because you didn't have a respirator to wear?

A. Because I didn't have a respirator there, so I got lost.

Q. Now, the insulators that were at Texas City that you've described, they were given the clothing and they showered?

A. As near as I can tell you, yes, and when it happened -- started and when all of the issues came afoot, I do not know, but they were when I was there, they wore respirators.

They came out with their respirators. They came out with gloves and aprons and took my -- the insulation off my pot.

Q. Was there a way that you had at the corporate offices in Monsanto in the '50s of

keeping track with your monitoring data that you collected?

A. We always -- and I don't know. If I did it today, I think I'd do it the same way. We did it by plants and overlaid the plants by product.

For example, we made the same product in three plants. We took plants that you would be interested in if you're talking about aniline or chloroanilines or this plant, this plant and this plant, and you go and check their records individually or go to the plants, we frequently did, and looked at their records in their safety department, and frequently the doctor would come along and go to the physician if he was assigned.

If he was one of our physicians, which in the bigger plants like Springfield, we had a physician. I'd go talk to the physician and take the poop back to Dr. Kelly or Dr. Johnson or one of the other doctors.

Q. You say Springfield was one of the bigger plants?

A. Springfield had a physician all the time for the while I was there, and I didn't realize that until the Springfield plant manager

introduced me to him.

I will have to say he had the most hidden place I ever saw. His dispensary was excellent but it was underground. I don't know. I don't know why. Don't ask me. Go ask the plant manager why.

Q. Springfield's located in -- the Springfield plant?

A. Springfield, Mass.

Q. Springfield, Massachusetts?

A. Primarily a polymer plant.

Q. I've seen some records that seem to indicate that asbestos was used in making products in Springfield. Are you familiar with that?

A. Yes, because we used -- not only that, we used wood meal, if you know what wood meal is.

Q. I'm afraid I don't.

A. You grind wood up until it's like flower, a wood flower, and what it was used for was the early manufacture of plexi- -- not plexiglass. Oh, the damned -- oh, the most common of all the early --

MR. GAUDET: Phenolics.

THE WITNESS: What?

MR. GAUDET: Phenolics.

Q. Plastics?

A. Yes.

Q. Phenolic resins?

A. Yes. And the stuff was used as a reinforcer in phenolics. This, by the way, was made for telephones. We had problems with -- terrible problem with that powdered stuff.

We had a man fell in that thing one time, working, maintenance man, and they had to empty that whole damn thing out to get him out of there, and he was dead. He died. He suffocated.

And we did some safety rack work up there. Ground wood. And I mean it's called wood fiber. It looks like fiber, and the asbestos is also used in that same process for different kinds of plastic.

And in the phenolics, what you use as you're reinforcing material is frequently based on what the phenolic is going to be used for, and there's eight million recipes.

So sitting outside of the phenolic resin unit at Springfield used to be several large -- these forty feet high tubes filled with the stuff they use to make various types of resin.

Now, Monsanto got out of that business

a lot and people made their own stuff. We sold in phenolics. We got out of the phenolic business, too, but we sell them plastic monitors and they can make it in -- our technical research people helped them set up.

We set up people in business like everybody does. I'm sorry, but let's be honest with ourselves. Gasoline companies set up service stations for people.

So the -- yes, we used asbestos there in chop form in the tower and the asbestos workers and the aniline wood workers, both, were required to wear respirators. The guy had a respirator on, by the way, that was in the tower when we dropped him out.

Q. The use of asbestos at the Springfield, Massachusetts, plant, is that something that you yourself monitored?

A. Yes, I did. I took samples up there on that -- that whole system where they went back through and I'll bet -- we did it until they quit making phenolics there, which was years ago, by the way.

Q. Yes, sir.

A. I was in a place that made -- one of

our customers made equipment to cremate people, and they used a lot of plastic there, too, but that's beside the point. That had nothing to do with this.

Q. Have you learned that any of the people at the Springfield, Massachusetts, plant that worked with asbestos have come down with asbestos-related disease?

A. I've learned that there -- I have not learned that any have. Now, the best -- you best ask Dr. Kelly that now, but to those -- in those days I never heard of one, but when I first went to Springfield, they had very strong rules and regulations connected with their -- with that operation, and that was before there was really a big organized central health and safety group.

Q. That would have been in the mid '50s?

A. Yeah.

Q. At the Springfield plant that you visited, Mr. Garrett, in the mid '50s, do you recall if there were any other kinds of control techniques being used besides just wearing respirators for asbestos?

A. No, they were taking samples.

Q. They were?

A. Yes. The crank samples, yeah. I remember the hemocytometer we used to use to count. You remember?

Q. Yes, sir. Yes, sir.

A. Pain in the butt.

Q. Were there ventilation systems being used at Springfield?

A. Yes. We had -- as you probably know, Monsanto owned half interest in a plant next to the Monsanto plant there.

That was half owned by a company -- a big power company in Canada, and that plant, we did work and dealt with the parent company in Toronto, I believe, or Montreal, I guess it was, with the other -- because they were a partner in it. Little bit more -- you'll remember it because it had to be done with the other partner.

That is -- and I guess each -- both owned half, and the agreement was that they were power plant operators up in Canada. They owned much of the power out of the falls, and the government bought that out and we had a deal in the contract that if the government bought it out, we could buy out their part of that plant, and we did, and it became part of the Springfield plant.

And they had -- they made resin materials there more than just raw material. They actually made certain kinds of resins and a great many specialty resins in that plant.

And we -- and we -- they were just like they -- the Monsanto plant, regardless of who owned them.

Q. And they were using asbestos as part of the specialty's formulations, too?

A. They -- as near as I know. We checked it. I did sampling in that plant at the request of the plant manager. Did much sampling, and we used the old cytometer to count the squares.

Q. Can you recall what you generally found? I know the numbers would not come to mind, but did you generally find that exposures were below the threshold limit values, above, near?

A. We found -- I tell you the truth, I don't think I ever saw with that method a sample that exceeded the TLV.

Now, the TLV shrank during the years as you know, and people began to dodge the use of asbestos in some respects and probably rightly so.

I don't argue the asbestos manufacturers here because I'm saying that it's

better for them as well as everybody else. If you don't need it, don't use it, and I think probably in the 1950s that began to become the issue, and we didn't -- we -- I don't know that we did any great changes, but wherever we didn't need it, we didn't.

We stopped using it in a couple of operations at the East St. Louis plant, but they finally went out of business anyway. So...

MR. OLIVER: Objection.

Q. So basically that's the application of one of the industrial hygiene principles of substitution?

A. Absolutely. Eradication is a very good one, too, if you can get to it. No, it's senseless. I think we probably -- I think the chemical industry by and large has solved more problems by removal and change than any other single issue.

"Don't use the damn stuff."

"Well, how we going to do it?"

"Well, you got research people, tell them to find out how," and oddly enough in very many cases they could find out. There are other materials.

We use chopped rag in some of the damn things. In those specialty resins they made in that old plant, the one that we finally bought the other half of when the government of Canada took over the power plants up there, that plant used I don't know what -- God, they used everything from old Maggy's drawers off -- as additives for various small batch operations, and they were very clean and very neat about it, but they -- you ask when are you going to make some kind of fender on some automobile that General Motor's wanted, and this is what they wanted. So who am I to argue with them.

Those specialty plants probably were the best knowledgeable plants that we had in connection with respirable dust of any kind, and that plant did a very good job of I think probably -- if you want to know the truth, in Texas I could get most dust sample out over there by the beach than I could anywhere else, but in the plants that we tested dust in -- I tested some for the State of Texas one time, and we were in a dust storm and I said, "You got to be kidding. We ain't going to get anything but dust. What do you want? You're not going to find out anything with the state

guy," so we quit, but out in west Texas on the spray berry (sic) trend.

No, I think we did -- I think we probably are lucky for two reasons. One, when I came to Monsanto, the knowledge of asbestos was pretty considerable. They had the respirators.

To me they should have used respirators in doing other things, too, but they didn't, but the asbestos man come by, he always had a respirator. But some of the other people did not who needed them, too. Not with the same filter. I don't mean that.

And that's what we did in the years I was there. We got it to the point where a person was exposed to something, he was either protected or we changed the process.

Q. I thought I heard you say something earlier, and tell me if I'm wrong, but that because a TLV was set at a certain level, that, what I think I heard you say, is that that wasn't what you maintained exposures at, if you could get lower, you would.

A. We tried the 50 percent. I think a lot of people did that. I think you'll find a lot of practicing industrial hygienists that -- where

you could do it.

Now, we also had tied up some -- we fenced them off and tied them up so you couldn't -- you couldn't get to them. People couldn't get to them.

You could do that today a good deal better than you could with better instruments today. You could get electronic switching gear that will open and close valves better than a man can.

That wasn't true in the old days, and so we -- where you could do that, we do it. And I think our safety design people have come a long way in the years.

I -- well, hell, we didn't even have any when I first came up to St. Louis, but we do now and we've got a very first class group and I think they do a good job.

Q. What would be the rational that you were using in trying to look at 50 percent of the threshold limit values?

A. Well, we would -- it just gave you -- all it did was gave them a way to look at their counter thing and say "That's within our standard. It's 50 percent of the TLV," if they wanted to use

that.

Personally I'd just as soon it be zero, but there's never -- I never saw a zero, so I don't know what anybody's talking about when they say there was no exposure to anything, if it's in the county.

And in the chemical plants along the Texas area, you can find anything you want to in the area. I mean, hell, if you have got a good enough sampler or good enough method, you can practically find anything in very, very minute amounts.

Q. Was it your philosophy then, Mr. Garrett, what I think I'm hearing you say, is that any exposure that wasn't absolutely necessary, you ought to just not have?

A. Absolutely, and/or if there were -- if the hazard was sufficient to justify the manufacturer, then the hazard was sufficient to justify the construction of facilities where less and less exposure could be possible in -- at enclosed operations.

When I -- you know, these old four unit chemical manufacturing houses where you've got one unit on each corner of a processing

operation where you walk in, everybody's got them.

First thing we did was we stripped the concrete down and, boy, you talk about having a hissy, and the hissy was because they'd get cold or get rained on, but why put an envelope over that damn thing to encourage that?

If you have an accident and a leak, get the damn building down, so we took more buildings down than you can shake a stick at and caught hell from the plant manager because "It's going to get cold and we're going to have to insulate better and we're going to have to do this and that."

But we took a lot of buildings down, and particularly in the old organic processing plants.

Q. That was to minimize exposures?

A. Well, where you had an accident. Hell, we blew a valve every once in a while, so did everybody else that I know of, and the process to follow that up is one hell of a mess inside.

I'll tell you what I saw one time was one where there was a darn flammable leak inside of one of those four unit buildings, and they handled -- well, but the point is if something

would have happened and ignited that, it would have blown those other three processes to pieces, too, and my God only knows what's in those processes.

So we got them in that plant -- that process got the plant to remove most of the brick and the concrete and support it with steel, and most of them, if you find today in a multipurpose, multiprocess unit operation, petroleum or chemical, you won't find any buildings.

Buildings is where the foreman's office is, and where their damn coffee machine is and where their card punching machine is, and where most of the bitching goes on, but the fact is the processes are sitting out in the open in open racks, which is a -- the greatest thing that ever happened in the chemical industry and the petroleum industry.

Q. Would you recall, Mr. Garrett, if Monsanto's plants in the '50s when insulating work was going on, if it required the removal of old insulation, if that was done wet or not?

A. I saw a whole system being done down at our Chocolate Bayou plant and it was wetted down, but -- as a matter of fact, they had the

sprinklers on it. Guy worked in water all over the place.

You, in a way, you got me in a trap. I don't know whether I agree with that or not, and I'll tell you the reason. Unless that water is trapped and carefully gotten rid of, you could spread that damn asbestos from here to hell and back and, when it dries, everybody is going to get asbestos.

If you take care of it properly, fine, but that means where does that water go? How are you going to trap it when you're messing around with a rack in the middle of the plant?

Have you got a ditch dug over here where you're going to trap it? So you can take that stuff out so it doesn't dry on the ground and every truck and every man that walks by it helps generate dust.

We had a hell of a mess over that thing. They finally decided that you couldn't do that. So they dry removed it. The last part of that same process at Chocolate Bayou was dry removed.

Yeah, you have respirators on, but the majority of it was dry removed. The rest of it

was sprayed down and into the gutters, but the point is parts of the racks go over areas that are not well drained. That was my point.

MR. OLIVER: Objection, nonresponsive again.

MR. BROWN: To that last one?

MR. OLIVER: Yes, to the entire response of that last portion as well.

A. Goody for his side. I realize I'm giving you a lesson in industrial hygiene that maybe you don't need.

Q. No, sir.

A. That's my only way to answer the questions.

Q. That's exactly what I would hope that you would do. Along that line, you're a certified industrial hygienist, Mr. Garrett?

A. Yes.

Q. And I would think you consider yourself to be a professional in that area?

A. Yeah, I do.

Q. And are so recognized by your peers?

A. I'm too blunt, but I am not a very good consultant.

Q. Well, perhaps that's what makes you a

good consultant.

A. Well, I told them first it was lousy and they didn't like it. I don't know any other way to tell them it.

MR. FOGARTY: Objection.

Q. Mr. Garrett, I've got about 12 o'clock. Do you want to stop for lunch? Give me a chance to get reorganized again here and see if we can get --

A. This time let's take off all the hardware so we don't pull the equipment apart.

(Deposition stood in luncheon recess at approximately 12:00 p.m. and resumed at approximately 1:37 p.m.)

AFTERNOON SESSION

All parties present, by and through counsel and the witness, JACK T. GARRETT, having been previously sworn testifies further, to wit:

MS. FLATT: We're on record.

(Edward Carstarphen not present at this time.)

CONTINUED DIRECT EXAMINATION

BY MR. HOBSON:

Q. Mr. Garrett, during the luncheon break, I noticed something -- and perhaps we made

a mistake this morning. I was looking at your resume, and I'd asked you earlier about when you first went to work at Texas City and you looked on here and you told me October '53, and when I was looking back through your resume, I noticed here, where you had October '53, that's the date that you left Texas City and it shows you starting at Texas City in January 1950 and I wonder if about --

A. January '50 is the right date. I'm sorry.

Q. That's okay. I might have rushed you through that?

A. I must have got the wrong. You know, I saw October of 1953. That's when I went to work in '50. I graduated the University of Tennessee in 1950.

Q. And so then it would have been in 1953 that you moved to St. Louis?

A. To St. Louis, yes.

Q. While you were down in Texas City, I wanted to ask you if you might remember any names from that facility. Would you recall a Mr. William F. Woolley, W-o-o-l-l-e-y?

A. Name sounds familiar. Woolley. I

can't place him.

Q. Would you recall a Dorothy Wilson?

A. Yes.

Q. And how would you have known Dorothy Wilson, sir?

A. Oh, the name is familiar. I don't know. I can't place the place. Dorothy Wilson.

Q. Were there occupational nurses at the plant?

A. She was a nurse. Yes, bless her heart. She was a -- she lanced a couple of dandy boils I had. She was a nurse, uh-huh. I couldn't argue.

My wife is the nurse from St. -- from Monsanto -- from here, so I better keep quiet. That Dorothy was -- Dorothy was the nurse, uh-huh.

Q. Would you recall a -- it's either Marietta or Marita Pawlik, P-a-w-l-i-k, Pawlik, Powlik?

A. No, no, can't recall that.

Q. And how about a Douglas Pierce, P-i-e-r-c-e?

A. Nope, not readily.

Q. Claude Hamilton?

A. Hamilton?

Q. Yes, sir.

A. Boy, that don't tick a big bell, but it rings a bell. What was his --

Q. That's all I know about the gentleman, sir.

A. How about a Mr. B.D. DeWalt, D-e capital W-a-l-t?

A. DeWalt. He was an engineer in the plant, I think.

Q. Would you recall any of his activities, any of his duties?

A. No, not specifically.

Q. What was the safety engineer or safety person's name?

A. Mooney --

Q. Mooney?

A. -- Stalling.

Q. Stalling?

A. Stallings.

Q. Stallings.

A. I think it's the plural name, but it doesn't make any difference. It's Stallings or Stalling. S-t-a-l-l-i-n-g, I believe is his name.

Q. Do you remember attending the Gulf Coast Regional Conference on industrial health in

Houston when you first joined the company?

A. I've been to so darn many of them. I think I remember that name of that outfit. I think I gave a paper at one of their meetings, but I don't know where it was. It was a discussion of the toxicology of fish to various kinds of cyanides.

Q. Would you recall a Florence Andrews?

A. What?

Q. Florence Andrews.

A. Florence Andrews. No.

Q. How about a Mr. Fred L. James, J-a-m-e-s?

A. Not good there either.

Q. In your work for Monsanto, Mr. Garrett, did you ever have any interface with the ASA, the American Standards Association, later became ANSI, the American National Standards Institute?

A. No. I had -- I think we had some dealings with them over a standard connected with tank streaks one time, but I don't remember what it was about.

Q. Are you familiar with what ASA standards were?

A. Yeah, some of them, I am. We used them as everybody does, I guess.

Q. Would you give me your best understanding of how ASA standards were in use in the 1950s?

A. They set down standards along with many other standard setting organizations for many, many things that ultimately became safety related but weren't necessarily safety related initially, and that's the strength of materials, bursting strength of equipment, that sort of thing.

And I think they set down standards -- for example, they would set down an example of how bursting strength of a large tank or the bursting strength of a milk bottle for that matter because both of them can be hazardous, and that has been my -- most standards are ASA standards of one kind or another. A lot of construction standards.

Q. Would it be accurate to say that these ASA standards were the standards of good practice for industry at the time?

A. Partly, but because industry had many agencies establishing standards. I think they're better now than they used to be. I think there

were more people out setting standards in the old days than they were -- the petroleum people set standards for petroleum products and the chemical people for chemical products and I don't know how many -- how -- you mess around with railroad equipment and you find out the railroads set their own standards, if you want to know the truth about the matter.

And they had their set of reasons for it. I'm not -- really I'm not trying to in any way derogate them. I'm just saying that there are so many different standard organizations that you meet in construction or in transportation.

Look at the standards established for aircraft, for example, for passenger carrying aircraft. The same is true for railroads. I wish somebody'd enforced them, but that's beside -- I chased too many wrecks, I guess.

Q. In the case of ASA standards, would those standards be something that Monsanto would have been looking to and relying upon in their work?

A. For construction materials probably, but I don't think they'd look forward to ASA to set any kind of health standards. I think there

are too many much better equipped and better educated agencies to set those, including some federal and state agencies.

Q. Well, for instance, are you familiar with ANSI --

A. Yes.

Q. -- or ASA standards for respiratory protection?

A. Yes, I am now.

Q. Was that one of the safety or --

A. One of the -- yes, and one of the ones that established the pressure cushions on masks and so forth. Yes, I agree. No. We used the word ANSI. I don't know.

Q. Is the ANSI --

A. American National Standards.

Q. Is the ANSI standard for respiratory protection one that you felt was not a good one for ANSI because it was health related?

A. No, not necessarily. No, not necessarily. I -- to tell you the truth, the standard setting associ- -- people that I knew that we did most of the early work with for standards in handling products probably came from manufacturers or from the MCA, the then MCA, now

CMA, and the American Petroleum Institute group.

I worked with them, too. I was a member of one of their committees, one of their medical committees.

I would be more inclined -- now, for strength of materials and stuff like that, the standards established by the health agencies probably took into account any standards that were otherwise required.

We used, probably more than anything else, used the TLV list. We put many things on the TLV list, did the work and established them there.

And we put some in the CMA's guide books and we put some -- we did some of the work that ultimately led to standards from the Petroleum -- American Petroleum Institute.

And their -- they also put out daily sheets. And this is many years ago. They put out daily sheets, chemical safety data sheet, that's what you call them, was put out by the Manufacturing Chemists Association.

The API put out a whole series of data sheets on things that were largely petroleum related.

The drug people put some out as well. These were raw material drugs. These were not -- because they had to put out very detailed ones for approval on drugs that were being used by people.

So the agencies involved that we were most involved with, that I've been most involved with, were probably the TLV committee of the MCA -- I mean of the American Industrial Hygiene Association, the MCA committee work that backed up a lot of the chemicals.

We established the data for some chemicals that went to the MCA and from the MCA went to -- went to -- ultimately set the standard in the -- for PCBs, for example, and for some of the nitro and amine compounds.

So the agencies I'm most frequently -- most familiar with were probably the government agencies, and they took their numbers from most of these committees or agencies established by individual manufacturing groups, like the MCA and the API, and there are a lot of others that do these drug people.

So that's where most frequently I think most of the standards that are currently used probably came out of a composite of these

agencies.

Q. Did any of your work, whether it was with these agencies or these organizations that you mentioned about or through Monsanto, did they bring you in contact with any of the insulation manufacturers or their employees?

A. Probably, but the trouble is that the particular committee was established for specific -- the specific business and the -- any insulation manufacturers would have been ancillary to the primary business of chemicals or petroleum products.

But in any case, their standards were always put forth to the -- to the TLV committee of the American Industrial Hygiene Association.

Q. Do you recall meeting any of the employees from the insulation manufacturers?

A. Oh, I knew -- I knew a guy who was a member of the American Industrial Hygiene Association, friend of mine, that worked for, oh, the big -- big asbestos manufacturer on the west coast. Well, the one that got sued to death.

Q. Well, there have been several.

A. I'm sure they were.

Q. Fibreboard?

A. No.

Q. Johns-Manville?

A. Johns-Manville. I knew those people, two of their people.

Q. Do you recall their names?

A. Good Heaven's, no. My recall of incidents is fine. My recall of names is zero.

Q. Can you tell me under what circumstances you remember meeting those folks?

A. Well, I met them in a meeting somewhere. I think it was -- I think it was probably a AIT meeting on standards somewhere. I don't recall where it was. Probably one of the national meetings.

(Some gentleman came in and it was not Zucker.)

Q. You've been talking about several organizations and I wanted to try to make sure we're talking about the right one, the same one together.

TLVs are levels --

A. Threshold limit values.

Q. Yes, sir. Those are set by the American Conference of Governmental Industrial Hygienists.

A. Governmental Industrial Hygienists, yes.

Q. The ACGIH.

A. With most of the input from AIHA and their -- and the people that manufactured that material. I've been involved in that many times.

Q. Now, when you say you were involved in committees that had to do with TLVs, then the committees you worked with were in the American Industrial Hygiene Association?

A. The IHA, that's right.

Q. Not the American Conference Governmental Industrial --

A. No, but we dealt with them because they were the regulators and we gave them the data. We dug up half the data. They come to us and ask us for data on this and that or something else, particularly some of the oddballs.

The AIHA published a little series of booklets or data sheets of their own, and we set the standards for the PCBs and some of the others, gave them the data we had, which was extensive, particularly in our manufacturing data, and -- so we've dealt with all of them, and it turned out to be the standard that was established on the TLV

list.

Q. You did say earlier I think that you -- I think Monsanto put things on the TLV list, is that right?

A. We put -- we were asked frequently where we had -- we were one of the manufacturers of chemical products -- to help develop TLVs with the -- with the TLV committee of the AIHA which dealt with the committee of the association.

We said -- we did this on products that we were primary manufacturer of or one of the primary. We did the PCB work because we were the only one that made the PCBs.

And incidently, our standards were accepted by the French and Britain -- German manufacturers of it, too, because we had enormous, enormous amounts of information on the data on the exposure to those materials in our own manufacturing operations, and we manufactured them at four different sites.

But anyway, we did some of the others. We were asked on -- particularly when they got to setting some of the standards on anilines and the chloroanilines, the nitroanilines, Monsanto's a primary manufacturer

of aniline materials or was. I don't know that they still are or not, and we did a lot of work on that because those things are dangerous son of a bucks.

MR. FOGARTY: Objection, nonresponsive.

A. The chloroanilines were probably the most dangerous material I ever saw manufactured.

Q. In that list of materials that you just told me about that involved setting TLVs, is there any one or one group of those that you had particular responsibility for more than any others?

A. The PCBs we did. Elmer P. Wheeler and I did the PCBs and wrote the backing for it. You have to write a backing sheet or a backing report detailing where your data came from, how much data you have, what your manufacturing facilities are, where they are and so forth, what regulations you feel are necessary to protect the health of the people and what have you practiced in safe handling, and that's what we did.

But in answering all those questions, we frequently got a lot of questions about materials that you were not the primary

manufacturer of but you manufactured it and had some data, and we dumped the data into -- any time they asked, we dumped the data for them.

One thing I loved about Monsanto, I never got told not to by anybody any time anywhere.

Q. Was it so that for PCBs -- which I think you said you had direct responsibility for doing.

A. I sure did.

Q. Did you at Monsanto come up with a TLV number for PCBs then?

A. We came up with a recommendation as to the least -- what we considered the least hazardous level that we had seen in manufacturing practice.

The unhappy part of it is we'd never seen any hazard in manufacturing, and we told the committee this, but we also gave them copies of all of our detailed toxicological research work, including long term tests.

Q. So you had some animal datas that were sent?

A. Oh, yes, we had two year data on that. So we turned it over to -- incidentally, we turned

it over to the -- to the OSHA, too.

Q. About how many people were involved in manufacturing PCBs over the years?

A. Oh, God, five hundred. No, four hundred probably. Wait a minute. One, two, three -- we manufactured PCBs in Anniston, Alabama, in East St. Louis, Illinois, and originally at the plant in Missouri, the old home plant, in small quantities there. The test materials came out of there, but the manufacturing levels were at East St. Louis and in Anniston, Alabama.

The Anniston plant was shut down for reasons -- if you saw it, you'd understand why. We had no way of taking care of any waste there at all. We had a hell of a time with it.

Now, somebody would build a phosphorous manufacturing plant out in the middle of no place. We had a creek about this wide. We finally ended up owning it and putting tile in and making it a sewer, which we tested, checked and treated, and finally they give up.

So we moved. The only plant in the latter years of the manufacturing of PCBs were done in -- at East St. Louis, Illinois, and we had

a manufacturing plant in Europe, and I believe that was in Belgium, but I'm not sure.

Q. I'm curious to know what kind of logic you used in coming up with your recommendations for TLV for PCBs. How did you do that?

A. Well, it was difficult to do. We looked at the toxicology with long term studies with rats and acute studies with several species, rats, rabbits and guinea pigs; although we rarely used guinea pigs. Rats, rabbits, and we had a third -- a third specie. I can't even remember what it was.

And we tested from these data -- by the way, it's not very toxic, as you can easily imagine. From these data we calculated based on the most sensitive animal -- and the most sensitive I believe was a rat -- what it would be if we took one-tenth of that and if that -- we felt that would be hazardous.

Based on our experience with our maintenance people primarily, we figured that was probably correct. So that's essentially how we set it.

Q. In what kinds of programs do you recall having to deal with the maintenance people

to observe what kind of medical problems they might have experienced?

A. Well, we went through and sampled. We sampled PCBs in those areas. And incidently, we had a hell of a time doing it because we never found very much.

The stuff, as you know, unless you're -- it's very hot, is a syrupy material to start with. It's diluted in using it in transformer cases, for example.

It's not -- you say the electrical people do this. They don't. They dilute it and there's what's known as transformer fluids are made, and these are mixtures of PCBs, different numbers, different chlorinated types and bland solvents, nonflammable if -- as much as possible because PCBs were not flammable.

They were used in places where you were -- it was well to take a little care because they were used in tight places.

Q. I take it that in doing the animal toxicology work, that these test animals would be exposed to different doses of the material and then you would look at the animals to see what kind of biological effects were present?

A. That is correct. That's correct. The reason we used multiple species is because we wanted to know if there was anything -- we'd never seen a case with our own people. We'd -- the only manufacturer of PCBs and the work in the U.S. was Monsanto.

And the only manufacturer in Europe, I believe, was Rhone Poulenc and, oh, Leber Quesin, a German company in Leber Quesin. Made in Leber Quesin. What the hell was the name of the company?

But anyway, make -- but we dealt with them, too, by the way. The people from Germany came over to talk to us, and we were over in Europe, talked to them and talked also to -- they had a toxicologist.

One of the great toxicologists of the world was a German that worked for Bayer, and we talked to them -- wasn't any sense in talking to the French, as you probably already know, so we talked to Germans.

They came over and talked to us, looked at our data, and they felt that our standard was pretty severe. They didn't think anybody would ever exceed it, but they thought it

was pretty severe based on the data.

But that's the general sense of how it happened.

Q. In doing these laboratory animal studies, I take it that the exposure to the animal would be monitored over their exposure time period of years?

A. These lifetime studies, yes. There's no -- no basis in acute studies going to help you except it gives you an idea of when to start running, and if you exceed X number of -- you'd have a hell of a time getting that much PCB.

It would be like drinking too much Karo syrup. It's very difficult, very -- doesn't -- it isn't very volatile.

But anyway, we tested it and we worked with the toxicology laboratory. We did not do it ourselves. We never did any of our own toxicology work. We did it with contract labs.

Q. Were the animals exposed by having them breathe it or by putting it on their skin?

A. We breathed. We both breathed. We pasted it on their skin, the abdomen that had been shaved using a standard transfer to see if it was absorbed through the intact skin and inhalate --

inhalation.

We did everything but duck them in it. I didn't do it. We did it -- had it done by our contract people, and we used the University of Cincinnati a lot. We used two private labs that -- out on the east coast a lot.

We had an acute place in St. Louis that did acute work, pret nearly exclusively for us and for Mallinckrodt and maybe a couple of other people.

Q. Now, the workers who made PCBs that were Monsanto employees, about what time period would Monsanto have made PCBs?

A. From about 1935 to about 1985.

Q. And I take it that at least for some of that, about fifty year time period, there would have been no monitoring data to determine exposures to the Monsanto --

A. Well, we didn't -- we did monitoring but we didn't get anything, and we did -- we took monitors on the people.

In the first place, the process was an enclosed -- tight enclosed process and it required very few people. Actually, the guy that ran it sat in a control room with dials and adjusted the

temperatures and the pressures.

The only person that ever got any exposure after we cooled it, shut it down, depressurized it, was the people that did the maintenance on it, and it was those people that we tracked more often than anybody else.

We never found any problem. We thought you might get a rash and irritation because of the chlorinated contact, but we never did that either, but we never got enough exposure either, I don't suppose.

Q. And I take it that these employees that would have been making the PCBs at Monsanto, that included the maintenance workers as well as the operations people?

A. If the maintenance workers at the Krummrich plant was assigned by region -- but it isn't fair because they might -- if this regional maintenance group had too many pipefitters, they went over here.

So you're talking -- if you went and looked at the standard workers, including fitters and insulators and the whole bunch would be -- could be transferred from group to group, but they probably stayed within their own craft shell

because this was a -- this was a united chemical workers plant, and they used individual recognized crafts, which we could care less.

I don't, you know, an insulator's an insulator whether he's working under what union rules, and these people would frequently be transferred from unit to unit and would be used from this unit to this if this unit was down for maintenance to help it bring it down and make sure it's -- they don't dump all that stuff in the creek because it would do a creek no good.

It would separate and you'd have two levels in the creek. The fish may like the top level and they may not like the bottom level. In any case, this is how we did it.

The people that worked on it were, oddly enough -- the plant was pretty large, the one at Kearny. The one at Anniston was smaller in output. Pretty much the same.

The one at Krummrich was built after the one in Anniston, so it had a few modern conveniences, like flushing toilets maybe, but otherwise the thing -- the people themselves had very little exposure to anything.

We tested with standard organic fluid

testing materials and found -- I don't think we ever found any or very little. It's not easy to analyze these things, by the way. I'll give you credit for that.

It's damn difficult to analyze for very tightly chlorinated compounds. You got to break them down somehow and knock that chlorine out of there so you can test -- you can test a sample for it. So it really is a pretty tough analysis.

But as far as we were concerned, based on what we saw in many, many thousand acute tox tests and many, many hundreds of long term tox tests, that's probably the most innocuous material we ever tested.

I hate -- I know they'll holler PCBs. Let them holler. They're going to burn this soil out here in St. Louis, sure as God made green apples. They better crank that little dude up pretty high to be able to burn those chlorinated hydrocarbons out of there, but if they want to, fine, it's done because it couldn't possibly hurt anybody.

Q. Now, is it your experience or can you tell me, Mr. Garrett, is this how other TLVs have

been set historically?

A. In most TLV committees, and I've been on a couple of them, you gather any information you can from any kind of literature source, and if you've got a lot of good buddies, you can get a whole lot of them to look in some literature that you don't normally have, particularly medical literature that you don't maybe have access to, particularly foreign medical journals which they don't really have.

Most of their stuff is, if it's for safety or health control reasons, it's in the medical journals.

If you had somebody that could read French and read French journals regularly or -- we had a man in Europe that did the German journals for us.

Get all this junk dumped into the committee, all these pieces and bits of information, and then get a detailed tox study, which we did, detailed long term tox study, lifetime term, and a whole mass of short terms in various types of animals and all of this together, it begins to look like probably it ought to be thus and so, and then you begin haggling and

arguing about it, and a bunch of people that are highly skilled and trained in this business -- and these are not hygienists.

These are almost exclusively toxicologists that do this, maybe a medical doctor or two thrown in, and they come up with the answer.

My personal opinion is they've done one hell of a good job and, by the way, our TLVs are copied by everybody in the world.

Q. And the TLVs that ultimately get published by the American Conference of Governmental Industrial Hygienists, those are put forth as levels that it's believed that most workers won't suffer ill effects, not all workers, right?

MR. FOGARTY: Objection, leading.

A. Well, I don't know. I've never heard of a TLV in no one, and we certainly would never recommend and we recommend -- many -- any TLV that is in the area that even causes a symptom, whatever it is.

We don't want that to happen. You don't have to have it happen today with modern equipment.

You can't run a backyard chemical plant anymore with a bunch of castoff kettles, and believe me there were a lot of those when I first come into this business. You can't do that.

These things are in triple out -- triple layered stainless steel containers with everything running through multiple dials and pressure guages, pressure drop guages, concentration guages, and everything you can measure.

It just doesn't make any sense to put it out. If you can smell it, there's too much. There's too much.

That was the old rule. That old rule had a hell of a lot of sense to it. It had a hell of a lot of sense to it.

Q. I'm sorry, I didn't understand. The old rule being what?

A. The old rule, it used to be, the old rule was if you can smell it it's too much. Hell, you've heard that for God's sakes. Lord knows we used it enough times in the old days.

That is not true. There is a lot of stuff -- I mean that is probably as good as you can get, but you're going to get below that if you

do these full tox studies, and we did them not only once but we did them more than once in a multitude of animals. We should have. We got shalalied enough about it.

Q. So what you're saying is the old rule was, if you can smell it, it's for sure too much, and --

A. Or you could feel it, that's right. That's the old rule and it served fairly well. Not good enough by any stretch.

Q. And now as things have progressed, the fact that you can't smell it is not good enough?

A. Well, the old rule worked for toxic immediate effects, acute effects. It never would work for the subtle effects of long term exposure, no. And that's the reason we did the long term tests.

If our own processes -- any time we manufactured a new chemical that we were going to market for whatever reason, we did the full tests and it's strange there are some we withdrew.

We did not think they were -- we thought they were too toxic in some kinds of toxicity that might -- and we withdrew. They weren't that happy a compromise of the materials

already on the market.

Q. Getting back for a second to TLVs. The TLVs that were in effect in the 1950s and 1960s, it's pretty clearly stated, isn't it, that those TLVs were intended to protect most of the workers but not necessarily all the workers?

A. Well, I never heard it put that way. I think -- I think in my company I'd have been fired if I'd have used that term at all.

Q. How is that, sir?

A. Well, the old man wouldn't have it. "You're going to protect all of my workers or you aren't going to protect -- or you're going to go -- we'll find somebody who can or we'll quit making it," and that's the way we worked.

You'll find Kelly will tell you that tomorrow, I think.

Q. Is that one of the reasons why you weren't satisfied just to meet a TLV, that you wanted 50 percent or even less?

A. Well, we didn't even -- that -- you got to give yourself credit. Every safety margin -- look at the number of materials that you've seen through the years in your professional experience that have suddenly became more toxic

because of some specific effect on some specific organ that took years to develop, and by that time you're too far into it to help some of them, so we didn't want to do that.

We've always been pretty cautious. We, by the way, have our own toxicology groups at Monsanto that supervise all these studies. We do some of the toxic -- the acutes ourselves.

We don't any more. We used to. We do -- now, these professional toxicologists do the supervisory work with the people that do the work.

Q. If I understood what you were saying there, then because it's known that as more and more work gets done, new effects are discovered, and so the prudent thing to do, even though there's a TLV, is to minimize the exposure as much as you can --

A. Absolutely.

Q. -- because you never know when the new effects are going to come out?

A. That is correct.

MR. FOGARTY: Objection, leading, also mischaracterizing his testimony.

MR. BLANK: Do you have some problem with leading an adverse witness? I mean is there

some wierd rules that you're working under that make that a reasonable objection?

MR. FOGARTY: I don't think that this witness is an adverse witness.

MR. BLANK: Oh, I forgot we sued Monsanto. Excuse me. It must be a mistake.

THE WITNESS: Do you want me to go out while you fight?

Q. No, sir. We're just trying to figure out why these unnecessary interruptions seem to be happening.

A. Can you possibly hold it off for a minute so that we can have a -- a break to go to the john?

Q. Absolutely, sir.

A. Okay. Please.

MR. OLIVER: I object to the last side mark, too.

MR. HOBSON: Which one, the "absolutely, sir"?

(Temporary recess was held.)

MS. FLATT: We're on record.

Q. Mr. Garrett, before our break we were somewhat into a discussion on TLVs, I think. You said that the concept of protecting most workers

was something that you didn't think would go over well at Monsanto.

MR. FOGARTY: Object to the mischaracterization of the testimony.

Q. Well, tell me if that's wrong then.

A. That was right. I don't think that if it's possible to determine the end effect, no effect level, that you don't do it.

Q. Okay. I'm not sure I understood what you're saying. I don't want somebody else to say I mischaracterized it, so explain to me what you mean by that, please.

A. If you can determine the no effect level of the material, whatever it takes, you should do it. That's my opinion.

Q. Can you tell me, talking about materials for which there are TLVs, are those no effect levels?

A. Many of them are.

Q. How about asbestos?

A. I don't know. I have nothing to do with setting that standard. It was already on the books when I came around and we abided by it, so I don't really know about that.

You might go back and check whoever

did it and find out what they did and how they did it.

Q. So you just wouldn't know one way or the other --

A. No.

Q. -- whether asbestos was a no effect level or not?

A. It's been set so long and been practiced so many years that I didn't -- we just didn't argue it. We used it and that served us well, as far as I can surmount.

Q. Now, you were talking about the use of PCBs and how Monsanto being the only U.S. manufacturer, that you were involved in putting PCBs on a TLV list.

Did you feel that at Monsanto that you, in fact, did establish a no effect level for PCBs?

A. Based on the years we had manufactured it and the yearly physical exams of the men that worked it for years and years, we think we established a no effect level, yes.

Q. And do you feel, Mr. Garrett, that that's the manufacturer's responsibility to find a no effect level if there is one?

A. That's an onion I'd just as soon not bite into. I don't know how you mean by that. If a manufacturer does not help establish the standards of the materials that he's manufacturing that are going to expose someone else, I think they should help at least.

Q. And how would you advise today in your consulting practice a manufacturer to help set TLVs, find no effect levels?

A. Well, if there is enough literature in the tox or medical or industrial hygiene literature to establish -- to show specific finite levels and their effect or no effect on workers, then it should be looked up, and it should be used in a judgment that goes behind all standards.

We've judged wrong in some standards. Everybody has. I think you'll find that looking at the records.

Then I think whoever manufactured has the responsibility of taking these data and filling in the gaps with his own data and coming up with a summary that says thus and so is the case and that it is, as near as we can determine, a no effect level or whatever you want to determine.

Q. And if there are gaps to be filled and the data doesn't exist should the manufacturer attempted to test to fill those gaps?

A. Yes, I think so.

Q. Are there situations, Mr. Garrett, where it's just not possible to find a no effect level for chemicals or for materials?

A. I guess you could say that a material that is inherently a corrosive is probably going to subcutaneously effect the skin of a human being in some ways.

Now, your point is well made in that you're talking about where is the end of this affair going to -- where is it going to end up. There are ways of testing the very, very minute effects of corrosives, for example, on skin.

Your question is okay. If those exceeding the minute effects, is that the one you want to set for your standard? If it's possible to be set at the level that doesn't effect the standard. Now, that's not always possible. I won't buy that.

Q. What about at --

A. Let's look at petroleum, for example. Let's look at the ordinary gasoline and what

happens to this from the flammability standpoint. I mean you can't -- you've got to do -- a lot of professional judgment has got to go into these standards.

It just happens that in the case of the PCBs, we couldn't find any effect at all.

Q. In the case of materials that can cause cancer, do you believe it's possible to find a no effect level that will protect everyone?

A. Everyone?

Q. Yes, sir.

A. No. In my -- if this is a -- if this is an active, reactive chemical that can cause cancer, can you get a level that won't cause cancer in anybody in the world?

I don't think you could do it by any normal toxicological means and/or any of the mathematical means of calculating the effect based on the positives, negatives and nulls. I don't think you can.

So that you've got to -- again, you're back on the judgment base, and everybody that stands on the judgment base is going to get shot at. So I don't know.

Q. Do you hold, Mr. Garrett, to the

opinion that workers should be told if they're working with materials that can cause cancer?

A. You damn right.

Q. How long have you felt that way? And I take it you feel that way fairly strongly.

A. At the number of lectures I've given to worker groups at Monsanto and to other groups at request, largely somebody requesting through some vice-president of Monsanto, I would say from day one that they should be told.

Now, they should have some good -- and this is one of the biggest problems. You brought the best one up that you can bring up, and that's cancer. You've got to preeducate your people as to what these levels mean and what they are.

For example, if you can create cancer with one molecule, I don't know how you'd ever prove it.

Second, if you can create cancer with levels of way below the level that causes any other discernable effect, I don't know whether you could justify that because I don't think you'd ever develop a cancer enough to do it because in cancer studies you've got to have more than one because you'll have ideopathic stuff occur and,

boy, you certainly will in some of them damn beasts that they breed for that.

If you stomp on the floor, 11 percent of them drop dead from something anyway, so it's a difficult task. Your question is well asked. I don't know the answer to it.

I think that a good set of genuine systemic toxicological studies is the base of all this stuff.

When you get through that, you find from a good set of diagnoses of the carcasses of what -- the effect it had. If the beast died, what did he die of? An enlarged liver? A ripped out esophagus or what?

And then back off from that situation and find out where the target probably is for that particular material, and you'd be surprised incidently by what the targets are.

And then from that point try to evaluate it -- first, evaluate whether it's needed or not. If it isn't needed, don't make it.

And believe me, the chemical companies, most of them that I know, have turned down literally thousands of materials that people want them to make. I know we have, Monsanto.

Many, many, many times we've turned them down.

"Will you make this for us?"

"No, you dummy. Make it yourself, because it's going to be highly hazardous, and even the raw materials will cause cancer.

"No, we're not going to make it for you. Why should we do it? It would be foolish and would endanger our employees."

I don't know whether we really realize how much good, trained employees mean to a manufacturing company, and you frighten one of them in a processing unit and you got beau-coup troubles in that processing unit. You may never meet quality again. You just can't do it.

And Monsanto -- and most companies I know that I dealt with deep -- in very great depth, and this would probably be Dupont and Dow and some others, some of the good petroleum companies, Phillips, the Standard Oil groups, and I've dealt with both their -- back when they did have a South American deal, I even dealt with those people.

The point I'm trying to make is there's a word called prudent, and, boy, everybody in this business, whether it's safety, industrial

hygiene, occupational medicine, toxicology or whatever, it damn sure better understand what is prudent and what it means.

Q. What's it mean to you, sir?

A. Is it prudent to manufacture? Do you make enough money to pay for the corpses? The answer is no, nobody makes that much money. So that's not prudent. That isn't even smart.

Getting down below the smart level, is it prudent to run the risk? Evaluating risk is an exceedingly difficult task unless you've got a hell of a lot of data that shows what happened when something did go wrong, and you almost never have that.

I think good prudence in the minds of good, industrial, medical personnel is probably good enough. At least it's been my experience.

Now, you can't grab these things out of the air. Boy, they -- and oddly enough, some of the old TLVs probably were grabbed out of the air.

They have come -- they have been grabbed out of the air with experience and some of them have played the same game. They have turned out to be prudent standards.

Setting standards is my idea of running in a three wheel car. I don't think you're going to get there without at least some accidents. You're going to drag that wheel somewhere. It just isn't possible to do it.

You can run down to the -- as low as you can go and you've got to run two years in rats, and then you find out nothing happened or that something did happen. What are you going to do, go back another two years on another? That's the only way to do it unless you're spread and, boy, you don't know.

The other thing that fouls you up is the differences in the toxic manifestation at different levels.

Hell, at one level it kills you because it blows out your respiratory system, and down here much lower it kills you for something else. We better know that, too. That's also prudence in testing.

The other thing is to be prudent is -- into the prudent equation requires the how are they going to use it and how are they going to make it?

How much personal contact can be had

in the manufacturing and can you eliminate that in the proper manufacturing? Comes under the prudent argument.

No, I -- when we had anything to say about it, and we had a lot to say about it from time to time -- by the way, we didn't make a whole lot of people happy sometimes either, but if the industrial hygiene or industrial physicianist thinks he's going to make his boss happy all the time, he's crazy. He's not going to function.

It's tough to go into a big meeting where we're going to manufacture Alpha Baloney A, and it's going to solve the world's problems, and you walk in and say, "No."

Boy, I've done it. I know.

"What do you mean?"

"Peace."

And then we start that scare business. How would you like to have cancer? How many times you been asked that? I wouldn't like to ever have it. Anybody'd be an idiot that would.

So the answer is use good data, use prudence, use experience, and believe it or not, sometimes you might be wrong.

MR. OLIVER: Objection, nonresponsive.

Q. Is it best to --

A. What is that babbling going on down there?

Q. I think you've identified it, sir.

A. Okay.

Q. Is it also prudence that, in considering what steps to take, that one should error on the side of caution when possible?

MR. FOGARTY: Objection, leading.

A. Probably. I think what you need to do is assemble all the data you've got, all the data anybody else has got, and you know as well as I do within the chemical industry or within the petroleum industry you can probably pretty well get the data.

I don't think -- we never have held it up from anybody. We've sent bundles -- used to send -- if you had a regular bundle and PCB must have been that thick, and we got questions from Denmark and all over the world.

We sent them a bundle and let them put their prudence in motion. There used to be an old statement -- how did it go? In the mind's a prudent man thus and so. Okay.

If prudence doesn't play a part in it,

I don't think we know from half the things we use now. We've got enormous experience with them. We don't know how much because nobody's ever touched that subject to find out how many hours of work hours have been assembled.

We've been doing that to -- in some of the newer chemicals, and the number of working hours that are assembled become immense in a big operation where you've got a big maintenance group and a big production group and a big handling in your handling and packaging group. It's an enormous number of hours. I don't think anybody ever realized that before.

We did some at our Chocolate Bayou plant. We were running -- what did we do? How many people get it? How many hours of exposures? Exposures, ran unto the zillions of hours.

Did we get anybody hurt? Okay. You go through the medical records. You go through the records of your dispensary. You go see your safety people. You go through your hygiene and occupational medical people if you've got them.

And you find out together, no, we've had no problems. We got fourteen million man hours of work in with no problems develop.

All right. The equation now is beginning to solve some of the prudence that's needed. Frequently, we can't do that.

What are you going to do about that same manufacturing before you started it? There's where the problem comes in. I don't know how to solve it.

We did what we thought -- we would put our own sons to manufacture. That's the best standard I've ever known. Would that be where you'd let your own kid do it?

Q. If you were assembling the literature on a particular material that already had a TLV established and you found an exposure reported in the published literature that was below the TLV and associated with that exposure there was disease, what would that mean to you?

A. If you could -- if you could establish that, in fact, that was true, that the standards should be changed.

Q. Would it at least be a red flag to you to pay more attention?

A. It would be a red flag to your prudence, it certainly would. But the trouble with that is how many pieces of data have you seen

that contain sufficient safeguards to be accurate and honest? I don't know. I'm asking you because I don't know.

Q. The prudent thing to do, though, would be at least to pay attention to that and --

A. I would think so, yes.

Q. -- and further work would be indicated then to establish whether or not that TLV is variable?

A. If it's possible or if the further work wouldn't do anything more than duplicate what's already been done because you're talking two years at least and probably more than that if you're looking at exposure to dust.

Q. And if you're talking about looking at exposures to human populations, you may be looking at a working lifetime before you know the answer?

A. You may also be looking at a population that has a certain level of exposure significantly as -- by simply being alive, particularly in cities.

Have you ever done any of these curbside tests?

Q. (Nodding head.)

A. Oh, boy. You can find anything at the

curbside. You've got a product. How did it get there? I haven't the vaguest damn notion how some of them got there.

Some complicated organic identifiable chemicals can be obtained on the corner of a busy street corner. How did they get there? I don't know. They're there.

It's from the combustion of gasoline at various levels of auto maintenance, various heats of engine, various slides of tires, skidding tires, and all the rest of the crap in the world, including asbestos from fading brake shoes. So I don't know.

From the standpoint of intelligent prudent people, you've got to set some kind of method of doing this or quit manufacturing anything.

Okay. If you decide not to do that, then you're going to have to make some kind of planned approach to these things and at some point in the data collection time you're going to have to say "The data looks like it's okay, so we'll do it or we won't do it." That's my only way. I don't know any other way to do it.

Now, if you find out, as you pointed

out, that that selection is not doing the job, then it should be reevaluated, but you better have some damn good substantiated data.

Q. Is what you're saying, Mr. Garrett, is it before a professional industrial hygienist ought to think about recommending a TLV be changed, that you have to have very well substantiated data to make the challenge?

A. Oh, that depth -- that would be difficult to make a good answer to that. If I were in a -- if I were working with something that would cause end -- untreatable and noncorrectable disablement, I wouldn't use any. You couldn't do it at all.

You'd have to use a triple standard. You'd have to use your own judgment, the data you see, your own experience with materials of similar type, and a good deal of trained prudence.

Q. So the higher the risk of use of the product and the more likely that outcome can't be reversed, the more careful you have to be in using the product?

MR. OLIVER: Objection, leading.

Q. Is that right?

A. Now, in the -- during the war the

government made people manufacture things that were just plain hazardous. I'm sorry, but they were just plain hazardous. I don't know. Was that right? I don't think so, but they did it.

We -- they manufactured more gasses that you couldn't -- you can't manufacture without some problems. But like we always said, somebody had to whip them, and with fifteen minutes and another peanut gun, they could have whipped us.

Q. In looking at the setting of threshold limit values or permissible exposure levels that you would recommend as a professional industrial hygienist, if we're talking about a material that can cause cancer, would it be prudent that no matter what number is attached to that material, that workers still be told that this can cause cancer?

A. If the prudent -- if the material were -- if all the data were plain and unobstructed, unobstructed by normal circumstances, okay? What is the man normally exposed to in his everyday life?

You can't stop some exposures. You just can't. It's a part -- unless you stopped us from using automobiles and stop from using

airplanes and everything else. You can't.

Now, I don't know who went through those prudent exercises, but somebody did. I don't know.

I know one thing, that if the stuff -- if you've got clean and clear enough data, unobstructed by other effects, unobstructed by other materials, and that justify lowering the TLV, it ought to be lowered.

Q. In dealing with asbestos today, is there a no effect level that you can tell us for asbestos-causing cancers?

A. There's levels that you cannot get any identifiable results from in animals, but is that what -- is that going to emulate anything else? I don't know.

But there are levels starting at zero, if you can find zero, where things don't create problems, and you can actually back into or go up to levels that are harmful -- that knowledgeably are harmful.

I think the other problem connected with this material is that a trained person -- it depends on who's going to be using it. I certainly wouldn't put many of the things that we

have -- we sell today that have satisfactory limit values, I wouldn't put them into households as such, but in the hands of experienced and trained and prudent people, I don't -- in manufacturing, I don't think there's a problem.

Q. In looking --

A. So you -- you're really in a bad ball game here. You -- should you stop the manufacture and use of any product, any product, that under any set of circumstances and any test, one test, should you do that?

I think you'd be out of business completely. You'd probably be wondering around with a club in your hand.

Q. In your career at Monsanto, was there ever a time when you thought or you believed someone at Monsanto had a no effect level for asbestos exposure?

A. I never saw any effect, and by the way, we did lung screens on lots of workers. I never saw any effect that I thought asbestos created using threshold limit values, at least in the latter years.

I don't -- I haven't seen any in the earlier years when it was higher, but I haven't

seen any. Now, that doesn't mean, as it doesn't in the case of our PCBs, doesn't include everybody and under every circumstance, as far as I know. I don't know.

No, I think you could -- you could -- my problem is are you -- are we going to use this standard for lawsuits or are we going to use this standard for the health of workers in plants that have full medical facilities and so forth?

I don't know whether that's even a relevant question or not.

Q. But what I'm really trying to find, Mr. Garrett, is was there a time when you felt while you were a Monsanto employee or that you were aware someone else in Monsanto had an established no effect level for asbestos where you could go and say "This is the level for asbestos exposure below which no one will get disease"?

A. You know, it's funny. We use the TLV for asbestos and I never had any arguments about it or any arguments with it.

No, I don't think it ever created any problems that we know of. Please, believe me, we're a chemical company. We have about sixty, seventy thousand workers.

Most of them are exposed to insulation materials of one kind or another because they're close by and you've got wind blowing over insulated material and what there is.

We can find asbestos by analysis anywhere. I can find it in your street corner in pretty heavy concentrations if you've got a stop sign there, stop light there.

Q. But were you able to convince yourself or to tell others that at this level there will be no effect from asbestos while you're a Monsanto employee?

A. I thought that the TLV establishment system was sufficiently armoured with protection that the chances that a person was going to get any problem from that level of asbestos, if you could analyze it, and it was a continuous level, I would -- I don't know.

I don't think we've ever seen anything. We've done the same with a lot of other materials that are very toxic. We've set standards on those, and I don't know if we had twenty-four hour exposure.

That's the other problem we faced always. If you had twenty-four hour exposure to

highly toxic substances, I don't know.

Q. So if I hear what you're telling me then, and tell me if it's wrong, Mr. Garrett, you're saying that for asbestos while you were at Monsanto, you believe the threshold limit value as it was then set was the no effect level?

A. No, I thought that was the -- a good, safe standard. Now, no effect level is a term that is extremely difficult to define and probably is not ever obtainable in any case, so I would say that I thought it was a safe level for our workers, yes.

Q. But you at Monsanto, even as far back as the 1950s, still chose to control asbestos exposures well below the threshold limit value?

A. We chose to control them and we didn't really sample that much, but, yes, they were below the threshold limit value because we took care. I think anybody -- we -- but that's nothing.

We did the same thing with other levels. Any time we even approached the TLV level in concentration of certain material, we'd press the rush button. We would do it for asbestos.

It just -- it's one of these things. You set a standard. I know. We've set some

standards and I -- you know, you wonder in your own mind, hey, if you've got the right guy at the right time with the right weaknesses in his organ system that you don't know of and he doesn't either and you feed him this stuff at this level, is it not going to do any harm? I don't know.

The answer is we've done the best we know how and we've done it with beasts and it hadn't hurt them, so we don't think it's going to hurt you.

And our records have been -- are very excellent following that premise.

Q. If you would have been working with a threshold limit value for asbestos of 5 million particles per cubic foot back in the 1950s and would have gone out and done measurements and found say 4.5 million particles per cubic foot --

A. I'd start coasting -- I'd tell them to start coasting back, start cutting her back.

Q. What do you mean by that?

A. Their effect -- their exposure's coming from something. The pipe, it's either going out the pipe or it's going off their tables or somewhere.

Put a little more control in. That's

getting too close.

Q. You would not be content that close to --

A. Not when they're approaching the TLV in a material that can cause lung diseases of fatal termination, no. I'm not going to do that.

I'd have them raise the stack level or do something immediate or shut the bloody thing down. And that's going to be one hard thing to do.

It's difficult. You're talking about useful materials and very, very tight limits where people are exposed in very, very different ways, and we're doing that in everyone.

How -- we don't know what people -- how people are going to use materials. We give them a TLV that we think is correct. We have no idea how they're going to use it. They may be bathing people up to their necks in the damn stuff. We don't know.

Now, how far can you go with a customer -- let me answer you this question. How far can you go with your customers in interfering in their business, because that's what they think it is.

Q. Of course, you have the option not to sell to them which you said you've done.

A. Of course you do, and you find this out after you make -- you build a big plant to provide a couple of customers and you find out those customers are that way, and what do you do? I don't know.

If you can demonstrate there's a reasonable hazard there, I think you should shut the two plants down.

The point is, are you looking at twenty-four hour samples? Are you looking at twelve to eight hour samples? Are you looking at what?

What about the guy that double shifts? We always run that problem past you. We've had every question you can imagine asked, particularly by the federal people.

What happens if the guy is working a double shift? Well, how often does he work a double shift? I don't know, you know. That's a good point.

In the manufacture of chlorinated nitrated organic chemicals where you do have a bit of a tendency if you build beyond certain

levels of some internal problems, do we shut the damn thing down or what? I don't know.

We've never had anybody we thought were hurt -- was hurt. That's a bad -- that's a -- the starting point only in setting examples. Only the starting point.

We've been making this stuff for forty years, never hurt anybody. How do they know? Have they looked at the kids in schools? Have they looked at the birth rates? Are they down? Have they looked at the general viability of the fetuses born in their particular area? Heaven's knows.

There are a lot of things you can do that TLVs should reflect on and do more and more and more, and I think it's a great idea.

We did a survey with OSHA at East St. Louis. We did it in the community. Just the community in the area of several chemical plants, including our big Krummrich plant and they -- we went out and got the birth records and the still birth records and the records showing what occurred to the degree that you could match them.

Now, you're talking a hundred thousand people which you're playing games with five

hundred of them, and it's difficult to draw any conclusion, but the conclusions that we drew were it was a reasonably healthy community.

OSHA themselves told us we can show you a lot unhealthier ones and some healthier ones. So I don't know.

My personal opinion is if you can show me that there is a genuine risk in connection with the use of any product at the levels and you know that that -- those exposures are at the levels or below the levels you say they are, then I think they ought to change it.

Q. Let me ask you the flip side of that, Mr. Garrett. For the threshold limit value for asbestos that existed in the 1950s and early '60s, do you believe that there should have been the same pure, clear, conclusive data to establish the TLV as you would need to change it?

A. Yes.

Q. Do you know if, in fact, there was that kind of pure, clear, conclusive data?

A. Well, you've got to go back and look at the levels and what they -- the levels are a damn difficult job. You're talking fibers. You're talking bits. You're talking the damndest

things to measure there is in God's green earth accurately.

I wish they'd do it on gravimetric levels. That's my personal opinion.

God, we've -- what kind of -- are you going to measure -- how about this size asbestos particle? Is that one in the count?

I'd rather see it in a gravimetric way, I'm sorry. Sure you're going to say, "Well, all you got to do is get -- inhale a rock." Okay. If he inhales a rock, he's probably going to hurt himself anyway.

The point I'm trying to make is what is the best and most prudent thing to use to protect the most people and all the people if possible, or quit using the damn stuff. That's my opinion.

Q. I take it from your comments then you were certainly personally aware of problems that were inherent in doing these dust counts when it came to asbestos?

A. Oh, yes. I've dust counted with that damn Bausch & Lomb contraption. It gives you an answer, invariably wrong, but that's beside the point.

It's an answer and you can write it down. And you take the hemacytometer and take a bunch of damn dust into a liquid medium and measure it in there and it conglomerates or associates and you've got a whole flock of crap.

It's not easy to do. That's why people in this trade get bald, like you are, and I'm rapidly getting there just trying to figure out what the hell you can do to better, better operate the system for all workers.

You don't kid yourself. Chemical workers and people that plaster with this are not the only workers at risk. Everybody's at risk.

I think if we got rid of automobiles, we'd get rid of most of the bad things in this country anyway, but I'd have to get rid of my T-bird. What the hell, I don't want to do that. So there you are.

I think that when you start out -- and we started out with some of ours, we set the first standards. We did just about as much as we could and we backpeddled. We'll take one-tenth of this and so forth. It's as good a way as I know of to do it even now.

You have a material that caused an

acute intoxication which upon continuance over a few minutes is going to cause death, that's where you start with.

Now, how -- you back off from there. Where do you stop? In any case. I don't give a damn if it causes cancer or causes your toe nails to turn backwards, where do you stop?

And in a manufacturing handling operation, they're only there eight hours usually and you hope they get to go into a environment that's a little less hazardous or potentially hazardous, so I don't know. I don't know how to do it.

I can say this, we've been doing very well in the American chemical industry with the standards, as we set them, with all their faults.

Q. And from time to time when the wrong standard was set and information came to light that there were new biological effects --

A. There were recommendations for change, and most of them were changed if that -- if those data could be duplicated.

Q. And for someone to know if these biological effects, the new ones, are happening, someone has to be looking, correct?

A. Yes, but I think you'll find in most health is one of the most expensive products -- most expensive states of mind you can pay for in modern day manufacturing. If you don't believe that, go ask your insurance people.

So you're going to do -- you've got to rule out the people who have certain kinds of -- let's say you're looking at a respiratory irritant, okay? You've got to rule out people that have got tuberculosis, people that in the war somebody shot one of their lungs out, they only got one pump. Do you do this? Do you know who they are? Do you have any concept of who does have that?

Who's a pulmonary cripple in an area where you're looking at pulmonary effect? It's hard. It's hard. And I think the people in the threshold limit committees have done a marvelous job with what they've had to do with and have made the changes necessary through the years where there's a sufficient data to justify them.

That's what I think, and God knows, if it weren't true, I don't know how many Monsanto people would be dead right now.

Q. What would be your thoughts, Mr.

Garrett, about a company that would have some data, be it laboratory animal data or human data, that could possibly contradict a threshold limit value and they not send it in to the committees to be set?

A. Produce it.

Q. I'm sorry?

A. Produce, publish it, and get it in the literature and it will then immediately go into the committees.

Q. What would be your impression of a company, instead of doing that, sending it in and publishing it, would hold it back and let people to continue to use a TLV that would have the -- that they'd have questions about?

MR. OLIVER: Objection, calls for speculation. Incomplete hypothetical.

A. I don't know. My enthusiasm for it would be less than zero, but I don't know what you could do about it.

If you knew the data, had it -- had it correctly obtained, did it with proper testing and backing, you could publish it yourself, I suppose. You'd probably get shot, but that's beside the point. Many of us are going to get shot one of

these days anyway.

MR. OLIVER: Objection, nonresponsive.

A. All right. We have had first class excellent luck with TLVs, and believe me, we don't just make asbestos. We make -- we had at one time over eleven hundred materials that Monsanto manufactured.

God bless them, they quit making a lot of that small crap, had small unit -- manufacturing units that made buckets full of stuff for people.

Now, I suppose we probably have sixteen or seventeen hundred problems that you would make sure that you were not messing with or that your people were not being exposed to excessive amounts of, or that people with certain kinds of -- of physiological ailments were not messing with.

That's another thing that we didn't put into this equation, and that is what do you do with a guy that has a problem -- a liver problem?

You can't fire him. You can't do it by law. You hired him, and if you didn't properly test him or physically examine him to start with, you got him on your rolls. What do you do with

those kind of people? I don't know. Frankly, I don't know what you do.

You try to move them around in the plant. First thing you know they end up as the guard at the gate, and we got some guards at the gate in our company, too.

Q. I take it from something you said earlier that you would be critical of someone who said "We've been making this product for forty years and we've never found a problem," if they've never looked to see if there were problems.

A. But of course not, because they haven't found a problem. If they haven't looked, they don't know whether there's a problem there or not. They wouldn't know what a problem looked like if it came to them.

We do -- a good industrial hygienist is not going to allow that to happen. He's going to say "Hey, we looked. If we don't look, I go somewhere else and look because I'm not going to be a party to this kind of nonsense. I'm not going to be a party to that kind of business."

Hell, you might just as well put him in the electric chair and say electricity doesn't hurt him, or better yet, I got a better excuse.

He did it himself. He pushed the wrong switch. No thanks.

I don't think we have in our -- you're asking my experience base. We've never messed -- we've never had any occasion in Monsanto that I know of to criticize the TLV on asbestos, so to talk to you about that, it really is not quite fair.

Q. Well -- and I don't want to be unfair with you, Mr. Garrett --

A. Oh, I know.

Q. -- at all. I was under the impression, though, that at the Springfield Massachusetts, plant that Monsanto had found cases of asbestos disease.

Do you know anything about that at all?

A. Not to my knowledge. If they have, I do not know. It happened either before me or after me. If they did in -- in the old long term employees, I don't know. I don't know how they would. They haven't handled it for so many years.

Q. I understand that Monsanto even went back and did medical evaluations of people who had retired that had worked in that operation.

A. We've done that several times. We did -- on many other things. We did when we did the TLV work on -- when we did the work on -- that's a customary project.

If you've got a company town, and Springfield certainly is a company town, but a better one is East St. Louis, Illinois, or that immediate area, we found that 84 percent of our employees at the East St. Louis plant and the retirees lived within fourteen miles of the plant, I think.

And we went back and checked the health of many of those people in connection with the problems on PCBs and on some of the chloroanilines, some of the nitroanilines, we went back and checked their health, and also with their permission, and most of them gave us their permission.

We had a few that didn't, and we stirred up a couple of court cases out of it, as you can easily imagine. And we -- we went back and checked with their physician in connection with problems connected with their health.

The thing that surprised me is our epidemiological work that OSHA did not like at

all. We did all of East St. Louis and all of the manufacturing people separate, and it indicated that without doubt you were healthier if you worked at Monsanto, two or three other big companies, than if you didn't work at all if you lived in that area.

Now, these are obviously eschewed data from where you're looking for something and get something for free. Every time you get it, you know damn well it isn't any good, but it's true.

The actual data -- because we had very, very detailed health data done over a three year period by OSHA on the people that lived in that area and then we did our employees separately, and they accepted it. It was by their standards.

And they came up with that, well, we know people that work always were healthier people that don't work. Well, I think that is probably a truism.

Now, a truism is something that's true as long as you believe it. So I don't know.

Q. But as far --

A. My personal opinion is that in our case we've never had a problem with the TLVs if

they were genuinely, genuinely followed.

Q. Of course, at Spring --

A. We've had some awful problems trying to put -- noise is probably the worst thing that I've ever tried to check out.

When you find out how many people shoot guns and shoot skeet and ride around in a motor boat without any -- that sounds like a damn jet taking off by the hour on every weekend fishing, I don't know how you then come back with the records of what noise they encounter in the plant has to do with their total hearing acuity at age sixty or seventy or eighty or whatever.

It's difficult to do.

Q. But as far as Monsanto going back and looking at any retirees from the Springfield Massachusetts plant for asbestos disease, you really don't know anything about that?

A. I'm sure they have it, if someone's said that and produced any data to indicate that. We've gone back and checked the Springfield employees for other things.

Q. But you don't know personally about any of the asbestos?

A. No, not about anything done for

asbestosis -- asbestosis or any evidence of lung engagement -- involvement in that. No.

Now, the problem I face I think probably every day and the problem everybody else faces is do you -- what effect does coirritants have on things?

And that -- I suppose liquor is the biggest problem with that. What does it do? Does it solubilize materials that are not otherwise soluable or increase the solubility or absorption? Interesting question, isn't it?

Q. Yes, sir.

A. Do you have any idea how much liquor is drank by the employees of the average Monsanto chemical plant? A hell of a lot. Some of which they make in their own backyard.

The point I'm trying to make is I don't know how you can -- how you can say that this is what they got, this is what they're exposed to, because we tested them while they were at work.

Q. You say you don't know how you can say that?

A. No, I really don't. We do say it. Don't -- I didn't say we didn't say it. I said I

don't know how you can say it and be completely honest with yourself.

Noise exposure, for example, is a good example. Any dust exposure. Where in the world do you suppose they could not get dust? At home? You got to be kidding.

That's my problem. And this is true honestly of a lot of things. There are a lot of other material, believe it or not, that they're exposed to. Caustics, for example, particularly in the wintertime.

Q. I guess what I'm hearing you say, Mr. Garrett, is that it's really almost impossible to know what workers are exposed to?

A. To positively demonstrate toxicology or any toxic effect on anything except those things that are so unique they will not experience involvement with them in anything except their work, and where can you do that?

In the PCBs we were in -- we were home clean because there was no way they were going to have that stuff in their normal every day affair, but when you start messing with dust, we started trying to mess with alcohol. I mean you're kidding yourself.

Q. So if you've got these epidemiological studies of workers and they're exposed to dust and they're exposed to things at home and alcohol that they drink and then they -- you look at their health experience, it's just almost impossible to say what anything causes or doesn't cause?

A. Unless there's a unique circumstance that recurs physiologically, then you might.

Q. Something like mesothelioma asbestos?

A. Could be. Certainly mesothelioma would. Asbestosis in itself, I don't know. You can -- that just -- ordinary tracing of the lungs in the picture, I'm not sure you could really prove that's asbestos, but, boy, when you get down to mesothelioma, you're down to a -- pretty close to specific that I know of.

I've never seen one. We've seen lung cancer, incidently. All of lung cancer, not necessarily mesothelioma, by any mess of the means. As a matter of fact, the commonest lung cancer is not mesothelioma.

Q. Would it be accurate to say, Mr. Garrett, based on your experience as an industrial hygienist, that once you get asbestos fibers into the air that are of the particle size that can be

breathed into the lungs, that that asbestos fiber tends to stay airborne?

A. In those levels at which we test for as respirable sizes, probably right. Probably very little movement of the air mass would not keep them lofted. That's my personal opinion.

Anything -- I don't know. It depends. Anything above certain levels, I suspect would drop eventually and a lot of asbestos will occlude to other materials in the atmosphere and drop out.

So will a lot of other fibers, by the way. These fibers like manufacturing silk or manufacturing nylon, yarns and stuff, we have a lot of fiber problems, and we've ventilated -- ventilate those machines so that we try to backvent them to get away from the workers' mouth and nose.

We have a problem with people shutting them off once in a while. That's a nit-wit to do that. You know, this is a person asking for something that he wouldn't like when he gets it.

I don't know. I think the average American worker, average American worker, is probably as healthy as any in the world, and the records show in -- that most of the time at least

the TLVs are sufficiently severe for an eight hour day.

Now, you work back -- you can always question this because how many people double shift, how many people don't have days working and how many factories are there in little countries where they can work all day and all night, too?

Second, where you can always find places where there are materials handled that are not normally handled in commerce that are hazardous that nobody knows about or cares about that can create troubles.

I think this is what grew the current OSHA. I think it was grown because of negligence on the part of a few, but I think it was caused.

We don't -- it's the most difficult damn thing in the world to mess with a blend of materials, inorganics or organics, don't make any difference.

What effect does each of them have? What is the cumulative effect of five different organic ornate compounds, for example? Are they the same?

No, they're not the same because they've got different molecular diameters or

radii, if you wish. So they can get into places that the others cannot.

Some of these compounds are so damn big it's a wonder you can get them in your nose even, so I don't know. You asked a question I don't know how to answer.

All I know is that in our own experience, we have worked on the TLV base, and until I -- and we think it's good because we've contributed to the TLVs.

We've done a lot of research to make sure that -- that if there's a need for change, that we get the change in. That's where we stand.

MR. POWERS: Object to the responsiveness of that answer.

A. We've got the peanut gallery growling again, I guess.

Q. The threshold limit values experience that you've had with them that you just told me about where you think it's been mostly good, the threshold limit value, though, for asbestos has been one that has been changed because the values that were originally selected didn't improve that?

A. We've changed benzine twice that I know of during my own working experience, and by

the way, this is probably because of chronic possibility, very limited possibility, of chronic problems.

We've changed a great many of the major petroleum fractions. We've changed a lot of those. So it's been a dynamic system. It's not a completely stagnate system.

They don't just do -- do this and lay it aside and move it over here. To a certain extent they do. But if you bring up the subject sufficiently with sufficient data and submit it, the TLV committee will go over that data. I can assure you of that.

I don't know the answer to all the questions by any stretch. If I did, I would be a soothsayer, I guess.

Q. But the asbestos TLV is one that proved by time needed to be changed, correct?

A. I don't know. I can't really say that. We have not experienced that, but again, we're not primary asbestos users, so I'd be remiss professionally to even answer that question.

Q. Well, you know that the TLV for asbestos has been changed?

A. I knew it was changed as was about

four others at the same time that one was changed. I think -- well...

Q. And you know the people who are in charge of making those decisions, correct, about TLVs?

A. Yes.

Q. And you would expect them to exercise the same judgment?

A. Prudence that everybody -- yes, I think they would, yeah.

Q. So you know of no reason that they acted with any imprudence in changing those TLVs as far as asbestos?

A. I have no evidence that that's the case, yes.

Q. Now, would it be correct, Mr. Garrett, that one of the reasons why you at Monsanto in the 1950s told your insulators "respirators, respirators, respirators," is to minimize any possible exposure to asbestos they might have?

A. If you sample them all day long every day at every one of them, it would be a different situation, but you can't do that. You can't afford that kind of maintenance. You just -- it

just can't be afforded.

So I would say that if we tested the atmosphere around where they were working -- and, boy, that is difficult to do. You're mostly outside and the wind blows one way or the other way and it's a hell of a mess to do a decent asbest- -- or dust study.

Anyway, you'd have to have fifty dust test machines and you'd have to pretty nearly put them around in a ring so that you'd catch the nuances of the wind and its effect on that floating cloud or whatever you got up there.

You better be able to separate asbestos from everything else, too, in your testing, which I'm not sure everybody does. So I don't know.

No, I don't think you ought to -- if you can demonstrate that asbestos is hazardous to people at levels in a working environment of less than what it is now, then it ought to be submitted to the TLV committees for change.

MR. POWERS: Object to responsiveness of that answer.

Q. The question, though, Mr. Garrett, is at Monsanto in the 1950s when you were dealing

with your insulators and you told them "respirators, respirators, respirators," the reason you did that was because you felt it was prudent to minimize their exposure to asbestos because you knew that it was a dangerous material, correct?

A. That's right, and you couldn't test for it because you just simply didn't have the people and the testing equipment.

Q. And the methods were questionable anyway and that was the prudent response for you and your people?

A. Probably. Probably. Excessive prudence, I suppose, would get you to stop all of it, but -- all TLV because there are probably levels at which they can create problems, but I don't know.

All I know is that in our own -- we were primarily organic chemical people. We did a lot of organic chemical work. We did a lot of work on the TLVs in that area.

We -- in an ancillary way, we were interested in the materials that we had to use for maintenance of our equipment and to keep it operating.

Asbestos was one of those issues. We knew it was a hazard. We tested for it. We found levels pretty close to the then TLV, and we found that upwind work was a good idea and we recommended it, particularly when you're out on the racks taking asbestos out off of old pipe racks.

Other than that, we never saw an asbestosis case or anything that we thought approached it.

Q. And further step of prudence that you made in the 1950s at Monsanto at Texas City --

A. Was put them respirators on.

Q. And not only for the insulators but for anybody else who was going to be there when the insulators were doing their work?

A. That's right. That's right, including their foreman, who didn't like it worth a damn.

Q. And if it was an operator that was going to have to be there while the work was done --

A. He wore one, too.

Q. Mr. Garrett, I've been reminded of an area I wanted to go into.

Can you recall any of the insulation

manufacturers for the products that you used at Monsanto ever sending you any information about health hazards that could be connected to their products?

A. Yes, Johns-Manville sent us some.

MR. POWERS: Object to the question as being vague.

A. Now, the asbestos, we ordered insulation materials loose and we got it -- with it got a folder from Johns-Manville.

Q. And do you remember what the --

A. It was pretty complete as far as what was known at that time about asbestos' hazardous as an insulation toxic, as a ventilation dust. It would cause all kinds of problems including cause you to lose your hair, you know, that sort of stuff and, yes, I saw it.

We didn't need it. We already knew it.

Q. Is that the only insulation manufacturer that you can recall seeing?

A. The only one that I can remember. That was loose stuff that we used to make so-called mud stuff, the bags of it. You've seen it. In fact, Johns-Manville were written all over

it, and we used it for patching is primarily what it was used for and to mud over preformed stuff that had just been wired to the stuff.

And on a plant like Texas City, which was all liquid, you can imagine the number of miles of pipe they had and all of it was insulated. And so --

Q. Sir --

A. -- in fifty different sizes.

Q. About what time period is your recollection of getting this Johns-Manville material?

A. '5- -- oh, Lord, it had to have been '55, '60, or something like that, but I didn't need it. It was already outlined in most of the books in this area.

By the way, when I first started in the business, there wasn't any industrial hygiene books. You depended on medical, journal articles, committee work, and your own common sense, I guess, if you had any.

Sometimes you don't have a very good temper in this business, but they won't let you kill anybody, though. Boy, some of them needed it.

Oh, I saw foremen sometimes that ought to have been hanged. Oh, you know, tobacco dripping out. "I'll have you know it ain't ever hurt me."

It's a fine thing to teach young operators. It's too bad you couldn't retire them early just to get them out of the way. It's happened to everyone, you know.

And that's another one of the problems that we face.

Q. What is your earliest recollection, Mr. Garrett, of when you began to find reports of cancer being related to asbestos exposure?

A. I wrote a report one time called Cancer and Chemical Structure. I thought I was doing somebody some good so I decided to do it. It turned out to be about three hundred pages long, and it's been copied and recopied around.

I see it every once in a while at Monsanto. I wrote the damn thing twenty-five years ago, and what was known then about cancer and those structures of chemicals and materials of common materials that were available.

In a big, multiunit chemical plant it is difficult to tell a operator who's rotating

through the many different units all the things that in excessive concentrations would cause cancer because his drinking water is likely to do that if he drinks too much of it. That's very likely why he drinks Wild Cat Whiskey, but that's beside the point.

The point I'm trying to make is if you -- you could tell people that primarily were interested in asbestos in their insulating operations, so you're talking about insulators and their immediate supervisors, about asbestos and its hazard as far as cancer is concerned.

At the same time in a big chemical plant you've got a dozen other places where you've got to tell someone about excessive exposure to this or that or someone else, or if you overcook your operation, you're going to get thus and so, which will cause cancer, and you've got an awful lot of different problems to address and maintain, and the problem is you're trying to maintain some feeling of control amongst those -- amongst your people.

Everybody handles asbestos that's in the insulating business. Those same people are likely -- are liable to be exposed to materials,

and I've taken air samples up on the racks near a bunch of exit pipes, a bunch of unit vent pipes, not looking for asbestos but looking for the stuff in the vent pipes. Some of that stuff might be causing the same problem.

The other you don't know is synergism amongst chemicals to -- and believe me there are synergistic couples of stuff like asbestos and some chemical material. So you've got a hell of a job.

Asbestos, we thought, and to -- and our records show would cause no problems at the TLV, okay?

Q. And that was in your plant?

A. That's right.

Q. In your plant --

A. In our plants, as near as I could determine, we did a lot of sampling, and the plants did a great deal of sampling. We took care of asbestos in workers by demanding them to wear protection.

Q. Respirators, respirators, respirators?

A. Right, respirators, respirators, respirators.

Q. And by following that practice you

never saw any asbestos-related disease?

A. No. What you're asking, a lot of it is conjecture. You're looking at industrial hygiene data and the many, many, many, many gobs of data I've seen from all kinds of things, particularly couplets.

We were looking at couplets, one of which was asbestos in those couplets. We never found anything.

We did find some in where you could -- where other material would cause about the same effect and, therefore, if you had 50 percent of one and 50 percent of another, you had a hundred percent, like chlorinated aromatics, for example. So...

Q. Would there be any other products other than the phenolic resins that you told me about earlier that you're aware of that were made by Monsanto that contained asbestos?

A. Contained it, no. The years I know, the old -- what the hell was that stuff called? Carbide made it.

Q. Bake-A-Lite?

A. Bake-A-Lite. The old Bake-A-Lite processes. None of it that I know except that.

I've seen reinforcing fibers used, but I've seen a lot of nylon reinforcing fibers, too. So I don't know.

I've seen a lot of work done on nylon reinforcing fibers, but it isn't really toxicology. It's more stretch and break. I don't know.

All I know is that our experience, a chemical company primarily who manufactured chemicals and at one time petroleum products, we had an oil refinery at Lyon Oil in Arkansas at Monsanto.

They used probably more insulating -- incidently, I think probably a refinery uses more insulating material than even an organic chemical plant, at least it looked like to me they did.

We had no problems. We had -- we had lots of problems. We had no problems with asbestos that I know of in my own experience, in my own time. I knew it was a problem and we certainly used that to prevent it if we could.

Q. And by "prevent it," you mean that's the respirators, respirators, respirators? That's coveralls? That's taking showers?

A. Every day they got changes of clothes.

We went down to shoes and socks, underwear and all. We didn't want it at home.

Q. And that was even back in the 1950s?

A. That's right. And I will say this, you cannot force a man -- we went through a court suit to find this out. You can't force a man to bathe. Did you know that? You probably already know that.

Q. But you went to that extent to try to get people to bathe to reduce the hazard?

A. In many cases. We did it for PCBs. We did it for a lot of things, and we tried to scare the hell out of them if that -- that don't do much good.

Then Time magazine comes along and writes it up as a hell of a scare affair. Then it scared the hell out of them. I don't understand that but, no, we didn't -- we had -- we did a lot of work on a lot of products.

We got to where we were fairly competent at picking the ones that we thought. We tested all. We had regular screen that we tested them in using rats, and anything that occurred in those rats on postmort, we followed up on anything.

If that thing blew the kidneys out through the anus, we wanted to know why the hell that happened and we wanted to back off on our standards. That we did. And I think we tested them all.

Now, when we got into a product where it was going to be used by other people, then we began to do a very detailed toxicological study using rats, rabbits and so forth and multiple levels of exposure and so forth.

Q. In your work that you did with amine compounds, did you ever get into any research or any literature that dealt with the nitrous amines?

A. Oh, any time you manufacture amine compounds, you're going to mess with nitrous amines, yes.

Q. What is the earliest time period that you can tell me you worked with nitrous amines?

A. Oh, gosh, I guess when we first got to messing around with nitrogen chemicals, and that probably was in -- early in my St. Louis career.

Q. So mid '50s or so?

A. Probably, yes.

Q. What was it that, from a toxicologists industrial hygienist's standpoint, that you found

for nitrous amines in that -- in that era?

A. Well, nitrous amines were extremely acutely toxic. You probably didn't have a chance to test the toxicology over a period of time because if your subject was dead -- so we -- many of the nitrous amines are extremely toxic.

They're very reactive. Oh, don't ever mix them with anything, including your shirt tail. They are extremely reactive substances. And if you can get them off clean, you're lucky.

It's very difficult to get a nitrous amine, one of the short chain nitrous amines loose as a -- it's a wonder it doesn't grab the glass, you know, that sort of thing. It's a difficult thing to do.

We've done -- we did a lot of work on it. We did it at Nitro -- I mean at, yeah, Nitro, West Virginia. We did it at -- in Alabama.

We found nitrous amines in practically every amine operation at a certain extent to certain levels in virtually every nitrogen compound. Every amine operation we had, there was some nitrous amines formed.

Q. Being a chemist, can you explain that? Why?

A. Pretty easily as the degradation of amine compounds and the slight base oxydation of nitrous amines.

MR. HALL: Question, could we take a break?

Q. Is a break okay with you, Mr. Garrett?

A. Certainly.

(Temporary recess was held.)

(Plaintiff's Exhibit Number 1 marked for identification, JS.)

MS. FLATT: We're on record.

Q. Mr. Garrett, I went over your resume just a little bit earlier and I've been informed by my associate here that I've gotten the wrong title on here.

I should designate it as 230112, capital G-A-R, capital J-A-C, capital T. So with that change for the record, so it's consistent with our numbering scheme that we've been using.

Let me ask you, sir, is this a true and correct copy of your resume?

A. Yes.

Q. All right. I've also asked the court reporter to mark as Exhibit 1 to the deposition the notice for the deposition which calls for

certain documents to be brought to the deposition by yourself.

Does that look like the list of documents you were asked to bring?

A. Yeah.

Q. And I understand that you have reviewed that list and the only document that you have that's responsive is your resume, is that right?

A. That's right. I don't keep documents. I did't -- they all belong to the company and they all went back when I quit.

Q. Before the break I was asking you some questions about nitrous amines and you were kind enough to go into that with me.

A. We --

Q. The materials that you called nitrous amines in the 1950s that you said were contaminants of some of the other materials, the amine compounds, you said that those were very acutely toxic, is that right?

A. Uh, it's hard to say. It's hard to generalize, as you know, but by and large, nitrous amines are oxidizing agents of some caliber and they consequently are probably toxic by inhalation

or by swallowing.

I don't know why in the world anybody ever swallowed it, but that's beside the point.

Q. The compounds that these nitrous amines were being found in, the aniline materials or the nitrogen materials, were there already concerns about the carcinogenicity, the abilities of materials to cause cancer that were sort of apparent compounds in nitrous amines?

A. The only ones we really have worked with in the last twenty years were comtaminants in processes where you were pretty roughly treating amine compounds, largely aromatic amines, and for that reason we assumed, and I think probably rightly so, that there were some minor amounts of aromatic nitrous amines in some of those products.

It's difficult to analyze for in extremely low concentrations. As near as I know, we decided that the contaminants from these processes were not a very good idea to be eating your lunch on and had issued restrictions in the manufacturing plants on the processes and process wastes.

I think I would still do the same.

Q. Some of the aromatic amines that

you're talking about were known to be carcinogenic at the time, is that right, sir?

A. Well, not nearly so much carcinogenic as just plain toxic. You're talking about the nitro -- aromatic nitro amines, aromatic chloroamines, and this group of compounds.

And you chemically mash at them a bit, you might -- particularly with a -- with nitric acid, something like that, you'd all end up with a nitrous amine. It will split off on you, and so our interest in nitrous amines -- and it was really -- we have been interested in them toxicologically as a contaminant forever, I guess.

Q. It would be fair to say, wouldn't it, though, that at least one of the toxic properties of the aromatic amines that you were concerned about was the ability to cause cancer?

MR. FOGARTY: Objection.

A. Certainly the suspicion that it might, yeah. Now, whether they were all tested or not, none of ours -- none of the ones I have any knowledge of were tested.

But, no, I wouldn't -- they are extremely active materials.

Q. And then would it be also true, Mr.

Garrett, that you were concerned about the potential ability of these materials to cause cancer that were aromatic nitrous amines as well?

A. Well, we were concerned about the general toxicity involved in the handling materials that ultimately developed either from their own self-destruction due to heat or something and in handling nitro and amino aromatics.

We handle lots of them. We've handled anilines. We made die anilines. We made the chloroanilines. We made chloronitrobenzenes, and for these reasons we had a fear of nitrous amine formation in our processes.

Some of it -- to the best of my ability, I don't know that we ever isolated any of them.

Q. But part of the concern that led to these fears was at least in part the ability for these materials to cause cancer in people?

MR. FOGARTY: Objection, vague and ambiguous.

A. Well, I think it was probably the cost of what the toxicology, in fact, was. Whether you had -- whether you could develop a carcinogenesis

from minute quantities or whether you could get the hell blown out of you first with small -- with larger quantities.

They're toxic. Most aromatic amine and nitro compounds are toxic in the first place, and with a little help, they'll put you underground pretty quick.

And anything that you subsequently make out of them with -- where you still maintain that amine structure, you're liable to have the same problems.

So we -- we always were and always were dealing with nitrogen containing aromatic compounds, and the nitrous amines happened to be a by-product.

We never -- I don't think we ever made one purposely. We made some, but we didn't make them purposely.

To tell you the truth, I don't think it ever was much of a -- I think we probably conked those processes out or didn't make them or something because I don't recall -- I have a pretty fair memory.

I don't recall that we ever did anything or ever occasioned any great studies

because I don't think we had any reason to.

Q. And earlier we talked about prudence in the area of industrial hygiene and toxicology.

A. Yeah.

Q. Would it be your opinion, sir, that in dealing with nitrous amines, even back in 1950s, that prudence would have said there should be some concern about the ability of these materials to be toxic and in part carcinogenic?

A. In the 1950s, probably not, but shortly thereafter, yeah. And the problem -- we tested, of course, we tested some of our materials. Some of which were -- turned out to be carcinogenic, but they were not nitrous amines.

We did some straight nitrogen or straight nitrogen containing aromatics that were not nitrous amines.

The problem with -- our problem with nitrous amines was that an unwanted by-product build-up in processes using amine compounds in efforts to condense them and otherwise in other chemical reactions, and I think probably anybody would be interested.

The materials themselves are pretty toxic as per se, and whether they're carcinogenic

or not is an interesting argument. I doubt seriously if -- well, I imagine that a great many of them are, but -- because of they're extreme activity.

But we never had any problems with it because they were minute by-products in our processes, and it took some mighty fine analytical chemistry to find them and to characterize them as less than so.

I don't think we could ever isolate some of them enough to test them, plus the fact that carcinogenic testing is, boy, is something else. Wow. That is extremely costly, extremely argumentative, the results. I don't know.

We made and sold an awful lot of amine -- simple amine compounds, aromatic amine compounds.

I don't know -- I don't know that we ever got any comments or compliment -- or requests from customers to test them for carcinogenicity. I don't know whether we ever did ourselves or not. If we did, I didn't know about it.

Toxic -- my tox group could have done it. I don't think they did it without our knowledge, but we were -- we would be somewhat

suspicious if we were going to manufacture them in any great quantity or if we were going to manufacture anything in the quantity that would produce enough of them as a by-product to be a product hazard.

So, yes, we probably suspected that some of them at least, if they were -- if they were electrically imbalanced ones, you probably -- it probably would be carcinogenic.

Q. The "them" you're talking about are the nitrous amines?

A. Uh-huh. No, no, I'm talking about the nitrous amines that would be the result of operations that produced other chemicals.

Q. Yes, sir. The contaminant part.

A. That's right, as a contaminant part. Again --

Q. Now, I take it that shortly after you began your career with Monsanto you would have known that the aromatic amines, particularly a beta napthylamine, had been identified as a human bladder carcinogen years earlier?

A. Yes. Lord knows, we made it --

Q. So --

A. -- and we knew it caused cancer. I

will tell you this, in all the years I was at Monsanto, it was the only proven carcinogen that we ever proved was carcinogen itself per se.

Q. Would it be accurate to say, Mr. Garrett, that because of the experience with beta naphthylamine that the toxic --

A. We were doubly cautious, yes.

Q. Yes.

A. We sure were and we canned an awful lot of research projects for a company that was -- one of its primary efforts was in the nitro and amino chemistry and particularly in the nitro and amino aromatic chemistry. To quit messing around with them was amazing, but we did.

Q. Would it be your opinion, Mr. Garrett, then that for companies in the 1950s who were interested in nitro and amino compounds and their manufacture, that prudence would have said be cautious of these materials causing cancer?

A. Oh, you're stretching it pretty far. We knew that beta naphthylamine -- by the way, this is a naphthylamine, this is not a biphenyl. We were -- we had a great many suspicions about some aromatic groups, some aromatic structures.

One of them was where you had an

imbalance sufficient to put a nit- -- a very electronegative group like a nitro -- nitro, or nitrousa, for that matter, group or an amine group on the end of a very large gob of carbon material.

We had a suspicion that that was indicative of some kind of physiological action on the part of human beings.

There have been some tests done that didn't necessarily carry that out, but there have been some tests done that do carry it out. We were prudent and very, very careful.

We had, as you know, we brought people for all their life, tested them, that had -- that had been exposed to beta naphthylamine, and we tested those people all their lives. Every one of them until they died. Some are still alive.

Q. And that is part of the prudence that you spoke of in dealing with these kinds of materials?

A. Absolutely. You had to damn near demonstrate and have the money to do toxicology for it before you demonstrated -- before you came to any of Monsanto management with the idea of producing any of these compounds.

Q. So it was almost to the point where it

wasn't a matter of --

A. Thumbs got to be up. Nobody's going to be working with it. If you don't have it, the money to test it and time, go away --

Q. Not going to make it?

A. -- and think of something else. Yeah. That damn mess caused us more trouble than -- I swear we wrote more letters and more reports and gave away more research reports than you could shake a stick at over that damn beta naphthylamine thing.

Q. Did you ever come in contact with a Dr. Charles Hine, that you can recall?

A. Yes, Charlie. Fine man.

Q. How did you know him, Mr. Garrett?

A. Funny, I can recall the man's name and -- where'd Charlie work at? Damn, I can't. I remember him. I can't draw where he came out at.

Q. I'll represent to you that from time to time he went to American Petroleum Institute meetings and had some affiliation with Shell. Does that help you any?

A. Yes, it does help me a lot. He was the guy that helped us, in fact, through some of the API meetings, to look at some of these

aromatics.

See, Monsanto's a primary aromatic producer of aromatic amine and nitro compounds. We produced the dinitro. We produced the diamine, and we were interested.

That's all died of natural death because nobody could ever demonstrate that they had enough money to pay for the toxicology that we had to do on beta naphthylamine.

Q. If I could, Mr. Garrett, here's a letter or, really, it's a memorandum on Shell Development Company letterhead dated April 28th, 1950, and it shows that the author is one C.H. Hine, M.D., consulting toxicologist. Subject is Certain Problems of Environmental Cancer in the Petroleum Industry.

This is a document that's been used many times in litigation. I've been involved with it. If somebody wants a copy of it, I'll be glad to let them have it.

But I wonder, sir, if I could hand you that and ask you if you've ever seen this memorandum that Dr. Hine is shown to be the author of here?

A. Boy, I don't know.

Q. It's several pages long.

A. Now, Charlie wrote a lot of stuff. He also wrote some -- some parts of books and that sort of stuff in this -- in this racket.

He had some beliefs that, well, I don't know whether we've demonstrated them or not. I think he thought the petroleum industry was the dog in all cancer, but I don't know about that.

There they are, and that's all of them, their answer seen in its compounds. You mean aniline and its derivatives?

MR. FOGARTY: Object, nonresponse.

Q. You're looking at the table that's a --

A. Yes, "Certain Recognized and Suspected Carcinogenic Agents Encountered in the Oil Industry."

THE REPORTER: Sir, could you repeat that?

THE WITNESS: Ma'am?

THE REPORTER: Whatever you just said, could you repeat that, please?

THE WITNESS: The title of this table here is "Certain Recognized and Suspected Carcinogenic Agents Encountered in the Oil

Industry Showing the Organs or Systems Chiefly Effected." Okay?

Q. As you look down that list, Mr. Garrett, do you see any there that you would disagree with being in that table?

A. Yeah, I do, a lot. Charlie was -- went a little overboard. I -- the funny thing is a lot of them -- some of them are true and some of them are not true.

Q. Okay, sir. Which ones would you agree with?

A. Well, benzine itself is, in my opinion, is a lot less a carcinogen than people think it is, and our -- I don't know why anybody would know any more about it than we do because we had handled it by the tons.

We're the biggest benzine purchaser in the world at one time according to somebody that told me that.

Benzidine I'll buy. Asphalt I don't know because I don't know what they're talking about. Asphalt's like saying goo. I mean goo can be a lot of different things.

Aromatic organic chemicals, I don't believe that's true of that because it indites too

many materials. Aromatic organic chemicals includes an enormous number of chemicals that have never been demonstrated to be carcinogenic.

Anthracene, crude, I don't know there.

Aniline and its derivatives, when you're messing with aniline, aniline does not cause cancer. We tested aniline. We know. You can -- some of its near derivative will because, let's be honest with ourselves, beta naphthylamine causes cancer.

Creosote, I don't know what creosote is. I don't even know what mineral oil is crude, because mineral oil to an oil people is stuff, virgin oil out of the ground, and mineral oil can contain a whole lot of things.

Naphthylamine, that's a dandy. That is surely a carcinogen and certainly the beta isomer.

Oil shale, I don't know.

Paraffin, I don't know why paraffin would cause skin cancer. I really don't.

Pitch, I don't know what pitch is either.

Soot, I don't know what soot -- soot can be four thousand compounds on a little carbon

spindala. I don't know what spindala even is, and tar, of course, is practically anything.

There are some dandies in here, and Charlie knew what he was talking about in some of these things. He suspected these.

I don't think there's ever much of proof that some of them were there, the carcinogens of sufficient power to create problems in industry, but there's some here that are dandies.

The naphthylamine beta is really a dandy. It causes cancer.

Benzidine, some of its close derivatives cause cancer without a doubt.

Q. There's a second table there, too, Dr. Hine's letter, or memorandum.

A. Oh, he's talking about precancerous lesions and that stuff.

Q. Yes, sir. The second page of that table on precancerous lesions, there's one there that shows lungs. Do you see that?

A. Bone marrow. Yeah, lungs. Pneumoconiosis and chronic pneumonia.

Q. And the causative agents that are listed under lungs?

A. It says asbestos arsenic, tar, sock oil, whatever the hell that is, or is that soot oil? I don't know. Mist.

Chrome salts, chrome pigments, nickel carbonea. That will do it. Some of them will. Some of them won't. He has gone from pure inorganics to organics that really kind of makes the thing not very useful to anybody except that he has got some of them that are dandies.

Q. Do you have any recollection, Mr. Garrett, of Dr. Charles Hine sharing his thoughts about the pneumoconioses and asbestos being precancerous lesions?

A. No.

Q. As far as you can recall, that never came up at any of the API meetings?

A. Not to my -- no, not to my knowledge. To be perfectly honest with you, I never saw Charlie at many of those -- many of those meetings. Well, this may not be true. I knew him.

You know, you're asking me to look back thirty-five years and come up with a name of the guy and what his serial number was on his butt or on his tag. I can't even remember my own

serial number anymore. I'm glad.

Q. That's why I said earlier just your best recollection is the best we can do.

A. No. I knew Charlie. I knew he was a -- was a -- did a lot of work in this area. He has in there included all of those known carcinogens, but there's a lot of them in there that are simply not carcinogenic or do they -- how many of them raises the back of -- the hair on the back of my head -- and I'll bet I have as much experience with cancer from chemicals as anybody -- would be the beta naphthylamine derivatives.

Where is that group listed again? Can I see it a minute? Just a minute.

Aniline, no. Anthracene, uh. Aromatic organic chemicals, my God, that's a million of those. It's not specific enough.

Asphalt, which is all a mess of -- benzidine, I would be suspicious of many of its derivatives. Benzol derivatives don't mean anything because benzol is a common name, not a chemical name.

Chlorinated aliphatic hydrocarbons is bologny. We tested too many of those.

Creosote I don't know about because

creosote is a goo that's created in the oil refining industries.

Mineral oil is crude. I'm not -- I don't believe I'd buy that.

Naphthylamine beta is a dandy. It is really a nifty carcinogen in humans.

Oil shale, what is the substrate the oil shale is coming out of? He doesn't define that and until you do define that, you haven't got much to go on.

Paraffin oil crude, I don't know what that means.

Pitch, if he means organic slop, goo, that comes out of a heating chemical materials to make products, pitch and soot, I don't know.

Spindle oil, I don't even know what that is.

Tar, as -- what's tar? I don't know what tar is.

Those I would -- I would buy, the ones that he has -- most of the then known carcinogenic materials fall in his categories, but there's a vast number in there that fall -- that have never been proven and we've tested some that have shown no carcinogenic tendencies, and believe me, we've

had big problems with naphthylamines before.

Q. Mr. Garrett, if I could, I would like to kind of switch gears with you for a second.

A. Okay.

Q. Let me ask you some names of some people if I could and see if you might recognize it, and I don't know if this is true, but the affiliation I have for these people is something called Monsanto Research.

Is there a separate entity that you know of called Monsanto Research?

A. Well, there used to be and I suspect there is still. There used to be a research operation that was for the whole corporation.

Then the individual divisions had research as well, and the organization now I think is a little different than that, and changed, but that doesn't make any difference. It still may be true at the time these were done.

Q. These names may or may not be associated with that organization, but that's how I have them listed. What -- the first name is William H. Westendorf, W-e-s-t-e-n-d-o-r-f?

A. Yeah. We had him for a while.

Q. Can you tell us what he did, sir, at

Monsanto?

A. No, because I don't know. If you're talking about useful work, I don't know.

Q. Well --

A. From my standpoint.

Q. Okay. Can you tell us that he was in Monsanto Research even?

A. No, I can't even tell you that. I think he was. You know, I bet you're talking thirty years memory and mine is beginning to fade. I can't hear worth a damn either, but go ahead.

Q. Was there a Monsanto Research operation in Pittsburgh at some time that you know of?

A. No, not that I know of.

Q. The one that you're familiar with was located where, sir? Monsanto?

A. All over the country. We had research facilities in the operating divisions. The old plastics divisions operation research center was at Springfield, Mass.

The inorganic division's operational research center was originally -- oh, God, where is it? All of it's in St. Louis now.

It's all been sucked into St. Louis

and put in the labs either at the main office here or the ones out in the county, the two big labs, which is a good idea because it is -- this is bad ideas and good ideas.

You don't have people working on individual division work but you do have them working where you can use the specialists throughout the system here that you couldn't use when they were all over Hell's grace.

Q. The next name that I have, Mr. Garrett, is Theodore K. Kozuszek, K-o-z-u-s-z-e-k?

A. Kozuszek, Ted Kozuszek.

Q. Yeah. How did you know Mr. Kozuszek?

A. I would just as soon not say.

Q. Well --

A. Well, just one of those things. I don't think -- I don't recall him that well anyway, and I would be -- I've heard the name, let's put it that way.

Q. I'm not inviting any negative connotations at all.

A. Oh, I understand that, too. If I knew anything that would help you, I'd say it, but I don't know.

Q. Would you recall a Mr. John E.

Bradley?

A. No, that doesn't mean that he wasn't in Monsanto. I just don't recall him.

Q. Yes, sir. How about a Mr. Carl D. Bohl, B-o-h-l?

A. He worked for me.

Q. He worked for you?

A. He worked for me. He was my noise man.

Q. Oh, that's the gentleman that you told me about earlier that was the person that was really good at noise work?

A. Best man I ever saw in industrial noise, yes.

Q. Okay. Is Mr. Bohls still living or working?

A. He's out in St. Louis County living out there. He's divorced -- I mean "He's divorced." He's -- he left Monsanto almost at the time I did, quite -- his wife recently died.

He's living by himself out in St. Louis County. In fact, I saw him the other day.

Q. Would you recall a Mr. Richard H. Burr, B-u-r-r?

A. Dick Burr, yeah, I knew him.

Q. How did you know him?

A. Dick Burr was a -- was a safety man and worked in our -- in one of our safety operations.

Q. Was he in manufacturing or at the corporate level or can you say, sir?

A. The last time I had track of him, he was in one of the divisions.

Q. In which facility, would you recall?

A. Oh, I don't know. It would be a number of facilities, but I don't know where exactly he was.

Q. Do you remember what division he worked in at Monsanto?

A. I would suspect it was the old organic division, but I don't know. I would be hazarding a guess.

Q. How about a gentleman named John E. Howell, H-o-w-e double l?

A. No.

Q. And how about Dr. George J. Levinskus, L-e-v-i-n-s-k-u-s?

A. Dr. Levinskus was our toxicology -- was the director of toxicology in the medical department.

Q. And can you tell me for what time period Dr. Levinskus --

A. George came from -- oh, gosh. Had to have been -- when I retired, he had to have been there almost twenty years in St. Louis.

Prior to that he worked -- he was a -- was working out of a school, one of the universities in Connecticut, I believe.

Q. Would you know if he's still with Monsanto?

A. He retired from Monsanto. Whether he's still in town or whether he's moved back to the east or whether -- his kids are scattered all over hell. I know that.

I don't know. No, I really wouldn't. I'd be hazarding guesses that would be hazarded twice over.

Q. Would you recall ever meeting a gentleman named Roy Bonsib, who was with Standard Oil of New Jersey?

A. Oh, Roy Bonsib? I wrote two papers with those people. I don't recall that name. I wrote a couple papers with the oil guys, some of the oil guys.

What have we got, somebody having a

fit?

Q. I think it sounds like a shouting match back there behind the doors.

MR. BLANKS: Straighten them out, Warriene.

Q. Mr. Garrett, let me just hand this across to you. It's the first page of a publication, it's called "Dust Producing Operations in the Production of Petroleum Products and Associated Activities" by Roy S. Bonsib, who is shown to be in 1937 with the Standard Oil Company of New Jersey.

Let me just ask you if you've ever seen that cover before that you might recall, sir?

I can tell you I got that from Jim Hammond. I don't know if he might have ever given you a copy of it or not.

A. I know Jim pretty well. Old Jim and I used to fight the battle between Humble and Monsanto.

Q. But you don't recall seeing this report from Mr. Bonsib?

A. No, I do not. I do not even recall the name actually. Keep in mind you're looking at a very old memory.

Q. Well, this was written in July 1937, too, long before you came into the business.

A. That's true. I was still practicing with my stick in the National Guard Armory in Durant, Oklahoma, at the time --

Q. Thank goodness.

A. -- in an effort to get a dollar and a quarter a week for drilling.

Q. I'm glad somebody was doing it.

A. Got paid every three months. I needed the dollar and a quarter badly. It got me to spend five years of my life in the military, though.

Q. We're looking here, sir, at your resume and I see here one of your listed publications is called "A Review of Exposures to Oil Mist," and you have some co-authors on that?

A. Uh-huh.

Q. Nathan Van Hendricks?

A. Van was with the Standard of Jersey.

Q. Yes, sir. George Collings? G.H. Collings?

A. Isn't that strange? I wrote a paper with him. I don't remember where he's from. I think he probably was with Standard of Jersey,

also, but I'm not absolutely sure of that.

Q. And then you've got A.E. Dooley, Allen Dooley?

A. God, where did that come from?

Q. I believe he was with the Texas company or Texaco.

A. Oh, yeah. Al Dooley was our -- was a hygienist, chief hygienist for Texaco, and I knew him very well. He and I -- but the other guy I don't draw up.

Q. And then J.B. Rather, Jr. is the other listed co-author. I'm afraid I don't know Mr. Rather.

A. Neither do I very well apparently.

Q. You authored that paper in the archives of Environmental Health in 1962 with those gentleman, at least according to your resume here.

How is it that you came to author that paper with these gentleman? Can you give me a rendition there?

A. We were -- we were -- actually, it was Van Hendrick and I had get some information from these guys, is what we wrote the paper with, but we wrote the paper because there was a big hoopus

about pits, oil pits, that sort of thing, and what you do with waste oil.

And keep in mind you're talking many years ago, so you didn't have some of the modern destructive devices that we have today.

Q. Do you ever remember learning, Mr. Garrett, that Allen Dooley published on the subject of asbestos disease --

A. No.

Q. -- in the 1930's?

A. No, I don't doubt that in the slightest.

Q. Did you know that Mr. Dooley had been an employee of the State of Pennsylvania at one time before he went to Texaco?

A. No, no, but that doesn't surprise me. Most of the early industrial hygiene people came out of state governmental operations, including my initial boss, Elmer Wheeler, was the New Hampshire hygienist prior to World War II, went off as a reserve officer, fought his battle with his anti-aircraft unit in the ETO, came back and was put in the then U.S. Army industrial hygiene laboratory.

I didn't know they even had one, but

they did and it was over in the -- in the chemical warfare place, and so there were a lot of -- those people came out of -- mostly came out of the states because originally there was no federal government thing.

When I came back from the war, there wasn't even any federal laws on pollution or anything else, and we helped to phrase some of them.

The states were getting to a point where they were so ragged in their applications and their demands that there was never going to be any interstate commerce unless the government intervened, and they did in about 1960 -- 1955, '56, '57.

They didn't bring much to the party, but the fact is they did bring some kind of interstate ability to the party. You know, Pennsylvania had one law and West Virginia had another and, hell, nobody could abide by any of them, so nobody did.

Q. Do you recall learning about the Walsh-Heeley Act at any time?

A. Yes.

Q. Would you know, sir, if, based on your

experience, if Monsanto was subject to the Walsh-Heeley Act?

A. No, not -- I wouldn't know whether they were subject to it or not.

Q. Do you remember any of your work as an industrial hygienist with Monsanto dealing with compliance with the Walsh-Heeley Act?

A. No, probably was, but it was in compliance with whatever we were attempting to comply with at the time.

Q. Do you recall meeting Dr. Clyde Berry?

A. Yes.

Q. How is it that you know Dr. Berry?

A. Where did I meet him? I have no idea.

Q. He's shown as being at the same meeting in Houston in 1951 that you attended. Could you have met him then when he was an employee of Standard of New Jersey?

A. Could be. Could be.

Q. Do you recall knowing him when he was a Standard of New Jersey employee?

A. No, I don't recall him being there. I really don't. But people in this business, highly -- highly skilled separate types of technical people, the oddballs, if you want to

ask, have really -- in those days we were oddballs.

Nobody knew what the industrial hygienist was, so you didn't tell, you know. You worked for Monsanto. What do you do? I work in their laboratories. What laboratories? Their research laboratories.

That's perfectly honest because the laboratories for our toxicology work was in the research laboratories. So we told them -- told the flat truth.

You tell them you were an industrial hygienist in those days, their mouth would drop open. "What is that?" You know.

That's very much like some of the specialties in medicine are just about as bad.

Q. I think Dr. Berry's self-description was a one man molecular film stretched thin and ruptured in places.

A. Pretty much so. Some places it was ruptured purposely and in the construction thereof in some it was done accidently.

MR. HOBSON: Mr. Garrett, you've been awfully patient with my questions today and I appreciate it, sir. I'm going to invite these

other folks to have any questions, if they don't, we're done. If they do, I might have a few more, but thank you very much, sir.

THE WITNESS: Okay. Thank you. We haven't thrown anything at each other.

MR. HOBSON: That's a good beginning.

THE WITNESS: You didn't stand up, rare up in the air and call me a dirty son of a bitch so I could get mad at you and then you'd have a picture of me doing this, so --

MR. ELLIS: Let's see

A. -- you could and show it to the damn court in Beaumont, Texas.

MR. ELLIS: Let's see if anybody else has got any? Anybody?

MR. HOBSON: Mr. Garrett, thank you very much for your patience, sir. You've been very kind.

THE WITNESS: Thank you.

(Witness excused.)

(Witness excused.)

(By agreement of all the parties, the signature of the witness is not hereby waived.)

********

I, Jack T. Garrett, do hereby state that I have read the foregoing questions and answers appearing in this transcript of my deposition Page 3 through and including Page 249; that this is a true and accurate (corrected) report of said answers given in response to the questions appearing herein.

_____
Jack T. Garrett

CERTIFICATE

STATE OF MISSOURI )
) SS
COUNTY OF ST. LOUIS )

Before me personally appeared Jack T. Garrett to me known to be the person described in and who executed the foregoing instrument and acknowledged to and before me that he executed the said instrument in the capacity and for the purpose therein expressed.

WITNESS my hand and official seal this____ day of_____, 1993.

_____
NOTARY PUBLIC

My Commission expires:

NOTARIAL CERTIFICATE

STATE OF MISSOURI )
) SS
CITY AND COUNTY OF ST. LOUIS )

I, JULIE STELFOX, a Certificate of Merit Reporter and Notary Public in and for the State of Missouri do certify that pursuant to the foregoing stipulation, taken at the offices of Stouffer's Concourse Hotel, 9801 Natural Bridge Road, County of St. Louis, State of Missouri,

JACK T. GARRETT

came before me, was by me duly sworn to testify the whole truth of his knowledge of the matters in controversy aforesaid, was examined and his examination then written in stenotypy by me, and afterwards typed, and signed, as hereinbefore set out, on the day in that behalf aforesaid, and said deposition is herewith returned.

I further certify that I am not counsel, attorney, or relative of either party, or clerk or stenographer of either party, or of the attorney of either party, or otherwise interested in the event of this suit.

Given under my hand and notarial seal at my office in the County of St. Louis, State of Missouri, on the____day of_____, 1993.

My Commission Expires: May 31, 1997.

_____
Julie E. Stelfox,
Certificate of Merit Reporter and
Notary Public in and for the
State of Missouri