Depo of R. Emmet Kelly Monsanto v Aetna February 3, 1993 Cr.54278.0

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IN THE SUPERIOR COURT
OF THE STATE OF DELAWARE
IN AND FOR NEW CASTLE COUNTY
----------x
MONSANTO COMPANY, :
Plaintiff, :
: Civil Action Number
v. : 88C-JA-118-1-CV
AETNA CASUALTY & SURETY COMPANY, :
NON-ARBITRATION
et al., : CASE
Defendants. :
----------x
DEPOSITION OF R. EMMET KELLY (VOLUME 2)
Washington, D. C.
Wednesday, February 3, 1993
Deposition of R. EMMET KELLY, called for further examination pursuant to agreement by counsel, at the law offices of Schwalb, Donnenfeld, Bray and Silbert, 1025 Thomas Jefferson Street, N.W., Suite 300, at 10:30 a.m. before JULIE BAKER, Court Reporter, when were present on behalf of the respective parties:
– continued –

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APPEARANCES:
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On behalf of Plaintiff Monsanto Company.
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On behalf of The Travelers Indemnity Company.
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On behalf of Liberty Mutual Insurance Company.
ALSO PRESENT:
JOSEPH R. MAGGIO
Video Technician

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PROCEEDINGS

MR. MAGGIO: This is the continued deposition of R. Emmet Kelly. We're at the beginning of videocassette number 1, volume 2. Today's date is February 3, 1993. We're on the record at approximately 10:23 a.m.

Whereupon,

R. EMMET KELLY

resumed the stand and, having been previously duly sworn, was examined and testified further as follows:

EXAMINATION (Continued)

BY MR. MC CONNELL:

Q Good morning, Dr. Kelly.

A Good morning, sir.

Q One housekeeping matter before we start. I think we'd talked yesterday about marking the second volume of Dr. Kelly's deposition from last week as Kelly V-11. We'll do that just for convenience at this time.

(Kelly Exhibit V-11 identified.)

BY MR. MC CONNELL:

Q Dr. Kelly, did you discuss this deposition with anyone during the break overnight?

A No, sir.

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Q And do you understand that you're still under oath in the deposition today, sir?

A Yes, I do.

Q Dr. Kelly, did you ever participate in negotiating any insurance contracts for Monsanto?

A No, sir.

Q Was that the responsibility of the insurance department at Monsanto?

A Whether it was insurance, insurance and legal, I don't know, but it wasn't medical.

Q It wasn't the medical department?

A No.

Q Who was the head of Monsanto's insurance department while you were there, sir?

A Well, a person that I knew who did most of it was Robert Chapman. He reported to the treasurer, I believe. I don't know what, how much activity the treasurer had in negotiating the contracts.

Q Did you ever have any role at all, sir, in obtaining insurance coverage for Monsanto?

A No, sir.

Q Did you ever read the insurance contracts

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between Travelers and Monsanto?

A Never saw one.

Q Did you ever read the insurance contracts between Monsanto and the other insurance companies?

A No, sir, never did.

Q Did you ever meet with Travelers or with any Travelers people in connection with obtaining insurance coverage for Monsanto?

A Meet with them –

Q Let me rephrase that for you, sir. Did you ever meet with my Travelers people in connection with obtaining insurance coverage for Monsanto?

A No, sir.

Q Did you have any meetings at all with the Monsanto people – strike that. Did you have any meetings at all with the

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Travelers people, Dr. Kelly?
A Before or after we had the coverage?
Q At any time.
A Once, after we had coverage.
Q Could you tell me when that meeting took place, sir.

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A 1971, the first part of '71.
Q And is it your understanding that's the first time there was any insurance contract between Monsanto and Travelers?
A That's my impression.
Q Where was the meeting, sir?
A At the Monsanto headquarters.
Q And who was at that meeting?
A I don't know the names of the Travelers people. I know that Chapman was there, what other Monsanto personnel were there, I have no recollection at the present time.
Q You can't remember the name of the other Monsanto person?
A There were several. I don't know – I know Chapman was there. I don't know how many people outside of Chapman and Kelly were there from Monsanto.
Q How many Travelers people were there, sir?
A Well, I couldn't tell which were Travelers and which were Marsh & McLennan. There were some from both, and I didn't differentiate between them. I don't know how many were from Travelers.

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Q Did you know any of the Travelers people who were there?
A Never knew them.
Q Can you remember the names of any of the Travelers people at that meeting, sir?
A No, sir.
Q Did you know any of the Marsh Mc people who were there?
A No, sir.
Q Did you know any of their names, can you remember?
A I knew then, but I don't know now.
Q What was the purpose of that meeting, sir?
A I think it was just to orient the Monsanto people who may have later – might later have some contact with Travelers.
Q There was no discussion about the scope of insurance coverage at that meeting?
A No, sir.
Q There was no discussion about the terms or conditions of the insurance contract?
A No, sir.

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Q Do you remember anything at all substantively that was discussed at that meeting, Dr. Kelly?
A No, sir.
Q Do you remember talking about any engineering services during that meeting?
A I don't recall. We could have. I just don't know. I don't remember.
Q Can you remember anything at all about the substance of that meeting, Dr. Kelly?
A No. It really didn't make a big impression on me.
Q Did you ever at any other time meet with any people from Travelers, sir?
A I may have. I have some vague recollection of when some of the Travelers people were going around to some of our plants. I may have met them, but I don't recall any details of it.
Q Do you remember – if you did meet them, can you remember the names of any Travelers people?
A No, sir, I don't.
Q Can you remember anything at all that you talked about with them?

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A No, sir.
Q Do you remember a time, a specific time when you had any such meeting?
A I don't remember much about it at all.
Q Is there anything else at all you can tell me about any meeting you ever had with anybody from Travelers?
A No, sir.
Q Did you ever talk with any of the Travelers people on the phone at any time, Dr. Kelly?
A I don't remember that I did.
Q Can you remember any other dealings at all that you've personally had with the Travelers people?
A No, sir.
Q It's your recollection that the first insurance contract between Travelers and Monsanto was in 1971?
A Well, that's the first I knew about it. I don't know whether there were any other coverage before that or not. I don't know.
Q The PAB problems that you talked about yesterday with Mr. Bray came up in the late 1940s or early 1950s; is that right?

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A Early 1950s.
Q You didn't discuss those with the Travelers people?
A No, sir, not that I remember.
Q Did you ever discuss any insurance claims with anyone from Travelers?
A I don't think so.
Q Mr. Bray asked you yesterday about some fluorine or fluoride claims. Do you recall that?
A I remember – I don't know too much about the claims. I remember the incidents.
Q Was it fluorine or fluoride, sir?
A Fluoride.
Q You never discussed those claims with anybody from Travelers?
A No, sir.
Q You don't have any personal knowledge that Travelers ever paid such a claim?
A No, sir.
Q And Mr. Bray asked you about some auto spray cases. Do you recall that?
A Yes, sir.

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Q You never discussed those cases with anybody at Travelers?
A Well, I think they occurred before 1971.
Q No one at Travelers ever told you that any of those claims would be covered?
A No, sir. They never told me anything about them at all, whether they were covered or not covered.
Q You never discussed any pollution claims with anyone from Travelers?
A Not that I can recollect.
Q No one from Travelers ever told you there was any coverage for pollution claims?
A No, sir, they never told me there wasn't either.
Q You didn't have any discussion with them about it at all?
A I don't recall any.
Q Can you remember any discussions at all, Dr. Kelly, with anybody from Travelers about the scope of insurance coverage?
A No, sir.
Q Did anybody from Liberty Mutual ever tell you they would cover pollution incidents, Dr. Kelly?

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A I don't recall whether they did or not.
Q Can you recall ever discussing that issue with Liberty?
A Well, certainly I discussed – I recall talking about PAB cases with Liberty Mutual. I know I talked with Liberty Mutual about spray damage, and I don't believe I talked directly with Liberty Mutual about the fluorides,

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but it was my impression that they were covered. I mean, that was the impression I had.
Q But you didn't discuss that with the Liberty people?
A No, sir.
Q The Liberty people didn't tell you they'd provide any coverage for that?
A No.
Q And you didn't discuss coverage for pollution claims with the Liberty people, did you, sir?
A Well, I just said I did on spray painting.
Q Those cases involved damage to automobiles?
A That's correct.
Q It involved leaks or releases from the Monsanto plants?

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A Well, there were emissions. I don't know if there were leaks.
Q They didn't involve cleanup of hazardous waste sites?
A No, sir.
Q Nobody from Liberty Mutual ever told you they would cover hazardous waste claims?
A Nobody ever told me what?
Q Let me rephrase it. Nobody from Liberty Mutual ever told you that they would provide insurance coverage for hazardous waste claims?
A No, they never told me they did or never told me they wouldn't.
Q You didn't discuss it one way or the other?
A Not that I recall.
Q Did you ever visit any Monsanto plants with the Travelers people, Dr. Kelly?
A Not that I can recollect.
Q Did you ever meet with any of the Travelers engineering people for any purpose?
A No, sir.
Q Did you have any phone contacts with the

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Travelers engineers?
A Not that I can remember.
Q Mr. Bray asked you yesterday about some plant surveys that were conducted in 1971.
A Yes, sir.
Q And I believe you told Mr. Bray that the primary purpose of those surveys was to check for fire and explosion hazards?
A Well, that's what the memorandum I saw dealt mostly with fire and explosion hazards in the plant.
Q The memorandum that you're talking about is a document that we've marked as Kelly V-4. Let me show that to you, Dr. Kelly.
A I've got some Vs here. I have V-4.
Q Is that the document you're talking about, sir?
A Yes, sir.
Q And it's principally about fire and explosion hazards at the plant?
A That's what I gained by looking through this. I can look through it more carefully.
Q Did you ever see that document in 1971, sir?
A I must have gotten a copy of it, but I don't

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recall seeing it.
Q You don't recall getting it in 1971?
A No, but that wouldn't be unusual.
Q What's the first time you can remember seeing that document, sir?
A This week or last week. I may have seen it earlier, but I have no independent recollection of seeing it.
Q Did Mr. Bray show that to you last week in your meeting?
A Somebody did. I don't know if it was at the deposition or Mr. Bray showed it to me beforehand.
Q And that's the first you can remember seeing it?
A Yes, sir.
Q Did you have anything to do with setting up those surveys, Dr. Kelly?
A They may have said who do you want from the medical department on it, but I don't recall. I didn't have anything else to do with setting up the survey.
Q Let me ask you to look at paragraph 1, Dr. Kelly. There are three people listed from Travelers there, Don Leonard, Bill Burgess and Ken McFarland?

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A Yes, sir.
Q Did you ever talk with any of those people, sir?
A Not that I remember.
Q Let me ask you to look at paragraph 7, sir. There's a reference – this is the paragraph about setting up some audits of pollution potential.
A Yes, sir.
Q There's a reference to a Mr. Weaver there. Do you know who Mr. Weaver is, sir?
A No, sir, I don't.
Q He's not listed in paragraph 1 as one of the Travelers people, is he?
A No, but I don't know if – no, the answer is no, he is not listed. I don't know if they've listed everybody from Travelers that was associated with this meeting or not. I don't know.
Q You don't know whether he was a Travelers person or a Monsanto person?
A No, I don't.
Q Or a Marsh Mc person?
A I don't know.
Q Was Mr. Weaver in charge of heading up the

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audits of the pollution potential, sir?
A I don't know who Mr. Weaver was or what his job was or what company he was with.
Q Do you recall those audits were conducted by Monsanto, the pollution audits?
A I thought it was supposed to be both.
Q It doesn't say that in paragraph 7, does it, sir?
MR. BRAY: Object to that purported characterization of the document.
THE WITNESS: It doesn't say who's going to set it – "very thorough audits are to be made in operating locations, commencing in about one month," but it doesn't say who's going to do them.
BY MR. MC CONNELL:
Q Do you know who did them, sir?
A No, sir.
Q Dr. Kelly, Mr. Bray asked you yesterday some questions about another document which has been marked as Kelly V-5. Maybe we could give you a hand in locating that.
A Yes, sir.

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Q Do you have that, sir?
A Yes, I do.
Q What's the first time you remember seeing this document, Dr. Kelly?
A I don't remember. I'm looking to see if they sent me a copy of it or it was – I don't remember.
Q You don't remember getting this at the time?
A I'm looking to see if I can even see a date on it. They talk about a May 1971 audit by Travelers engineering specialists.
Q And you can't remember one way or the other whether you ever saw this in 1971?
A No, sir, I don't remember if I saw it in '71.
Q You've been looking through the document, Dr. Kelly. Would you agree that like the other document we talked about, most of the issues here are related to fire and explosion hazards?
MR. BRAY: Object to that characterization of this document.
MR. MC CONNELL: Object to the coaching.
THE WITNESS: In comparison to what?

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BY MR. MC CONNELL:

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Q Well, I think you told me, sir that the last exhibit we looked at related mostly to fire and explosion hazards?

A Yes –

MR. BRAY: Object to that statement as well.

BY MR. MC CONNELL:

Q You can answer, Dr. Kelly.

A What? With regard to health problems, they seem to talk –

Q Would it be fair to say that most of the document does not relate to pollution issues?

MR. BRAY: Same objection.

THE WITNESS: Well, I don't know. Let me look that one over a little closer. Well, there's a section on pollution control. They're talking about the $3 million spent from '65 to '69. They talk about air pollution being partially controlled, and they talk about water pollution being partially controlled.

BY MR. MC CONNELL:

Q It's a 33-page document, sir?

A Yes, sir.

Q Two pages deal with pollution?

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MR. BRAY: Object to that characterization as well.

THE WITNESS: Well, it looks like they treated it pretty fully. The answer is yes, there are two pages, but they talk about the treatment of wastes before they're discharged. They're talking about landfill operations.

BY MR. MC CONNELL:

Q Mr. Bray asked you about that section on landfill operations yesterday, Dr. Kelly, and that's on the bottom of page 19; is that right, sir?

A Yes, sir.

Q The report says "Landfill areas located across the Mississippi River are used jointly with the Krummrich plant for the disposal of corrosive and toxic liquids and solid wastes." Do you see that, sir?

A Yes, sir.

Q Is it true in 1971 Monsanto was disposing of corrosive and toxic liquids and solid wastes in that landfill?

A Yes, sir.

Q They came both from the Queeny Plant and the Krummrich plant?

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A Yes, sir.

Q The Travelers report goes on to say "This cannot continue much longer because the state of Illinois is somewhat concerned about this disposal method." Do you see that, sir?

A I see that.

Q And the report goes on to say "Test wells at the landfill sites do not reveal contamination. However, when liquids are discarded in this manner, it is difficult to predict what might happen." Do you see that, sir?

A Yes, sir.

Q The Travelers people were questioning the practice of disposing of these materials in the landfill?

A I don't know. I don't read it that way.

Q Did they say, Dr. Kelly, "this cannot continue much longer"?

A Yes, well, that was the state of Illinois at that particular time that said we are not going to accept waste from another state. They weren't talking about the particular characteristics of the material going to the landfill but they just didn't want plants in Missouri putting stuff in Illinois.

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Q Well, the report says "the state of Illinois is somewhat concerned about this disposal method." doesn't it, Dr. Kelly?

A Yes, sir. That means disposal in Illinois rather than Missouri.

Q Dr. Kelly, do you know whether in 1971 Monsanto immediately stopped putting those corrosive and toxic liquids and solid wastes into the landfill?

A Well, first of all, the characterization of the material as toxic and corrosive is Travelers' phraseology. I don't know, without knowing more of the details, whether this material was corrosive and toxic.

Q Travelers certainly told you that, didn't they, Dr. Kelly?

A They said that was their impression, yes. They said that's what they – they called it that. Whether that was right or not, I don't know.

Q And they told you that that disposal method cannot continue much longer?

A Yes, they said that, but I have to repeat why Illinois said we're not going to keep this up. They said we didn't want to take your stuff from Missouri and

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dumping in Illinois.

Q My question for you, sir, is did Monsanto immediately stop dumping those materials into the landfill?

A Did they? I don't know.

Q You don't know one way or the other?

A That's correct, because it seems that there was no binding order when they said it could not continue much longer because the state of Illinois is somewhat concerned about this disposal method. That's a far cry from saying we're stopping you.

Q The state didn't come in and order you to stop, did they?

A Not that I know of.

Q But you could have stopped if you wanted to, Dr. Kelly?

A Well, certainly we could.

Q You don't know whether Monsanto stopped?

A I don't know when they did or –

Q You don't know that they did?

A They did sometime. I don't know when, though.

Q As far as you know, Monsanto continued to

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dispose of those materials in the landfill at that time?

A As long as Illinois allowed them to.

Q Do you remember, Dr. Kelly, that Monsanto told Travelers to stop looking at pollution at the Monsanto plants?

A No, sir, I never heard that before.

MR. MC CONNELL: Dr. Kelly, let me show you a document which we will mark as Kelly V-12.

(Kelly Exhibit V-12 identified.)

BY MR. MC CONNELL:

Q Do you see, sir, that this is a set of engineering service instructions?

A Yes, sir.

Q It's dated March 1972?

A Yes.

Q It's the instructions from Monsanto to the Travelers engineering people?

A I don't see the '72 on it. I see the March the 19th.

Q The date is very hard to read on the first page but maybe we could look at the second page, Dr. Kelly.

A Yes, that's definitely March '72.

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Q Would you look at the third page, sir, at paragraph 2, right at the top of the page.

A Yes, sir.

Q The instructions say "Do not develop pollution information at locations." Do you see that, sir?

A Yes, sir.

Q "It will be obtained from Monsanto corporate headquarters"?

A Yes, sir.

Q Do you recall now, Dr. Kelly, that Monsanto asked Travelers to stop looking at any pollution issues at the plants?

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A It's the first time I've ever seen this document, and I'm wondering who – it looks like it's a Travelers document rather than a Monsanto document.

Q You didn't deal with the engineering people, sir: is that correct?

A No, sir.

Q Do you know whether the engineering service instructions were put together by Monsanto, Monsanto decided what engineering services it wanted from Travelers?

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A I wouldn't know, but it seems this particular document came from the engineering section of the home office at Travelers rather than Monsanto.

Q You don't know how these instructions were developed, then?

A No, sir.

Q Let's talk a little bit about your job as medical director, Dr. Kelly.

You talked with Mr. Bray yesterday about dealing with Monsanto's customers?

A Yes.

Q Is that something that you did as part of your job as medical director?

A Yes, sir.

Q Is that something that you did frequently?

A Oh, yes. There were all sorts of questions that came in.

Q That was part of your job as medical director?

A That's correct.

Q Was it part of your job, sir, to assist the Monsanto salespeople with selling products to customers?

A Well, if by explaining how the material could be

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handled safely is part of a sales effort, the answer is yes.

Q Was it part of your job to convince the customers that the products were safe?

A I never believe I talked to a customer unless a problem arose. There were some cases of insecticides on which there was very little information known that the rest of my department talked to the customers.

MR. MC CONNELL: Dr. Kelly, let me show you a document which we will mark as Kelly V-13.

(Kelly Exhibit V-13 identified.)

BY MR. MC CONNELL:

Q Take a minute and look that over, Dr. Kelly.

A I beg your pardon?

Q Just take a moment and look that over, if you would, sir.

A Yes.

Q Do you recognize this as a letter you got from Richard Davis, sir?

A Yes, I do.

Q It's dated April 11, 1958?

A Yes, sir.

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Q And what's the subject matter of the letter, sir?

A The subject matter is the effort of Mr. Davis to help North American realize that Pydraul 625 can be used safely in their operation.

Q Who is Richard Davis, sir?

A He was either in sales or development for the functional fluids under which Pydraul or hydraulic fluid was one of his items for sale.

Q He was a Monsanto employee?

A Yes; that's correct.

Q He was in the sales area?

A That's correct.

Q And the subject matter here is Pydraul 625, that's the product he was trying to sell?

A That's correct.

Q Is Pydraul a PCB –

A Yes, it is.

Q – fluid? Would you read the second paragraph of the letter, sir.

A "In order to capture the 20,000-gallon potential, it will be necessary to convince North American

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Aviation that they need have no fears about the toxicity of Pydraul 625."

Q Did he go on to ask whether you would be able to visit North American Aviation?

A Yes, he does.

Q Did you go out to North American, sir?

A I don't think I ever went to North American.

Q Was this a fairly typical request from the salespeople?

A It was from the airlines – not the airlines – the air manufacturers. They were rather particular about the possibility of any ill effect from the use of what was a relatively new product to them. They were using a flammable, oil-based, well, a mineral oil hydraulic fluid and this was an entirely new type of operation for them.

Q As Monsanto's medical director, did you visit those customers to convince them about the safety of Monsanto products?

A I don't know if I went to North American. I know I've gone to Boeing and Douglas and convinced them. I just told them what our experience was, what the experience of manufacturing was, what our animal work

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was. If I convinced them, fine. My purpose was not to – I guess indirectly it was to convince them but tell them to facts of the matter about the toxicity, of the safe handling and the use of the material.

Q You worked closely with the Monsanto salespeople on that?

A I beg your pardon?

Q Did you work closely with the Monsanto salespeople on that?

A They took me out and introduced me – if I went to this outfit, and the ones that I did go to, they took me out there.

MR. MC CONNELL: Dr. Kelly, let me show you another document which we will mark as Kelly V-14.

(Kelly Exhibit V-14 identified.)

THE WITNESS: Yes, sir.

BY MR. MC CONNELL:

Q Do you recognize this as a letter that you wrote to Mr. J.R. Elwood?

A Yes, I do.

Q It's dated September 15, 1958?

A Yes, sir.

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Q And would you read the first sentence in that letter, sir.

A "It would appear now that Friday, October 24, is a good day for our meeting with North American."

Q Does that refresh your memory, Dr. Kelly, that you met with the North American people about Pydraul?

A Yes, I must have, yes.

Q Would you read the last paragraph of the letter, sir.

A "I am sure you realize that Pydraul will get people somewhat nauseated if they are exposed to it in a confined space. Why don't we plan to meet ourselves for an hour beforehand and get our story straight before we go to North American."

Q So you knew that Pydraul could cause nausea?

A Sure, if you've got enough of it in a combined space.

Q Who was Mr. Elwood?

A I don't remember him now. He obviously was in marketing for Monsanto.

Q A Monsanto marketing person?

A Yes.

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Q Did you meet with Mr. Elwood to get your story straight?

A I don't recall, but I imagine from this

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memorandum I did.
Q Did you meet with North American after that?
A I have no recollection of meeting with them, but it seems like I did.
Q Did you make the sale?
A I don't know.
Q As medical director, Dr. Kelly, did you keep up with the medical literature about the toxicity of chemicals that were used in Monsanto's plants?
A As well as I could.
Q Did you keep up with the medical literature about the toxicity of chemicals or products that were manufactured by Monsanto?
A Yes.
Q Did you follow the scientific studies that were being done on the toxicity of those chemicals and products?
A Yes, sir.
Q Did Monsanto conduct its own toxicology tests?

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A On some compounds, yes, it did.
Q You had toxicologists who worked in the medical department for you?
A That's correct. We did not run the actual tests in-house. We used independent or commercial or academic laboratories.
Q Outside labs?
A That's correct.
Q Did you get information about toxicity from other chemical companies, sir?
A If they knew anything about it, yes. If they had experience or manufactured a product, a lot of times the company would manufacture the same product and they would have run toxicity work, but it hadn't been published.
Q What are some of the major chemical companies that you exchanged that kind of information with?
A Dow, Carbide, du Pont.
Q Dow Chemical, Union Carbide?
A Yes.
Q du Pont?
A That's right.

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Q Were you on the medical committee of the Manufacturing Chemists Association?
A Yes, I was.
Q And how long were you on that committee, sir?
A Again, I'm just trying to recollect. Don't hold me to the exact years. I think I was on the committee about 12 years or something. I was chairman for two years. So 12 years, give or take.
Q Was there an exchange of toxicity information on that committee as well, sir?
A I beg your pardon?
Q Did that committee deal with toxicity information?
A Well, they did. They did by answering questions from outside sources, other companies. They did by writing bulletins about toxicity and safe handling data and companies of chemicals that were of interest to a large portion of American industry.
Q Would it be fair to say, Dr. Kelly, that you kept up with the state of the art on toxicity?
A As well as I could, yes.
Q That was true in the '50s?

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A Yes, sir.
Q 1960s?
A Yes, sir.
Q 1970s?
A Yes, sir, first half of '70.
Q We were talking late yesterday about protecting the safety of the workers from toxicity. Do you recall that?
A Yes, sir.
Q You said that the government set safe levels back in the 1940s or 1950s for certain chemicals?
A Well, it wasn't the government, but there were no laws until the OSHA laws were passed. There was this group, the American Conference of Governmental Industrial Hygienists that set safe levels. They would review the literature. They'd review what was published. They'd review the experience of the companies manufacturing and/or using the product and would set safe levels, what they considered safe levels.
Q Were those levels set for workplace exposures?
A Yes.
Q They were designed to protect the workers?

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A Yes.
Q They weren't designed to deal with pollution or waste disposal?
A No, sir.
Q Without going into all the names, Dr. Kelly, were there other doctors and professional people who were part of the medical department?
A In Monsanto?
Q Yes, sir.
A Well, in the headquarters there was a Dr. Maurice Johnson who was my associate. There was a Dr. George Saunders who was also an associate medical director at some time. He is now dead. There was a Dr. Sherwood Malt who was associated also. He is dead. It's a dangerous business. Then there were – those were the physicians. We had part-time physicians, Dr. Raymond Mezera who is also dead. Those are the physicians. Then we had toxicologists who were PhDs, and we had the industrial hygienists.
Q And you had the toxicologists?
A Yes.
Q Was Elmer Wheeler one of the people who reported

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to you in the medical department?
A Yes, he was.
Q What year did he join Monsanto, sir?
A I think '47.
Q He was an industrial hygienist?
A That's correct.
Q And how long was he with Monsanto in the medical department?
A Until '75.
Q Mr. Wheeler was responsible for air pollution matters as far as the medical department was concerned?
A Among other things, yes.
Q That was one of his responsibilities?
A That's correct.
Q From the standpoint of the medical department, he was the air pollution man?
A Yes.
Q So his area of expertise was somewhat different than yours. Is that a fair statement?
A Well, yes, he was a chemical engineer, and I certainly am not.
Q And he was an industrial hygienist?

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A That's correct, which I am not.
Q And he was the person in the medical department who dealt with air pollution matters?
A That's correct.
Q Was he an expert in his field, sir?
A I think so. I think it depends on how you define an expert and what particular facet of the problem you're talking about. If you're talking about an expert as far as taking care of analyzing an area for possible hazards, if you're talking about methods of ventilation to control the environment, that's one thing. If you're talking about the physiology of the action of some of these compounds in trace or small amounts in the human organism, he probably would not be considered an expert in that field.
Q Did you rely on Mr. Wheeler for industrial hygiene matters?

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A Oh, yes.
Q Was he an expert on industrial hygiene?
A Yes. In fact, he ended up being president of the American Industrial Hygiene Association.
Q Are you an expert on industrial hygiene, sir?

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A No.
Q Did you rely on Mr. Wheeler for air pollution matters?
A What do you mean by "air pollution matters"? I relied on his interpretation of levels of pollution that he found in the atmosphere.
Q I think you told me he was the person in the medical department who was responsible for air pollution matters?
A That's correct.
Q Did you rely on him in that area?
A Yes, I did.
Q Are you an expert on air pollution?
A No, sir.
Q Was Jack Garrett also one of the people who worked for you in the medical department, sir?
A Yes, he was.
Q What year did he join you in the medical department?
A Early '50s, '52, '53, something like that.
Q Was Mr. Garrett a Monsanto employee before he joined the medical department?

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A Yes. He was a research chemist at Texas City.
Q Did Mr. Garrett report directly to you, sir?
A Through Elmer Wheeler.
Q So Garrett reported to Wheeler and then Wheeler reported to you?
A That's correct. It wasn't quite that formal. I mean, we were a small department then, and we didn't follow the table of organization. Jack would come right into me if he had a problem. He would go to Wheeler and he would say, Elmer, I'm going to go to see Emmet about this particular problem. He'd just come into see me.
Q Would you say you saw Mr. Garrett every day?
A Yes.
Q Had lunch together?
A Yes.
Q Was Mr. Garrett the most knowledgeable person in the Monsanto medical department about water pollution?
A No question about it.
Q And was Mr. Garrett the most knowledgeable person in the Monsanto medical department about waste disposal?
A I think so.

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Q Including the disposal of waste in pits or landfills?
A Yes.
Q There were people at each of the plants who were responsible for day-to-day water pollution and waste disposal matters; is that correct?
A That's correct.
Q But in terms of the medical department, Mr. Garrett was the person responsible for water pollution and waste disposal?
A As far as the medical department, yes.
Q Was Mr. Garrett highly competent at his job?
A No question about it in my mind.
Q Did you rely on him in the areas of water pollution and waste disposal?
A Yes, I did.
Q You trusted his judgment on those matters?
A Yes, I did.
Q He was an expert in those areas?
A Yes.
Q Are you an expert on water pollution or waste disposal, Dr. Kelly?

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A No, I am not.
Q Was Mr. Garrett still with the medical department when you retired in 1974?
A Yes, he was.
Q From the standpoint of the medical department, did he continue to have the same responsibilities for water pollution and waste disposal up until the time you retired?
A Yes, he did.
Q Dr. Kelly, are you a qualified geologist?
A No, sir, I am not a geologist of any sort, qualified or unqualified.
Q You're not an expert in that area?
A No, sir.
Q Are you a qualified hydrogeologist, sir?
A No, sir.
Q You're not an expert in that area?
A No, sir.
Q Did you ever personally investigate the soil types or soil conditions at the North 80 site?
A No, sir.
Q At the South 20 site?

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A No, sir.
Q MOTCO?
A No, sir.
Q Brio?
A No, sir.
Q At the Texas City plant?
A No, sir.
Q You have no firsthand knowledge from your own investigation regarding the soil conditions at any of those sites?
A No, sir.
Q Did you personally, Dr. Kelly, ever investigate the groundwater conditions at the North 80 site?
A No, sir.
Q South 20?
A No, sir.
Q MOTCO?
A No, sir.
Q Brio?
A No, sir.
Q At the Texas City plant?
A No, sir.

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Q So you have no firsthand knowledge from your own investigation about the groundwater conditions at any of those sites?
A No, I do not.
Q Did you personally, Dr. Kelly, ever deal with the Texas state agencies regarding waste disposal at the North 80 site?
A No, sir.
Q South 20?
A At no time did I ever discuss anything with the Texas – what is it? – the Texas water agencies, no, sir.
Q So you never dealt with them on South 20?
A No, sir.
Q MOTCO?
A No, sir.
Q Brio?
A No, sir.
Q Texas City plant?
A No, sir.
Q Did you ever visit the Brio site back in the 1950s, sir?
A Not that I can remember. In fact, I don't think

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I ever did.
Q You never visited the Brio site?
A No, sir.
Q Did you ever visit the MOTCO site back in the 1950s?
A No, sir.
Q 1960s?
A Never.

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Q Never?
A Never.
Q Did you ever visit the South 20 site back in the 1950s, Dr. Kelly?
A No, sir.
Q '60s?
A No, sir.
Q '70s?
A No, sir.
Q At any time?
A Not that I can recall.
Q Did you ever visit the North 80 site back in the 1950s, Dr. Kelly?
A Not that I can recall ever visiting it at any

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time.
Q You never visited the North 80 site?
A Not that I can recall.
Q Mr. Bray talked with you quite a bit yesterday about worker safety at the Monsanto facilities. Do you recall that, Dr. Kelly?
A Not specifically.
Q You talked quite a bit about the exposure of workers to toxic materials?
A Yes, sir.
Q There have been some serious exposures to toxic chemicals at Monsanto plants over the years?
A Yes, sir.
Q Mr. Bray talked with you about the PAB problems?
A Yes, he did.
Q And what is PAB, sir?
A Para-aminobiphenyl.
Q PAB exposure caused bladder cancer in some of the workers?
A Yes, it did.
Q There were Monsanto workers who got bladder cancer from that exposure?

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A That's correct.
Q And you found out about that problem in the late 1940s or early 1950s?
A Early 1950s.
Q Can you pin down the exact year when you first found out about that PAB problem with bladder cancer?
A When we first found out about it, when we first had a suspicion or the first time we were positive this is it?
Q When did you first have a suspicion that there was a bladder cancer problem there, Dr. Kelly?
A I guess around 1950, give or take a year.
Q It could have been 1949 or 1951?
A That's right.
Q When you suspected there was a bladder cancer problem with the PAB workers, Dr. Kelly, did Monsanto stop making PAB?
A Not when we had a suspicion, no, sir.
Q And when did you find out definitely that there was a bladder cancer problem with PAB exposure?
A When we examined the workers – started examining the workers at the Queeny Plant, and I don't know how –

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what particular year that was because it takes a little convincing to get a man who's feeling well and say look, we're going to do a rather inconvenient and at times painful procedure on you. Even though you feel fine now and have no symptoms, we want to look and see if anything is happening to you.
Obviously, he said, will this hurt; you say yes, it will. And it took an awful lot of discussion with the union and with the workers before we started having groups go up to our urologist. Then after the first couple of groups were negative, it was even harder to talk people into getting it done. Then we happened to find two in the next 20 or so we examined. So then we were quite convinced that this is it.
Q Dr. Kelly, what was it that made you suspect that PAB was a bladder carcinogen?
A Well, one of the workers who developed a blood in the urine had worked at the Queeny Plant before he came to Nitro. And at the Queeny Plant he was working with the raw material, PAB, which was used in Nitro. And on investigating at Nitro, we found that some of the people had hematuria and there was some anecdotal information

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that some of the workers had previously had, in the late '40s, a possibility of a bladder tumor. That was pretty confusing because because we had one person who they didn't know whether it occurred in the bladder and went to the bowel or in the bowel and went to the bladder. And we had another one that they lost the slides on, and it was I think a combination of those things that pointed the finger of suspicion rather definitely to either the final antioxidant in Nitro or the PAB in St. Louis.
Q So you knew, then, there were serious health problems in that group of workers and you were trying to pin down what caused it?
A We didn't know – it all depends on the time frame we're talking about. We really didn't know we had a serious health problem until the first batch of tumors showed up in our asymptomatic Queeny Plant employees that we cystoscoped.
Q What is hematuria?
A Blood in the urine.
Q You knew that that was occurring in this group of workers?
A I beg your pardon?

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Q You knew that was occurring in this group of workers?
A Not at the Queeny Plant. There was no hematuria at all.
Q This was at the Nitro plant?
A Well, that was only on hindsight that we heard about it after Volz sent us two of his, we had this one case, he developed hematuria. Then we looked around to see if there was any medical history of hematuria in any other workers that had not been brought to our attention.
Q And this all came up in 1950, give or take a year?
A That's correct.
Q How long did it take you to do the checking at the Queeny Plant workers, sir?
A Well, we're still checking them.
Q Let me rephrase my question. How long did it take you to start checking the workers at the Queeny Plant after you had the suspicion in about 1950?
A It took pretty close to a year. It's not like getting a bunch of workers and say we're going to take a chest X-ray of you, come on in and we'll take this chest

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X-ray. They say okay, fine but this other procedure is probably the worst procedure you could do to a fellow.
Q When you did those procedures, you found out that some of them did, in fact, have bladder cancer?
A That's correct.
Q Can you pin down for me, Dr. Kelly, the year when you found out with certainty that some of those workers had bladder cancer?
A I would say – I'm a little vague on the dates, but I think it was '51, late '51.
Q Did Monsanto stop making and selling PAB at that time?
A Not at that time, no, sir. We had figured that we manufactured this product since 1935, and we knew that the material was – the manufacturing process was rather unsophisticated. In fact, it was a pretty gross manufacturing process, and we thought the exposure was very high, and we thought by cutting down the exposure as close to zero as we could, we could manufacture the material safely. So that's the procedure we took.
We changed a great deal of the manufacturing methods. We used ventilation. We used much better

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housekeeping. We developed air analyses and analysis for picking up the material on the railings, the outside of kettles and stuff like that, and we were finding out that we were getting nothing in the air. We were finding out that we were getting nothing as far as material showing up on the outside of the operations.

Then we developed a method to show whether or not the metabolites in the PAB – metabolite being a breakdown product in the body – so we could tell whether a fellow was getting any exposure or not. So we found that they were getting exposure regardless of the fact of the negative information about the air and negative information about the material showing up in the person's impervious clothes.

Then we thought well, of course, we're getting it from someplace, so then we had heard that the Europeans had – the Germans especially had a procedure for a certain process of not manufacturing PAB but very close to PAB, and they were allegedly not getting any cases, so I went over there, I guess, in '53 or something like that. And they were using electrolytic process and we had used some in our Krummrich plant.

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And we were still getting, at the Krummrich plant, the metabolites were showing up in the body. I found out that the Germans were still getting cases. So I said well, we've got to get out of this, so we got out of it. Once we made our decision to get out, it took us, I guess, four months to get out of it.

Q So when you suspected a PAB bladder cancer problem in 1950, give or take a year, Monsanto didn't stop manufacturing the product?

A No, they did not.

Q And even when you found out in roughly 1951 that there were bladder cancers in the workers, Monsanto didn't stop making the product then either?

A No, sir, they did not.

Q Do you remember when Monsanto finally stopped making PAB?

A '54 or '55. I don't know which.

Q Was it July of 1955, sir?

A Was it? It could be. This is really not unusual because first of all you see if you can make a product safely and then we – it was even more confusing here because of the long incubation period as it were from

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the time a person is exposed until his cancer shows up. And we thought that the cancers we were getting in 1951, these were in workers that had been working since the 1930s. We were not getting any cancers in people who had been hired in the late '40s or '50s. So we thought it was exposure due to the more or less cruder methods that were manufacturing the products earlier.

Q How many Monsanto workers got bladder cancer as a result of exposure to PAB?

A I don't know the exact figures when I left. I think we had close to 100.

Q Close to 100 workers got bladder cancer?

A That's correct.

Q A number of those workers died from bladder cancer?

A About 20, I think 27.

Q Some of the others had to have their bladders surgically removed?

A Well, some of the ones had to have their bladders surgically removed also died so it is in a separate classification. I would say the majority of the individuals who died had previous bladder removals.

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Q Were some of the people who had bladder removals still living?

A Yes, they are.

Q Bladder cancer is a serious disease.

A Is it serious?

Q Yes.

A Oh, sure.

Q You mentioned to Mr. Bray yesterday that there was an outbreak of chloracne at the Swann Chemical plant?

A That's correct.

Q That was related to PCB exposure?

A It occurred in the PCB manufacturing department. Whether it was the PCB or whether it was a contaminant due to this off-specification benzene that we had used – that Swann had used in several batches of PCB.

Q Monsanto bought the Swann Chemical Company?

A Yes, it did.

Q Do you know when Monsanto bought Swann Chemical?

A I thought '35, just shortly before I came. I came in January of '36 and I thought they bought it a year before or something of that sort.

Q In 1935?

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A Something of that.

Q And you knew about the chloracne cases at the PCB plant back in the 1930s?

A Yes, I did.

Q There were scientific studies of the workers there?

A Well, there were scientific studies. I don't think they would be called scientific studies in 1975 – I mean 1990, but Swann had some work carried out by a Dr. Flynn at New York University. They had sent the cases to a Dr. Jones, a dermatologist in Atlanta and both Flynn and Jones agreed that they believed there was something besides some contaminant in the PCB that caused the chloracne because especially once we went back to the old supplier of benzene, our chloracne cases stopped developing. From the time I was with Monsanto in '36 to '74, we had no cases of chloracne.

Q The scientific studies we're talking about were published in the scientific literature in the 1930s?

A Jones' was published. I don't know if Flynn's was or not.

Q You were familiar with those studies, sir?

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A Yes, sir.

Q Do you remember you attended a symposium at Harvard University in 1937 about those studies?

A Not the studies of Flynn's but of Drinker studies, yes, sir.

Q And those were studies of the PCB workers that we've been talking about?

A That's correct.

Q And the chloracne cases?

A No, it wasn't our – it was really the Halowax Corporation's employees which was a subsidiary of the Bakelite Corporation which was a subsidiary of Carbonet Carbide. Halowax had a number of mixtures of trichloronaphthalene and various chlorinated naphthalenes and in one of their operations, they used what at first they described as chlorinated PCBs, but it turned out later it was not a PCB. It was a chlorinated terphenyl or chlorinated diphenyl benzene. And that was tested – it was at 10 percent in one of the Halowax Corporation's formulations but Halowax had about 12 different formulations, and that was really the cause of the investigation. It was the Halowax cases rather than a few

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cases of Jones' which had occurred several years before.

Q But you do remember attending this symposium about PCB workers in 1937?

A PCB workers and Halowax workers, chlorinated naphthalene workers.

MR. MC CONNELL: Let me show you a document, Dr. Kelly, which we will mark as Kelly V-15.

(Kelly Exhibit V-15 identified.)

BY MR. MC CONNELL:

Q Do you recognize this as a Monsanto report on PCBs, sir?

A Yes, I do.

Q Let me ask you to turn in this, Dr. Kelly, to

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section 2, page 3.
A Section 2, page 3?
Q Yes, sir.
A Yes, sir.
Q Under the section called "systemic effects," the first sentence reads "On June 30, 1937, a symposium on systemic effects resulting from inhalation of chlorinated hydrocarbons was held at the Harvard School of Public Health"?

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A Yes, sir.
Q "Dr. R.E. Kelly of Monsanto participated in the sessions at which results of investigations requested by manufacturers of chlorinated hydrocarbons were presented."
That's the symposium we've been talking about?
A Yes, it is.
Q And the PCBs are chlorinated hydrocarbons?
A Yes, they are.
Q And the Halowax product you've been talking about is a chlorinated hydrocarbon similar to PCBs?
A Well, not exactly similar. It's a second cousin. It's chlorinated naphthalene which also has two benzene rings, but they're hooked up differently in naphthalene than they are in biphenyl.
Q Let me ask you to turn back, Dr. Kelly, to section 2, page 2. It's right before the page we've been looking at.
A Yes, sir.
Q In the second paragraph on that page, the report says "In the public literature, the first observations on the development of acne-like lesions among workers in the

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United States coming into contact with chloronaphthalenes and chlorodiphenyls as well as acute yellow atrophy of the liver occurring among such workers were reported in 1935."
Do you remember there were reports in 1935, Dr. Kelly, of acute yellow atrophy of the liver in these workers?
A Which workers are we talking about?
Q In the workers referred to in this Monsanto report, sir?
A They're the Halowax workers who were exposed to chlorinated naphthalene.
Q And Halowax is a –
A Chlorinated naphthalene and in one of the Halowax formulations, 10 percent of chlorinated diphenylbenzene is incorporated.
Q What is acute yellow atrophy of the liver, Dr. Kelly?
A It's a hepatitis that goes on to a pretty serious termination.
Q What do you mean by "a pretty serious termination"?

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A You get quite ill and in some cases you die. But I don't want to leave the impression we're talking about PCBs here. We're talking about Halowax workers. Of all the varieties of Halowaxs that they had, only one had 10 percent of PCBs in it, and that was not a PCB. That was a PCT or chlorinated biterphenyl or chlorinated diphenylbenzene, but not PCB.
Q PCBs are chlorodiphenyl compounds?
A Yes.
Q In its report on PCBs that we're looking about, Monsanto talked about these studies showing both chloracne and acute yellow atrophy of the liver?
A Yes, sir.
Q And the chloronaphthalenes –
A When you say Monsanto talked about them, this is a report that came from Drinker and Drinker was the one who was engaged by Halowax to carry out the investigations on their cases where the yellow atrophy had occurred.
Q The report that we're looking at that we've marked as Kelly V-15 is a Monsanto report?
A Yes, but this is a Monsanto –
Q I'm not suggesting that this study in 1935 was a

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Monsanto study. I'm just asking you whether this report was written by Monsanto?
A Yes, sometime after 1974.
Q And you were aware in the 1930s of these studies of chloronaphthalenes and chlorodiphenyls?
A Yes, I was.
Q Monsanto continued to make and sell PCBs?
A Oh, yes, with – following the Halowax episode, they manufactured PCBs in the millions of pounds and there were no illnesses. In fact, a government prime toxicologists, Dr. – I forget her name – Dr. – it begins with a K – I'll think of it – she stated there were no, with the exception of chloracne, there were no industrial injuries associated in workers associated with PCBs since 1938.
Q Dr. Kelly, do you remember that Monsanto did some studies in 1956 on PCBs?
A Yes, I do.
Q And –
A I thought it was a little before, '55 or 54 or '56.
Q Let's look at section 2, page 3, second

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paragraph.
A Yes, sir, '56, they did the work. It was presented at the meeting. It was done in '55, I think.
Q The study was done earlier and then presented at this meeting?
A A year before or something like that.
Q Monsanto sponsored the study?
A Yes.
Q And the products that were studied were Aroclor 1242 and Aroclor 1254?
A That's correct.
Q Those were both PCB products made by Monsanto?
A Yes; that's correct.
Q Would you read the sentence starting off "a report of those studies," sir? Do you see that?
A Yes. Stating "A report of these studies presented at the 1956 meeting of the American Industrial Hygiene Association stated that the investigation was undertaken because in the earlier literature dealing with the toxic effects of Aroclors, no distinction has been drawn between the toxic effects of chlorinated biphenyls and those of chlorinated naphthalenes.

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No injury was observed after prolonged intermittent exposure" –
Q That's really in the next paragraph, Dr. Kelly. I wanted to ask you a question about what you finished reading. Is it true, Dr. Kelly, that in the studies that were published in the 1930s that we've been talking about, the studies did not distinguish between chlorinated biphenyls and chlorinated naphthalenes?
A That's correct.
Q So you didn't know at that time whether the liver problems were related to the chlorinated biphenyls or the chlorinated naphthalenes?
A Well, I think especially since they didn't test – what Drinker tested was a compound that he called 1268 or 65, which was – he thought it was a chlorinated biphenyl, PCB. I called Drinker up after his first paper came out and said look, this is pretty surprising to us. We don't think it has a toxicity that you have referred to – that you're referring to in your article. Where did you get this 1265? He said he got it from Halowax. I said well, we'll send you some honest-to-goodness 1260. We didn't make a 1260. We made a 1262 and a 68 and we

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made a 4465 which is a chlorinated terphenyl. And so we sent him some plain 1268, which was chlorinated in 68 percent of the molecule.
Well, he tested that, and he sent in a second

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article which was published in 1939, I believe. He said I was surprised at the lack of toxicity of the chlorinated diphenyl, which I received from Monsanto and on further investigation, I find out that when I was talking about chlorinated diphenyl, it's not chlorinated diphenyl at all. Biphenyl – I must say that they changed the name between diphenyl and biphenyl someplace along these years, not Monsanto but the American Chemical Society.

So he said this has got a toxicity of a 20th of the stuff we called chlorinated biphenyl. So he retracted his statement of the – considered the toxicity of that particular PCB, but even though it was published, it never caught up with his original statements so any time you see a paper, it says chlorinated diphenyl and chlorinated naphthalene; was that correct?

Q Let's talk about the results of the Monsanto study in 1956, Dr. Kelly. On the same page we've been looking at, the Monsanto report says "animals subjected to

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comparable exposures of Aroclor 1254 showed signs of apparently reversible liver cell injury." Do you see that?

A Yes, sir.

Q Aroclor 1254 was a Monsanto PCB product?

A Yes, it was.

Q And you knew until 1956, at least, when you did this study that that compound could cause reversible liver cell injury?

A Yes, sir.

Q The liver was the same organ that was affected by the materials tested back in the 1930s?

A Yes, sir.

Q When you did these studies in 1956, Dr. Kelly, did Monsanto stop manufacturing PCB compounds?

A Oh, no, of course not, because what we did there, Aroclors were going into heat transfer units and was going into hydraulic molding, and it was liable to be dropped on hot metal and at 5- or 600 degrees centigrade, and we wanted to know what would happen to the worker who was around there where there was a break in the line, could he stay there long enough to turn off the valves and

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keep the stuff from dropping on this hot metal, so that's why we ran that. Of course, we knew it was – it possessed toxicity especially at elevated temperatures.

Q You knew that?

A Sure. In fact, we labeled it before and after don't use at elevated temperatures. Don't breathe at elevated temperatures. Don't breathe in confined spaces. It was no mystery.

Q Did you do some more studies in 1963, Dr. Kelly?

A I don't know what kind.

Q Let's look at section 2, page 2 in this Monsanto report.

A Oh, yes, '63. That was after the environmental finding of the material in the environment, yes, sir.

Q So you knew by that time that the material was getting into the environment?

A In the time we started the studies, we knew that it was getting into the environment.

Q People were finding PCBs in fish and birds and waterfowl?

A Yes, sir.

Q And in 1963, Monsanto did some subacute rabbit

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studies; is that correct, sir?

A Well, they did a lot around that time. I don't know when they did the rabbit studies.

Q Let's look at section 2, page 2. Do you have that in front of you, sir?

A Yes, sir.

Q Do you see the paragraph near the bottom of the page that starts off "In 1963, Monsanto received reports of subacute rabbit dermal studies"?

A Yes, sir.

Q And the chemicals that were studied there were five different Monsanto PCB products?

A Yes, I do.

Q Do you see in the chart, Dr. Kelly, there's a section called "systemic injury"?

A Yes.

Q And do you see that in three of the five products, that PCBs caused systemic liver injury?

A Yes, sir.

Q You knew in 1963 that PCBs caused systemic liver injury?

A If you got it on and left it on for 24 or 48

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hours, yes. In fact, these studies were the basis of our safe handling recommendations to avoid repeated or continuous skin contact.

Q And you knew that the PCBs were getting into the environment by that time?

A Well, there's no relevancy between getting it in the environment in trace amounts, parts per billion and putting the concentrated material on the material and covering it up and leaving it on the skin for 48 hours.

Q There were PCBs in fish?

A What?

Q There were PCBs in fish?

A You had trace amounts, parts per billion.

Q You knew about that in 1963?

A Sure, but I said I see no relevancy between that and these skin studies we're talking about to see what the effect of 100 percent material on the skin is concerned.

Q You knew, then, that PCBs could cause systemic liver injury?

A Yes, in sufficient amount, if it gets into the body, it can.

Q Did Monsanto stop making and selling PCBs at

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that time, Dr. Kelly?

A No, there was no reason to because, remember, we had no injuries.

Q Remember there was a poisoning incident in Japan in 1968, Dr. Kelly?

A Yes, there was.

Q Do you remember how many people were injured in that incident?

A No, but quite a few. This was not a Monsanto PCB. It was a Japanese PCB manufactured by a different method that had impurities in it that were not present in the Monsanto PCB. It had impurities that were present due to the handling of the material while it was in the household.

In other words, we're talking about a compound – industrial compound in Japan of Japanese Kanochlor which was their brand name for their type of PCB that was used as a heat transfer agent and leaked into rice oil. So something happened when the rice oil was heated. Then the rice oil was sold to the people for putting on soybean cakes or something, whatever they used. And they heated it again in the presence of oxygen and they had impurities

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occur. And it was accepted by the Japanese scientists and the occurrence of these dibenzofurans due to the heating rather than the PCBs itself.

Q 1000 people got sick from eating the rice oil?

A I don't know how many. Quite a few I said.

Q Seriously ill?

A Yes. I don't think there were any fatalities, but there were skin changes. There were some reproductive problems. Some of the babies had pigmentation, they had infections of the eyelids. They had chloracne.

Q That incident attracted a lot of attention?

A Sure did in Japan, but it didn't attract much in the United States.

Q Did you know about it, Dr. Kelly?

A What I read in the papers because it was not translated into the English literature for six or eight months afterwards, so it was newspaper articles that we

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heard about it.
Q But you knew about it within six or eight months later?
A Yes.
Q Did Monsanto continue to make and sell PCBs?

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A Yes, sir, but we didn't recommend it for mixing it with rice oil and putting it on soybean cakes.
Q Did you do some more studies around 1969, sir?
A We may have.
Q Let me ask you to look at section 2, page 4 of this Monsanto report, Dr. Kelly. Actually, we may need to look back at the bottom of the preceding page. See, it says in the report, Dr. Kelly "In response to reports of the presence of some PCBs in the environment, Monsanto, in 1969, initiated preliminary toxicity studies which led to a series of long-term tests"?
A Yes, sir.
Q Monsanto was doing additional studies at that time?
A Yes, sir. We started it.
Q Let me ask you to turn over to the next page, then, Dr. Kelly, in the first full paragraph on that page.
A Yes, sir.
Q The report tells us "As with other halogenated hydrocarbons, the important histopathologic changes it were present in the livers in animals sacrificed at the

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end of the study."
A Yes, sir.
Q "These consisted of hepatocellular (liver) alterations such as focal hypertrophy (local enlargement), cytoplasmic lipid changes and in some animals from the 100 part per million groups, hepatomas or cholangiohepatomas (benign tumors)."
What are hematomas, Dr. Kelly?
A It's a benign liver tumor.
Q What are cholangiohepatomas?
A It's a benign tumor that affects the bile ducts which carry the liver secretion into the intestine.
Q Do you remember, Dr. Kelly, whether there were also adverse effects on reproduction in some of the animals?
A Yes, there were. I think –
Q Did Monsanto continue to make and sell PCBs at that time, sir?
A Yes, sir. We continued.
Q Do you remember, Dr. Kelly, that in 1975 Dr. Renate Kimbrough reported that PCBs caused liver carcinomas in female rats?

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A Yes, I do, and I was in a meeting with Dr. Kimbrough. In fact, Dr. Kimbrough was the name I was trying to remember when she said that – wrote in two areas, two widely published scientific reports that there were no industrial injuries from PCBs with the exception of chloracne. She took 1260, one Aroclor that she found in female rats which she called liver tumors, liver malignancies. We had a meeting with her because we had run tests with 1260 and didn't get the same results.
So we gave her our slides. She gave us her slides, and we sent them to the Eppley Institute for Cancer at the University of Nebraska. We sent them to the department of pathology at Northwestern University. And they said well, we don't agree these are tumors – I mean, these are malignancies. Well, she said they are, so that's where it stood.
They were – that study was never repeated with the exception that 1254 was repeated by the National Cancer Institute. They found no malignancies at the 1254, but I think that the chances of our 1260 causing animal carcinogenesis is pretty good.
Q What are liver carcinomas, Dr. Kelly?

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A Malignancy of the liver.
Q A form of cancer?
A What?
Q Is it a form of cancer?
A It is cancer, yes.
Q Who did Dr. Kimbrough work for?
A I don't know. The United States government. She was down at the Research Triangle, whether that was NIOSH or EPA or God knows which of the government agencies, but she was a very reputable individual.
Q She made that report in 1975, is that right, sir?
A Which report? I mean, the two reports where she talked about the lack –
Q The report on liver carcinomas in the female rats.
A Oh, I think it came out before then because I met her before I retired. I don't know if it was published in '75, but we had a copy in '74. The statement that she made about the absence of any injury in workers came out in '88 or something like that.
Q Monsanto didn't stop selling PCBs until 1977?

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A No, sir. In fact, it was – we stopped it in open operations, but it was at the request of government agencies, including the EPA, I believe, that we continue manufacturing it for electrical applications because there was no fire resistant dielectric available at that time.
Q But you didn't stop selling it until 1977; is that right?
A That's correct.
Q Is it banned now?
A It was banned sometime about a year after we stopped selling it.
Q Dr. Kelly, were there other Monsanto operations that resulted in chloracne problems?
A Occasionally in pentachlorophenol.
Q Where was that made, Dr. Kelly?
A St. Louis plant, either St. Louis or the Krummrich plant. And also at Nitro we had an agricultural compound 2,4,5-T that caused chloracne.
Q Let's talk about the situation in Nitro first. Do you recall when you first encountered problems with chloracne in the 2,4,5-T process?
A Well, we manufactured 2,4,5-T at Nitro for some

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time. And during the manufacturing, we developed chloracne in some of our workers who were manufacturing the material. So in 19 – but in 19 – I believe '49, we had an explosion in one of our kettles in which it blew out the relief gasket, spewed the contents of the kettle all over the building and all over the inside of the building. So what came out was sort of – I can't characterize it any more than a gunk, g-u-n-k. The material was charred. It was unable to be chemically identified, but it was a sticky – it was a sticky material that was on top of the building so they had people taking the stuff off and cleaning the material. They developed a pretty serious batch of chloracne.
Q Was that in 1949, Dr. Kelly?
A Yes, sir.
Q How many workers were affected?
A I think it was '49. We got so many dates coming up here, I don't have – how many workers? From the explosion itself and the cleanup, I'd say 50 – at least 50 and probably more. I don't recall the exact number.
Q Were there others that developed later?
A Well, it was hard to say whether it was

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developed from the explosion or developed from the routine operation of the plant when we got the plant back in business. We did have quite a few cases of chloracne at the Nitro plant.
Q I think you said, Dr. Kelly, you had "a pretty serious batch of chloracne." Were some of the cases pretty severe?
A Yes, they were.

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MR. MC CONNELL: Dr. Kelly, let me show you a document that we'll mark as Kelly V-16.
(Kelly Exhibit V-16 identified.)
BY MR. MC CONNELL:
Q Do you recognize this, Dr. Kelly, as a letter you got from Dr. G.O. Nelson?
A Yes, I do.
Q It's dated November 30, 1949?
A Yes, I do.
Q Who was Dr. Nelson?
A He was a plant physician at our Nitro plant of Monsanto Company.
Q Monsanto's plant doctor?
A That's right.

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Q He's reporting to you on the chloracne outbreak at Nitro?
A This is the one that followed the explosion.
Q Okay. And in the second sentence, he says there have been a total of 114 cases since March 8, 1949 when the condition developed?
A Yes.
Q He's writing to you on November 30?
A Yes.
Q So that's a number of months later?
A Yes.
Q And he goes on to tell you we've developed seven new cases?
A Yes, sir.
Q And then down near the bottom of that letter, he says "Several of the cases are still pretty severe and undoubtedly it will be many months before they will be completely cured."
A Yes, sir.
Q Did Monsanto continue to make and sell 2,4,5-T, sir?
A Does it now?

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Q Did it continue in 1949?
A Yes, it did.
Q Did it continue in the 1950s?
A Yes, sir, it did.
Q 1960s?
A I think it continued until sometime in the Vietnam War so the answer is yes, it did in the '50s.
Q Was 2,4,5-T used in the Vietnam War, sir?
A Yes, it was.
Q What was it used for?
A A defoliant to cut down the vegetation in the canopies in the forests of Vietnam.
Q It was part of Agent Orange?
A Yes, it was.
Q It's been quite a few cases involving Agent Orange claims?
A There were a lot of claims, yes, but I don't believe – with the exception of some very rare cases has the scientific groups of the Army or Veterans Administration accepted the cases as caused by Agent Orange.
Q What is trichlorophenol?

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A Phenol with three chlorine atoms.
Q What's the relation between trichlorophenol and pentachlorophenol?
A Two chlorine atoms. One has got five and one has got three.
Q So they're related chemicals?
A Yes.
Q You told me earlier, I think, that you had some chloracne cases at some of the other Monsanto plants involving pentachlorophenol?
A That's correct.
Q What plants were involved in that, Dr. Kelly?
A I think the Queeny Plant and maybe they made some at the Krummrich plant.
Q When did those cases occur, Dr. Kelly?
A They were isolated cases. There weren't very many of them. They were mostly in the pilot plant stage, where we were starting out manufacturing the material. There weren't very many and it wasn't too – it wasn't much of a problem really, nothing like Nitro.
Q Was trichlorophenol used in making 2,4,5-T?
A Yes, it was.

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Q So at Queeny and Krummrich you were making pentachlorophenol?
A Yes.
Q And at at the Nitro plant you were using the related chemical, trichlorophenol?
A That's correct.
Q And you were having chloracne cases in both areas?
A Well, yes, but as I said, we had very few in the pentachlorophenol department. They were very mild cases whereas at Nitro, after the explosion occurred, there were serious cases so there was no great comparison between the two incidents.
Q Did Monsanto continue to make and sell pentachlorophenol?
A Yes, they did.
Q For how long, sir?
A I can't answer that. For quite some time. I don't –
Q Until the time you retired?
A I don't know if they were still making it by the time I retired or not.

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Q Dr. Kelly, can you describe for me the symptoms of chloracne?
A Sure. It's like teenage acne only the distribution differed sometime, and it may be accompanied by pigmentation. It's accompanied by the presence of infected follicles of the skin, hair follicles and excess of sebaceous, s-e-b-a-c-e-o-u-s, material in the sweat glands.
Q Can it cause horrible skin eruptions?
A I wouldn't use the word "horrible."
Q Have you heard people use that term to describe chloracne?
A I don't know if I have frankly. Maybe somebody has written it that way. I do know we had serious cases at Nitro, but certainly the PCB cases – I mean the pentachlorophenol cases were not horrible. They were relatively mild.
MR. MC CONNELL: Let me show you a document, Dr. Kelly, that we'll mark as Kelly V-17.
(Kelly Exhibit V-17 identified.)
BY MR. MC CONNELL:
Q Do you recognize this, Dr. Kelly, as a memo that

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you received from Mr. Wheeler in 1956?
A Yes, I do.
Q Mr. Wheeler worked for you in the medical department at Monsanto?
A Yes, he did.
Q Do you see the – let me back up a minute. Is this a memo about some chloracne cases at a company in Germany?
A Yes.
Q Do you see in the second paragraph, Mr. Wheeler talks about some photographs of the worst Badische cases?
A Yes.
Q And you see he says "The photographs of the worst Badische cases show horrible skin eruptions with nearly blister-like welts and some ulceration where infection ensued"?
A Yes, I see that.
Q So at least Mr. Wheeler believed that chloracne could be described as horrible skin eruptions?
A Well, some cases, yes, but it also could be described as so mild the fellow doesn't know he has it. They had another explosion like, as I said, our chloracne

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was bad from the explosion we had. Well, Badische, B-a-d-i-s-c-h-e, had an explosion also which presumably caused the same transformation of the trichlorophenol into a quite serious chloroantigen.

Q Were there other effects on the workers beyond chloracne, sir?

A Yes. We sent four of our workers, the worst cases, up to the University of Cincinnati Medical School and they developed a peripheral neuritis.

Q What does that mean, Dr. Kelly?

A You have changes in the nerve fibers going to the extremities.

Q What does that do to you?

A You have pains your extremities. You have some weakness, painful joints and the host of symptoms, fatigue, loss of libido, various aches and pains.

Q Mr. Wheeler talks about those symptoms in his memo to you?

A Yes, he did.

Q So you knew about those things in 1956?

A Well, we knew about it from '49 when we had our explosion.

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Q The same things happened in the Monsanto workers?

A Yes.

Q What is loss of libido, Dr. Kelly?

A You have a disinterest of the sexual act.

Q What is vertigo, Dr. Kelly?

A Dizziness.

Q And that was experienced by the Monsanto workers as well?

A I don't recall whether they had that. It doesn't ring a bell.

Q It's in Mr. Wheeler's memo?

A I beg your pardon?

Q It's in Mr. Wheeler's memo?

A As far as the Badische people, he doesn't mention that in the Monsanto cases.

Q He says "In addition to the skin manifestations, their men reported all the additional symptoms as experienced in our workers, fatigue, vertigo, loss of libido, painful joints, et cetera"?

A Well, I know, as I said, they experienced loss of libido, painful joints, et cetera, I'm sure they had

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other ones and the fatigue. I don't know the dizziness. That didn't seem very prominent.

Q Monsanto continued to make and sell 2,4,5-T?

A Oh, yes. We didn't expect to have explosions frequently.

MR. MANTA: Dick, whenever is a good time for –

MR. MC CONNELL: It is 12:15. If you'd like to do so, we could take a break for lunch here. Why don't we go off the record.

MR. MAGGIO: We're at the end of video cassette number 1, volume 2. We're off the record at approximately 12:17 p.m.

(Discussion off the record.)

(Whereupon, at 12:17 p.m., the deposition was recessed, to be reconvened at 1:17 p.m. this same day.)

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AFTERNOON SESSION (1:26 p.m.)

Whereupon,

R. EMMET KELLY

resumed the stand and, having been previously duly sworn, was examined and testified further as follows:

MR. MAGGIO: This is the beginning of video cassette number 2, volume 2 of the deposition of R. Emmet Kelly. We're back on the record at approximately 1:26 p.m.

EXAMINATION (Continued)

BY MR. MC CONNELL:

Q Dr. Kelly, we're back from lunch.

A Yes, sir.

Q Before lunch, Dr. Kelly, we were talking a little bit about the 2,4,5-T workers at the Nitro plant.

A Yes, sir.

Q And the chloracne and the other symptoms they suffered?

A Yes, sir.

Q Was there a contaminant that was responsible for those symptoms, sir?

A Yes.

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Q And what was that?

A Dioxin.

Q It was dioxin in the 2,4,5-T?

A There was some, but the majority of the dioxin was formed in the explosion.

Q And there was some dioxin in the 2,4,5-T?

A Small amounts, yes, traces. When I say "traces," parts per million.

Q Were you aware, Dr. Kelly, that dioxin is an extremely toxic substance?

A Yes, sir.

Q Did you become aware that it's a potentially potent carcinogen?

A Well, that's questionable.

Q Do you recall having written that, sir, in 1965?

A Yes, I think so, but I don't know how accurate my knowledge was in '65.

Q Did you have discussions at that time with the toxicology people at Dow Chemical?

A Yes, but I don't know if – I don't know if it was at that time or not. We didn't talk too much about dioxin between Monsanto and Dow. I don't remember talking

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too much about it with them.

MR. MC CONNELL: Let me show you a document, Dr. Kelly, which we will mark as Kelly V-17 – I'm sorry, Kelly V-18.

(Kelly Exhibit V-18 identified.)

THE WITNESS: Yes, sir.

BY MR. MC CONNELL:

Q Do you recognize this as a letter that you wrote to Mr. Paul Hoffman?

A Yes, I do.

Q Who was Paul Hoffman, sir?

A I don't remember who he was. He was in the agricultural company of Monsanto, but I don't know now what his position was.

Q He was a Monsanto employee?

A Yes, he was.

Q Do you see the first paragraph talks about a discussion you had with a Hercules representative who had been meeting with Dow?

A Yes.

Q And do you see in the second paragraph, you said "It appears the presentation was the same one as the one

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you and I were given." Does that refresh your memory that you had been meeting with the Dow people at about that time?

A Yes, it does.

Q And looking further down in the letter, Dr. Kelly, in the second to last paragraph, you see that you wrote "Regardless of what we think of the rabbit test, this dioxin compound must be a potent contaminant"?

A Yes, sir.

Q And you knew that in 1965 when you wrote this letter?

A Yes, I did.

Q The next sentence you say "Very conceivably, it

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can be a potent carcinogen"?
A Yes, sir.
Q You knew that in 1965?
A Well, conceivably, yes.
Q Did Monsanto stop making 2,4,5-T at that time, sir?
A No, they did not.
Q Do you recall that it was demonstrated that dioxin can cause liver tumors in rats and mice?

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A Who did?
Q Do you recall that it was demonstrated that dioxin can cause liver cancer in both rats and mice?
A I'm not too familiar with that. I don't recall too much of the details now, and I don't know when that was done or in what manner the dioxin was administered.
Q Do you remember the Dow people reported a relationship between dioxin exposure and soft tissue sarcomas in human beings?
A I don't know if they talked about it or not. I don't think I said that in this memorandum, did I?
Q No, there's nothing about it in this memorandum.
A No.
Q But I'm asking you whether you remembered that the Dow people reported a relationship between dioxin exposure and soft tissue sarcomas?
A I don't remember whether they did or not. There was considerable talk about it at the scientific groups, that there was a possible connection.
Q Where is Times Beach, Missouri, Dr. Kelly?
A About 40 miles west of St. Louis.

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Q Does anybody live there now?
A Well, they're seeing if they should move back. The EPA condemned the whole area, spent $300 million razing it to the ground and about a year after it was finished, oops, I think we might have made a slight mistake. We don't think it's as bad as it is and some of the people are talking about moving back.
Q Why did they evacuate the town, Dr. Kelly?
A Because the EPA said get out.
Q Why did the EPA say get out?
A You have to ask them. Because they changed their minds. I guess it depends on when you ask them what they'll tell you.
Q Was there dioxin contamination at Times Beach, sir?
A Oh, yes, there was.
Q Dr. Kelly, what is hydrogen chloride gas?
A Well, it's a gaseous form of hydrochloric acid, that has one hydrogen and one chlorine.
Q Was it present at various Monsanto plants?
A Yes, sir.
Q Was it present at the Texas City plant?

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A I don't remember right now whether it was or not. It could be.
Q Do you remember in your earlier deposition, Dr. Kelly, telling me "I'm sure it was"?
A I could very easily have said that, yes, sir.
Q Is that true?
A I think so. I think it was pretty widespread in the chemical industry there, wherever you had chlorine, you had hydrochloric acid.
Q Is hydrogen chloride gas corrosive to the eyes?
A Yes, it is.
Q Is it corrosive to the skin?
A Yes, it is.
Q Is it corrosive to the lungs?
A In enough concentrations. Strangely enough, it is not corrosive to the stomach because most of us have hydrochloric acid in the stomach.
Q In the 1940s, did Monsanto know that hydrogen chloride gas could damage the eyes and the lungs?
A Yes, it did.
Q And the skin?
A Yes.

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Q Did you have some hydrogen gas poisoning – hydrogen chloride gas poisoning cases at Monsanto plants, sir?
A Did we have hydrogen chloride gas present in some cases?
Q No, sir. Let me rephrase the question. Did you have some hydrogen chloride gas poisoning cases at Monsanto plants?
A Well, I don't know what you mean by "poisoning." We had no systemic effect from hydrochloric acid. We did have irritation of the mucous membranes of the eyes, nose, throat and lungs from acute exposures. We did have some exposure – I mentioned last week in our Boston plant where the enamel of teeth was eroded from hydrochloric acid gas.
MR. MC CONNELL: Let me show you a document. Dr. Kelly, which we will mark as Kelly V-19.
(Kelly Exhibit V-19 identified.)
BY MR. MC CONNELL:
Q Do you recognize this, Dr. Kelly, as a letter you wrote to Dr. F.M. Clark?
A Yes, I do.

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Q It's dated August 13, 1940?
A Yes, I do.
Q Would you read the first sentence, sir.
A "Our medical routine for the treatment of hydrogen chloride gas poisoning has two forms."
Q The next paragraph describes the treatment for minor cases?
A Yes, sir.
Q And the third paragraph describes the treatment for serious cases?
A Yes.
Q Would you read that paragraph for us, sir.
A "In the hospital the serious cases are given oxygen and carbon dioxide mixtures of the same proportion by nasal catheter as well as morphine and 50 percent glucose intravenous to diminish pulmonary edema."
Q What is pulmonary edema, sir?
A Fluid in the lungs.
Q And Monsanto at that time had some serious cases of hydrogen chloride gas poisoning?
A I'm not sure whether we did or not. I mean, I might have just given them my idea of how I would treat

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them if I had them because I don't recall having hospitalized anybody for hydrogen chloride exposure.
Q Dr. Kelly, let me ask you to look at the document we've marked as Kelly V-11. It's the transcript of the second day of your deposition last week, sir.
A What am I looking for?
Q Well, first, I'd like to ask you whether you remember testifying about this issue last week in your deposition?
A Yes, I remember testifying at the deposition.
Q You were under oath?
A Yes.
Q Your lawyer was there?
A Yes.
Q I was there?
A Yes.
Q We had a court reporter?
A I was there. She was there.
Q Would you turn to page 239 of the transcript, sir? I'm sorry, page 240, Dr. Kelly.
A 2- which?
Q 240. Could I direct your attention to line 9.

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Do you remember I asked you this question: "So Monsanto had serious cases of hydrogen chloride gas poisoning at that time" and your answer begins on line 11. Would you read that, sir.

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A "We must have. I don't know how many. It really does not – I don't recall it being a great problem with some of our plants, but we had plants where we made chlorine, and there would be an offshoot of hydrogen chloride gas present if there were a release of chlorine."

Q Was that testimony accurate, sir?

A Well, yes, but you've got to keep on reading.

Q Okay. Why don't you keep on reading.

A That's what I'll do.

"Question: Were these cases treated in the hospital?

"Answer: I don't recall too many of them going to the hospital really. We gave oxygen at the dispensaries, but I just don't remember any hospitalized cases, but the serious cases were sent to the hospital. If we had them, yes."

Q You had cases of hydrogen chloride gas poisoning

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that were treated at the Monsanto dispensaries?

A At the dispensaries, yes, sir. But as I say, this bears out my previous statement a little while ago that I don't remember if we had any serious cases.

Q You don't know whether they were sent to the hospital, but they were at least treated in the dispensaries?

A That's right.

Q Let's talk about the workers that had the problems with their teeth, Dr. Kelly. Do you remember mentioning that a moment ago?

A Yes, I did.

Q And what happened to those workers, sir?

A Well, they lost their teeth. Outside of that, nothing.

Q And how did they lose their teeth?

A The enamel was gone and the teeth wore down.

Q And what caused the enamel to be gone, sir?

A The exposure to hydrogen chloride gas.

Q In the Monsanto plant?

A That's correct. We're talking now about exposures in the '30s, '20s and '30s.

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Q In the 1920s and 1930s?

A Even though I wasn't there, this was information obtained from the workers.

MR. MC CONNELL: Let me show you a document, Dr. Kelly, which we will mark as Kelly V-20.

(Kelly Exhibit V-20 identified.)

BY MR. MC CONNELL:

Q Do you recognize this, Dr. Kelly, as a letter you wrote to Dr. H.H. Golz?

A Yes, I do.

Q And he was at the American Cyanamid Company?

A Yes.

Q And the letter is dated April 10, 1961?

A That's correct.

Q You wrote this – why did you write this to Dr. Golz?

A Frankly, I don't know. Either he asked me something about – well, I just don't know why I did it. The correspondence must have originated with him.

Q Do you see about halfway through the letter, Dr. Kelly you wrote "The people who had worked in this department for years lost almost all their teeth." Do you

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see that, sir?

A Yes, I do.

Q And you were aware of that at least as early as 1961 when you wrote this letter?

A Yes.

Q Would you read the next sentence, sir.

A "How we got away with it, I'll never know, but we never had a suit. They just accepted it as a fact of life. The enamel more or less dissolved. I feel this is rather well documented someplace in the ancient occupational medicine literature, obviously, but we didn't write it up. The individuals did not complain about upper respiratory or eye irritation."

Q Monsanto got away with these cases, you were never sued?

A Well, we were never sued. I don't know what – yes, we were never sued. I don't know – maybe that term "how we got away with it" was a term I would use in 1990, but –

Q You used it in 1961?

A Yes, I did.

Q And Monsanto didn't write these cases up when

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they occurred in the 1920s or 1930s?

A No, because it had been documented anyway beforehand. We didn't write it up some more information on the same topic.

Q You might not get away with it if you wrote it up in the scientific literature?

MR. BRAY: Objection to the argumentative nature of that.

THE WITNESS: I don't think that was any particular reason. The men knew where it came from. We certainly couldn't hide it from them. We didn't want to hide it from them. It wasn't a question of coverup on it. We didn't write it up because it was written up already.

BY MR. MC CONNELL:

Q Let's talk about hydrogen cyanide, Dr. Kelly. What is hydrogen cyanide?

A One molecule – one atom of hydrogen and one atom of cyanide, a molecule of cyanide cobonded.

Q What's the chemical symbol for hydrogen cyanide, sir?

A HCN.

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Q Was hydrogen cyanide used at Monsanto's Texas City plant?

A Yes, it was.

Q Was it used in the acrylonitrile process?

A I think it was one of the building blocks.

Q Would it be fair to say that hydrogen cyanide is an extremely toxic chemical?

A Yes, it is.

Q It's used in death chambers?

A Yes, it is.

Q For executions?

A Yes.

Q Does it kill within minutes?

A Yes, it does.

Q Was there hydrogen cyanide contamination in some of the waste materials in the acrylonitrile process at Texas City?

A I don't know the form it was in, whether the hydrogen cyanide was condensed or had reacted with some of the other compounds in the waste stream or not. I don't know.

Q Whether it had reacted or not, there was

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hydrogen cyanide contamination in some of the waste materials?

A Well, if it were – it was not pure hydrogen cyanide. It was some reaction product of hydrogen cyanide. Whether it had the same propensity of extremely high toxicity or not, I don't believe it did.

Q Would Mr. Garrett know more about that than you, sir?

A I'm sure he would have.

Q Was the toxicity of hydrogen cyanide known in the 1940s?

A Yes, it was.

Q 1930s?

A Yes.

Q It was known to you and Monsanto in the 1930s and 1940s?

A Yes, it was. We've gone now from this hydrogen cyanide, talking about that, per se by itself as to what

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was in the waste stream or in a landfill – material we put in a landfill. We're not talking about putting 100 percent pure hydrogen cyanide in this landfill.

Q But you're talking about waste materials that

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contain hydrogen cyanide in some form?

A In some form, in some reactant form.

Q Do you remember there were some workers at Monsanto's Texas City plant who were injured in cyanide spills?

A I don't remember. They may have been.

MR. MC CONNELL: Let me show you a document, Dr. Kelly, which we will mark as Kelly V-21.

(Kelly Exhibit V-21 identified.)

THE WITNESS: Yes, sir.

BY MR. MC CONNELL:

Q Is this a letter that you got from Dr. Otto Smith?

A Yes.

Q It's dated September 28, 1970?

A Yes.

Q Who was Otto Smith?

A He was one of the physicians at the Beeler-Manske Clinic in Texas City, the clinic that took care of our medical affairs at Monsanto's Texas City plant.

Q Was Otto Smith one of your plant doctors for

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that plant?

A Well, he wasn't a plant doctor. I mean, he was not a Monsanto employee. He was one of the members of the group who furnished medical services to the plant.

Q Did Monsanto have some arrangement with the Beeler-Manske Clinic that he worked for?

A Yes, it did.

Q And what was that arrangement, sir?

A Well, they would send a physician over a certain number of hours per day or per week, and they would contract to take care of our occupational injuries or occupational conditions. They would carry out examinations of the plant.

Q Would you read just the first sentence of this letter for us, sir.

A "We are still seeing the workmen who were injured in the cyanide derivative spill."

Q So Dr. Smith was reporting to you about workers that were exposed to cyanide?

A No, cyanide derivatives.

Q What are cyanide derivatives?

A Well, it's something that – you use hydrogen

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cyanide as a building block for other chemicals. These obviously were not – there was not an injury in a cyanide spill because they would not be around to be treated several weeks later or whatever period of time this was.

Q Would you look at the third paragraph of this letter, sir?

A "It is interesting that all seem to have cerebral signs and symptoms."

Q What are cerebral signs and symptoms, Dr. Kelly?

A Well, a sign is an obvious, objective, demonstrable, physical condition, so it could be dizziness. It could be staggering on walking. A symptom could be a headache.

Q The next sentence goes on to say "they, of course, were cyanotic"?

A Yes.

Q What does "cyanotic" mean, sir?

A It means the skin color is blue because of inadequate flow of oxygen to the peripheral vessels.

Q Is that typical of cyanide poisoning?

A Yes, because it in essence stops the oxidation of – carrying of oxygen by hemoglobin.

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Q And is it typical with exposure to cyanide derivatives?

A I guess it all depends on the derivatives. It is to some, some not.

Q It was in this case?

A That's what he says.

Q He goes on a little later to report that one of the patients "had such wild, thrashing, purposeless movements that it was impossible to keep him in oxygen"?

A Yes, he does say that.

Q Is that typical with cyanide poisoning?

A It's typical of pretty deep cyanosis, yes, sir.

Q Do you remember how this cyanide spill occurred, sir?

A No, sir, I don't.

Q Do you remember how many workers were injured in this particular incident?

A No, I don't.

Q Dr. Kelly, what is AN catalyst tar?

A It's a material that exists in the bottom of acrylonitrile distillation columns after the addition of the catalyst and after the addition of the various

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compounds that are reacted to make up acrylonitrile, one of which is hydrogen cyanide.

Q Is the tar also known as still bottoms or heavy ends?

A Yes, I think so.

Q Were the catalysts chemicals that were used to make acrylonitrile at the Texas City plant?

A Were they?

Q Yes, sir.

A Yes, they were.

Q And the catalyst tar would be a waste material from that process?

A Yes, sir.

MR. MC CONNELL: Dr. Kelly, let me show you a document which we will mark as Kelly V-22.

(Kelly Exhibit V-22 identified.)

BY MR. MC CONNELL:

Q Do you recognize this, Dr. Kelly, as a memo you wrote to Mr. J.R. Mares?

A Yes, I do.

Q It's dated July 3, 1952?

A Yes, sir.

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Q The subject is AN catalyst tar?

A Yes.

Q Who was J.R. Mares?

A He was the management director of the Texas City plant.

Q And your memo says "Some time ago you requested toxicity tests on the AN catalyst tar"?

A That's correct.

Q Is the purpose of your memo to report the results of those tests to Mr. Mares?

A Yes, it is.

Q And you reported to him that the material is moderately toxic?

A Yes, sir.

Q So that's something you knew in 1952?

A Yes, sir.

Q If you'd look at the attachment to this memo, sir, there's a toxicity test report attached?

A Yes, sir.

Q The title is "The Minimum Lethal Oral Dose of Acrylonitrile Catalyst Tar (Monsanto Lot Number H-335) for Laboratory Rats and New Zealand White Rabbits"?

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A Yes, sir.

Q Is that a test that was conducted for Monsanto?

A What?

Q Is that a test that was conducted for Monsanto?

A Yes, it is.

Q Was the purpose of the test to determine the minimum lethal dose of AN catalyst tar?

A Yes, it was.

Q The minimum dose that would cause death?

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A Well, that's what the minimum lethal dose is.
Q That's what it means?
A Yes.
Q Dr. Kelly, do you remember there was some discussions back in the 1950s about the soot from the acetylene process at the Texas City plant?
A Yes, sir. I have some, not too exact, recollection, but I remember there was discussion about it.
Q And I believe Mr. Bray asked you about that yesterday?
A Yes, he did.
Q The acetylene process was a process that was

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used at the Texas City plant?
A Yes, it was.
Q Was it part of the acrylonitrile manufacturing process?
A Yes, it was.
Q Do you remember back in the 1950s discussing the possibility that the soot from the acetylene process was carcinogenic?
A There was considerable discussion about it, yes, sir.
Q Does the word "carcinogenic" mean that the material causes cancer?
A Could cause cancer.
MR. MC CONNELL: Let's go off the record for just a minute.
MR. MAGGIO: We're off the record at approximately 1:56 p.m.
(Discussion off the record.)
MR. MAGGIO: We're back on the record at approximately 1:58.
MR. MC CONNELL: Dr. Kelly, let me show you a document which we will mark as Kelly V-23.

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(Kelly Exhibit V-23 identified.)
THE WITNESS: Yes, sir.
BY MR. MC CONNELL:
Q Do you recognize that as a letter that you received from H.K. Eckert in 1956?
A Yes; that's correct.
Q It's dated March 14, 1956?
A Yes, sir.
Q Who was H.K. Eckert?
A He was a plant manager at Texas City.
Q He was a Monsanto employee?
A Yes, he was.
Q Manager of the Texas City plant?
A Yes. He reported to Mares.
Q In the first paragraph, he tells you "Mr. Dunlop asked me to convey some information he received from Tom Wilbur, plant superintendent of Carbide's plant at Texas City"; is that right, sir?
A Yes, sir, that's what it says.
Q Who was Mr. Dunlop?
A He was, I think, the head of research at the Texas City installation.

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Q And he goes on to say "During a conversation with Tom it was mentioned that their doctors who are resident at the Texas City plant (they have two) have arrived at the conclusion of the possibility of the carcinogenic nature of soot produced in the acetylene process." Do you see that, sir?
A Yes, sir.
Q So you knew in 1956 that the Union Carbide doctors in Texas City believed that the acetylene soot might be carcinogenic?
A There's a possibility it might, yes, sir.
Q He goes on to say that "Carbide produces acetylene by the same process that we do and presumably, the soot from the two processes is similar." Do you see that, sir?
A Yes, I do.
Q Monsanto and Union Carbide used the same acetylene processes?
A I don't know that, but at least he says that.
Q Would he be in a better position to know that than you, sir?
A Yes, he sure would.

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Q Going on to the next paragraph, Dr. Kelly, he says "I am bringing this to your attention for any possible action you might want to take. This information is not generally known at Carbide and no one knows it here at our plant except Mr. Dunlop and me. We prefer to keep it this way until something definite can be determined."
A Yes, sir, I see that.
Q So Mr. Eckert asked you to keep this information confidential?
A Yes, sir.
Q Do you remember responding to Mr. Eckert?
A Yes, sir, but I don't know when I did or what I told him.
Q Why don't we take a look at it.
MR. MC CONNELL: I'm going to show you a document, Dr. Kelly, which we will mark as Kelly V-24.
(Kelly Exhibit V-24 identified.)
BY MR. MC CONNELL:
Q Is that your letter back to Mr. Eckert, sir?
A Yes, it is.
Q It's dated March 20, 1956?
A Yes, sir.

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Q You start off by saying "As you know, there is a great deal of talk about the carcinogenicity of hydrocarbons derived from oil"?
A Yes, sir.
Q Would you read the next sentence, sir.
A "I imagine there is a certain amount of truth in it, but it's certainly by far the largest in speculation."
Q There was a lot of discussion about that issue at the time?
A There was considerable, yes, sir.
Q Then you go on to say "This is my opinion as far as the soot is concerned"?
A Right.
Q And you have several numbered paragraphs giving your opinion?
A Yes, I do.
Q Would you read the first paragraph, sir, the paragraph numbered 1?
A "It might very well be carcinogenic, although I know of no studies or cases that have occurred."
Q So you knew at that time that it might very well

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be carcinogenic, that the acetylene soot might very well be carcinogenic?
A Well, I knew a hypothesis, yes. I just said maybe it is. Could be. It's a possibility.
Q You said it might very well be?
A What?
Q You said "it might very well be"?
A Yes, that was a possibility it might be.
Q Did you do any studies to find out?
A I don't know if we did any laboratory studies on the skin of animals or not. I do know that we talked to various authorities in the field and in fact one of the authorities was Liberty Mutual as I recall. The other was some of the government agencies, and I don't know if I talked to the doctors at – where was this – at Carbide's plant. I don't know if I asked them what was the basis for their suspicions or not.
Q Would you read paragraph 3, Dr. Kelly.
A "It would seem to be a good idea to insist upon complete cleanliness as you are doing. And as I understand it, however, from the grapevine that the men state they blow soot out of their noses after working

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around the filters. If this is true, I believe a dust respiratory should be mandatory."

Q So you heard from the grapevine from the men were blowing soot out of their noses after working in the area?

A That's what I heard.

Q Would you read paragraph 4?

A "I believe our doctor should be on the alert to watch for any changes in the skin of the workers."

Q Let me stop you there and ask why was it important to be on the alert to watch for changes in the skin?

A Presumably some of the talk was that the soot from certain types of oils had caused cancers of the skin. In fact, historical chimney soot caused cancer of the scrotum in chimney sweeps and it appeared that the skin was an organ that was affected first.

Q Would you go on and read if the rest of paragraph 4.

A "I don't think this is going to be a matter of too great a concern, but I don't want to minimize it. There's been as you know a great deal of talk about

carcinogenesis" – I can't make out what kind of industry.

Q Is it "in the oil industry"?

A "Oil industry, but frankly you never hear about too many cases."

Q Let me see if I can help you with that last sentence, Dr. Kelly. I know this is not the best possible copy of this document, but it's the best one we have. "Even if a case develops on the skin, it is fairly easily treated. If it develops in the nose or lungs, that is something else." Is that right, Dr. Kelly?

A That's correct.

Q Why would a case in the nose or lungs be something else, Dr. Kelly?

A It's a little harder to treat. If it's on the skin, you look at it and take it out. If it's in the nose, it's a little trickier to be sure you've got everything out and the lungs requires an opening up the chest if you have a cancer of the lung.

Q So the concern here was cancers of the nose or cancers of the lungs?

A The concern was any place, but if we were going to have a cancer, we'd rather have it in the skin, which

is very easily treated. By the way, we never had any, anyplace.

Q Dr. Kelly, why don't we locate Exhibits V-2 and V-3, which Mr. Bray talked with you about yesterday.

A V-2 and 3?

Q Yes, sir.

A I've got 2 –

Q Could I give you a hand there, Dr. Kelly?

A Sure could. I've got 2. I'm looking for 3.

Q It's not in this stack?

A Not in this stack, either.

MR. MC CONNELL: Let's go off the record for a minute and we'll find V-2.

(Discussion off the record.)

BY MR. MC CONNELL:

Q Here's a copy of Kelly V-2.

A I found it.

Q Excellent. Let's take a quick look at Kelly V-2?

A Are we back on the record?

Q Do you remember discussing this with Mr. Bray yesterday?

A Yes, I do.

Q I'll just draw your attention to one part that I'm not sure you and Mr. Bray talked about. In the second paragraph – let's back up. This is a letter from Mr. Garrett to Joseph Houghton at Liberty Mutual?

A Which one are we on now?

Q No, sir, we're on V-2.

A Oh, 2, yes, sir. Garrett to Houghton.

Q And Mr. Garrett was a person who worked in your medical department at Monsanto?

A Yes, he was.

Q In the second paragraph Mr. Garrett says "There is a possibility that if there are polynuclear aromatic hydrocarbons in the soot, some of these compounds are also in the acetylene polymer. This material is produced in the acetylene department and at present is disposed of by dumping."

Do you see that, Dr. Kelly?

A Yes, I do.

Q The date on this is December 8, 1958?

A Yes, sir.

Q Let's take a look at Kelly V-3. Do you remember

talking with Mr. Bray about this yesterday, sir?

A Yes, I do.

Q This is a letter from M.L. Owens, Jr. to R.J. Schatz at the Texas City plant?

A Yes.

Q And it's dated January 19, 1959?

A Yes, sir.

Q Who was M.L. Owens?

A Who was who?

Q Who was M.L. Owens?

A I don't know.

Q Was he a Monsanto employee?

A I think so. It's on Monsanto stationery, and he's sending to a group of Monsanto employees, so I wouldn't surmise that Owens was a Monsanto employee – is or was.

Q I just want to direct your attention to a couple of parts of this that I don't believe you and Mr. Bray got into yesterday. In the first paragraph, the paragraph numbered one, he says "Incomplete combustion of gaseous fuels, including acetylene forms condensed polynuclear hydrocarbons. Those found fairly conclusively in the

references 4 and 5 Tebbens included 3,4-benzypyrene and 1,2,5,6-dibenzoanthracene which are known to be cardinogenic."

A Yes, sir.

Q And you knew in 1959 those two chemicals were carcinogenic?

A Yes, sir.

Q And in the paragraph 2 he goes on to say "any extensive analytical work on Department 18 soot will without doubt in my mind find some 3,4-benzypyrene"?

A Yes, sir.

Q "The definition of some is the hooker in this whole problem"?

A Yes, sir.

Q Houghton says "The presence of benzypyrene from his lab work can be suspected. I think he has shown it is present."

A Yes, sir.

Q Mr. Houghton was a person at Liberty Mutual?

A Yes, he was.

Q And Monsanto knew in 1959 that he had found 3,4-benzypyrene in the acetylene soot we've been talking

about?

A That Houghton found it?

Q Yes, sir.

A Yes, sir, that's what Owens says.

Q Did you continue using the acetylene process and ending up with the acetylene soot?

A Yes, sir.

Q Didn't stop making it?

A No, sir. He doesn't talk about amounts. Dibenzoanthracene and benzypyrene occurs fairly often wherever fats, oils, organics are combusted, incompletely combustion. It occurs in barbecuing steaks. It occurs lots of places.

Q It occurs quite a bit in chemical plants?

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A Not quite a bit.
Q Do you have any idea what Monsanto did with the soot after 1959, sir?
A No, sir, I don't know what they did with it.
Q Let's talk about acrylonitrile, Dr. Kelly.
A Yes, sir.
Q Would you agree that acrylonitrile is a toxic chemical?

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A Sure, but then you've got to rate the toxicity of it. It's not as toxic as hydrogen cyanide and certainly more toxic than a detergent.
Q Are cyanide compounds used in making acrylonitrile?
A Yes, they are.
Q If you drank some acrylonitrile, would it release cyanide compounds in the body?
A Probably not. I don't believe that's been investigated. It's certainly – it's not nearly as toxic if you drink it, although it can be fatal if you take more than a half an ounce of it.
Q It can be fatal if you take more than half an ounce?
A That's right. We've had one man – we don't know how much he took – he mixed it with grapefruit juice or something, so there was a certain amount he took. The minimum lethal dose for a person was estimated at something like a fifth of an ounce, so people postulated it that half an ounce would be fatal, but I don't know if there were any other cases that showed the dose it takes to kill a person.

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Q So the estimated lethal dose for a person is a fifth of an ounce? Is that what you said?
A Well, our man presumably took a half an ounce. Before that, people believed it was a fifth of an ounce.
Q And when you say "our man," this was a Monsanto chemist?
A It was a suicide case in Springfield, Massachusetts.
Q A Monsanto chemist who committed suicide?
A That's correct.
Q By drinking half an ounce of acrylonitrile?
A Yes.
Q The toxicity of acrylonitrile was well known in the 1950s. Dr. Kelly?
A I don't know how well known it was. It certainly wasn't as well known as hydrogen cyanide, but it was –
Q You knew about it?
A Sure.
Q When was the suicide of the Monsanto chemist we've been talking about?
A There's a memorandum in here that gives the

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date. I've seen it in this deposition.
Q Why don't we pull it out.
A That would help.
MR. MC CONNELL: Let's mark this as Kelly V-25.
(Kelly Exhibit V-25 identified.)
BY MR. MC CONNELL:
Q Do you recognize this as a memorandum from Dr. William E. Nessell to you?
A Yes.
Q You received that around June 30, 1954?
A Yes, I did.
Q And this describes the suicide we've been talking about?
A That's right.
Q So at least as early as June 30, 1954, you knew about the toxicity of acrylonitrile?
A Oh, yes.
Q Did you know about it before that?
A Well, we accepted it as having toxicity. There were no cases of oral ingestion that I knew about.
Q Until this one?
A That's correct.

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Q But you did know about the toxicity?
A Yes, I did.
Q Is it also true, Dr. Kelly, that acrylonitrile can cause poisoning by inhalation?
A Yes, it can.
Q Inhalation simply means breathing in the vapors of the chemical?
A That's correct.
Q And you knew that in the 1950s?
A Yes, sir, but I didn't know how elevated temperature would have to get before the person would get a sizable or sufficient exposure level.
Q Is it also true, Dr. Kelly, that acrylonitrile is a severe skin and eye irritant?
A I don't know – it's an irritant. I don't know how severe it is. It certainly was not severe in his mouth or his esophagus or his stomach as far as the autopsy showed, but it is an irritant compound also.
Q Do you remember telling me last week in your deposition, Dr. Kelly, that acrylonitrile is a severe skin and eye irritant?
A I may very well have.

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Q And was that –
A I just said it here. They didn't talk about skin. He didn't have any around his mouth or anything like that, but he had it in his esophagus, but –
Q I'm not asking about the exhibit. I'm asking about what you knew back in the 1950s.
A Well, yes, I thought it was a moderately toxic – probably a little more severe than moderately toxic and I thought it was a skin irritant.
Q Let me ask you to pick up Kelly V-10 which is the transcript of the deposition we had last week, Dr. Kelly. Would you turn to page 119, sir. Could I give you a hand with that, Dr. Kelly?
A No, I can handle it. Thank you. Yes, sir, here we are.
Q Would you look at line 3, Dr. Kelly, and you'll see I ask you this question –
A "Is it also true that acrylonitrile is a severe skin and eye irritant? Yes, sir. Causes burns? I beg your pardon? Yes."
Q Let me just ask you about that you testified last week that it is acrylonitrile is a severe skin and

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eye irritant?
A Yes, sir.
Q And is that true, sir?
A Yes, sir.
Q And you knew that in the 1950s?
A Yes, sir.
Q What is styrene monomer, Dr. Kelly?
A Well, it's a compound that's manufactured from ethylbenzene. Ethylbenzene is manufactured from benzene. I don't recall at the present time the chemical formulation of styrene monomer.
Q Did Monsanto make styrene monomer at the Texas City plant?
A Yes, it did.
Q Were Monsanto and Dow the two biggest producers of styrene in the world in the 1950s and 1960s?
A Certainly in the United States. I don't know the world.
Q They were the two biggest in the U.S.?
A That's correct.
Q Is it fair to say that styrene was an important product at that time for Monsanto?

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A For the whole country, yes.
Q Were you knowledgeable in the 1950s about the toxicity of styrene monomer?
A Yes, sir.
Q And do you remember being asked to serve as an

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expert witness in a styrene case back in the late 1940s?
A I don't remember that one.
Q Do you remember that some Dow Chemical scientists had published an article on styrene monomer toxicity back in 1942?
A Yes, I do.
Q And do you remember who those Dow people were, sir?
A Do I remember what?
Q Do you remember who the Dow scientists were who published that article?
A Probably Adams and V.K. Rowan. Whether Don Irish was in on that or not, I don't know.
Q Don Irish was one of the Dow toxicology people?
A He was the head one.
Q Head of the toxicology department there?
A That's correct.

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Q Were you familiar with that 1942 article back in the late 1940s and early 1950s?
A Well, I don't know if I saw it when I was in the service. I saw it when I came back.
Q You came back to Monsanto in 1946?
A That's correct.
Q So certainly in the late 1940s and early 1950s you were familiar with that article?
A Yes, I was.
Q And the Dow people had studied the toxicity of styrene monomer by inhalation?
A Yes, they had.
Q Had they also studied the toxicity of styrene monomer by oral doses?
A I think they had. I'm not familiar with that part of it at the present time.
MR. MC CONNELL: Dr. Kelly, let me show you a document that we will mark as Kelly V-26.
(Kelly Exhibit V-26 identified.)
BY MR. MC CONNELL:
Q Is that the article we've been talking about, sir?

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A Yes, sir.
Q The title is "The response of laboratory animals to monomeric styrene"?
A That's correct.
Q And the Dow people you mentioned are listed as the authors of this article?
A I had forgotten Spencer, but the other three I mentioned were among the authors.
Q Let me ask you to look at the last page of this exhibit, Dr. Kelly, at the section labeled "Conclusions."
A Yes, sir.
Q The first sentence reads "Vapor concentrations of monomeric styrene which are acutely dangerous to guinea pigs and rats range from 10 to 12 milligrams per liter (approximately 2400 parts per million) for an eight-hour exposure to 46 milligrams per liter (10,000 parts per million) for an exposure of 30 to 60 minutes."
Do you see that?
A Yes, I do.
Q You were familiar with that in the late 1940s?
A Yes, sir.
Q Skipping down the article says "Immediate deaths

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result from the primary action upon the central nervous system, while many delayed deaths result from the pneumonia which frequently develops following acute lung irritation."
Do you see that?
A Yes, I do.
Q And you knew about that in the late 1940s?
A Yes, sir.
Q Skipping on down on that same page, the article says "Monomeric styrene produces a reaction on the rabbits skin which is very similar to that produced by the common aromatic hydrocarbons. In industrial use, the same precautions should be observed to avoid skin contact as are now followed in the handling of other aromatic hydrocarbon solvents."
Do you see that?
A Yes, sir.
Q That was information available to you in the late 1940s?
A Yes, it was.
Q Let me ask you to turn back, Dr. Kelly, two pages to the page that's numbered 299. Do you see there's

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a section labeled "Oral administration"?
A Yes, I do.
Q And does that refresh your memory that the Dow people also studied oral doses of styrene monomer?
A Yes.
Q And under the report of that section they say, among other things, "It was found that the 100 percent survival dose for rats was 1.6 grams per kilogram and the 100 percent lethal dose for rats was 8 grams per kilogram"?
A Yes, sir.
Q What is the 100 percent lethal dose, Dr. Kelly? What does that mean?
A I presume this is a test that isn't used much after 1942, but this is a dose that kills all the rats. You take 50 rats and give them doses until – varying doses until you kill all 50 rats. The test that was used later and more widely was the dose that kills half the rats.
Q That's known as the LD-50?
A That's correct.
Q Looking on down the page, here, Dr. Kelly, the article says "A very few oral doses of 2 grams per

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kilogram (50 percent solution) produced a pronounced irritation of the esophagus and stomach which quickly resulted in the death of the animal. Even 1 gram per kilogram often caused a similar reaction after a few doses with deaths in some cases before the end of the 28-day experimental period."
Do you see that?
A Yes, I do.
Q And were you familiar with that information back in the late 1940s?
A Yes.
Q What is toluene, Dr. Kelly?
A Toluene is a solvent that's somewhat close in its chemical structure to benzene.
Q Did Monsanto use toluene at the Texas City plant?
A I believe it did.
Q Does toluene affect the central nervous system?
A Yes, it does.
Q Is it true, Dr. Kelly, that unconsciousness appears earlier in toluene poisoning than in benzene poisoning?

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A I think that's correct.
Q That was known back in the 1940s and 1950s?
A Yes, sir.
Q Is it true, Dr. Kelly, that toluene may enter the body either by inhalation or by ingestion?
A Yes.
Q And did you know that back in the 1940s and 1950s?
A Yes, I did.
Q Is it true, Dr. Kelly, that exposure to high concentrations of toluene can result in headaches, vomiting and disturbance of equilibrium?
A Yes. It can give you a syndrome similar to acute alcoholism. You get a toluene jag, j-a-g.
Q And you knew about that and Monsanto knew about that in the 1940s and 1950s?
A Yes, I did.
Q Did Monsanto use benzene at the Texas City plant, Dr. Kelly?

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A Yes, they did.
Q Is it true that Monsanto used very large amounts of benzene at the Texas City plant?

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A Yes, it is true.
Q Does benzene cause leukemia?
A Myelogenous leukemia. It's believed by some it causes both mylegenous and lymphocytic, but it definitely causes leukemia. It's established in one of the forms.
Q What kind of leukemia did you say benzene causes?
A It definitely causes myelogenous, m-y-e-l-o-g-e-n-o-u-s, and there's dispute in some areas that it causes lymphocytic, l-y-m-p-h-o-c-y-t-i-c.
Q Leukemia is a malignant disease?
A Well, yes, it's malignant, but some of it can be cured right now, which is not characteristic of most malignant diseases unless you take it out.
Q How curable was it in the 1950s?
A Not too curable.
Q Often fatal?
A I beg your pardon?
Q Is it often fatal?
A Yes.
Q Even today?
A Even today it is, yes.

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Q Does benzene also cause aplastic anemia?
A Yes, it does.
Q What is aplastic anemia?
A A disease of the blood-forming elements of the blood so that you don't get the right amount of either red cells or white cells, mostly red cells.
Q What's the effect of that disease?
A Weakness, susceptibility to all types of infections and if it gets progressive, it could progress on to death.
Q Did you know in the 1950s that benzene can cause aplastic anemia, Dr. Kelly?
A Yes, I did.
Q Is benzene more toxic or less toxic than toluene?
A Much more toxic.
Q Did you know that in the 1940s and 1950s?
A Yes, I did.
MR. MC CONNELL: We've been going for quite a while now, Dr. Kelly. Why don't we take a short break.
THE WITNESS: It's okay with me.
MR. MAGGIO: We're off the record at

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approximately 2:33 p.m.
(Recess.)
MR. MAGGIO: Back on the record at approximately 2:49 p.m.
MR. MC CONNELL: Dr. Kelly, we're resuming here. I'd like to show you a document which we will mark, Dr. Kelly, as Kelly V-27.
(Kelly Exhibit V-27 identified.)
BY MR. MC CONNELL:
Q Do you recognize this, Dr. Kelly, as a memo that you got from John Tuley in 1964?
A Yes, I do.
Q It's dated March 4, 1964?
A Yes, sir.
Q Who was John L. Tuley?
A He was at that time safety supervisor at our Long Beach, California plant of the Monsanto Company.
Q Subject of the memo is the toxicity of benzene?
A That's correct.
Q He was asking you for information about the toxicity of benzene?
A That's right.

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Q Do you remember at that time the Long Beach plant decided to switch from using toluene to benzene in one of its processes?
A I don't recall too much about it. I don't know if this memorandum mentions that, but –
MR. MC CONNELL: Let me show you another one that might clear it up, Dr. Kelly. I'm going to show if you a document, Dr. Kelly, which we will mark as Kelly V-24 – I'm sorry, Kelly V-28.
(Kelly Exhibit V-28 identified.)
BY MR. MC CONNELL:
Q Do you recognize that, Dr. Kelly?
A Yes, I do.
Q Is that your response to Mr. Tuley?
A Yes, sir.
Q If you'll look at the second paragraph, Mr. Tuley, would you read the first two sentences for us, please.
A "From the medical point of view, I am distressed at the substitution of benzene for a less toxic solvent toluene. I'm sure, however, you have sufficient commercial justification."

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Q So the Long Beach plant was switching from toluene to benzene in this process?
A That's correct.
Q From a medical point of view, that was a bad idea?
A Well, I don't know if it was a bad idea, but I would prefer to use toluene rather than benzene in an operation.
Q And it was done for commercial reasons?
A Yes.
Q Would you read the rest of that paragraph, sir.
A "While it is true the process is a closed one, we always have to worry about leaks. We have found the pump house to be an extremely dangerous area."
Q It was true you always had to worry about leaks in these plants?
A Yes, sir.
Q And was that particularly true in the pump house?
A Yes, sir.
Q That was an extremely dangerous area?
A Maybe "extremely" is a harsh word, but it was

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more exposure in a pump house which was isolated from the plant, and there was always packings around pumps that leaked.
Q What is styrene tar, Dr. Kelly?
A Well, styrene tar is the residue or the material in the bottom of a styrene distillation column after the styrene is manufactured. It's distilled off the styrene – what's left is the styrene tar.
Q What's in it, Dr. Kelly?
A God only knows. It's a mixture of any number of compounds. I don't know them. It varies by the manufacture of the product, I mean, what particular temperatures were used, et cetera.
Q Would you say it's sort of like a soup?
A It's pretty much like solid soup.
Q Sort of a chemical soup?
A That's correct.
Q Is it true, Dr. Kelly, that the styrene tar is the heavy ends from the styrene process?
A Yes, sir.
Q And you had those styrene tars at the Texas City plant?

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A Yes, we did.
Q Is it true that the styrene tar would contain a wide variety of hydrocarbons?
A Yes, sir.
Q Those were hydrocarbons that were derived from oil?
A Yes, sir.
Q Do you recall some of the things that would have been in the soup?
A Spent catalysts. I don't know what else might

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have been in there.
Q Any residual benzene?
A I doubt it because if there were any residual benzene, it would have been reclaimed because it's a valuable product.
Q Do you remember telling me last week in your deposition there would be residual benzene in the styrene tar?
A There might be, but I also said I wasn't sure what was in there.
Q What about ethylbenzene?
A There might be some of that, too, because that

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was the next stage up from benzene, and we went from ethylbenzene into styrene.
Q Would there be some sulfur in there?
A If there were sulfur in the oil stream.
Q Or if it was added in the styrene process?
A I don't know if it was.
Q Would there be other hydrocarbons in the soup?
A Conceivably. I wouldn't know the chemistry of what's in the soup.
Q Were there large quantities of styrene tar from the Texas City plant, sir?
A Yes, quite large.
Q Was the tar regarded as a troublesome disposal problem?
A Well, troublesome in what manner? We didn't like to move a bunch of the stuff around. We didn't want to – I don't know what percentage of the styrene mixture came out of styrene, which came out as tar, but it was a sizable amount. It was something we didn't want, so it was troublesome from that standpoint. It was not troublesome from the standpoint of handling it.
Q If Mr. Garrett told you that the tar constituted

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a troublesome disposal problem, would you take his word for it?
A Yes, I would, but I didn't know what he'd mean by "troublesome," what form troubles would take.
MR. MC CONNELL: Dr. Kelly, let me show you a document which we will mark as Kelly V-29.
(Kelly Exhibit V-29 identified.)
THE WITNESS: Yes, sir.
BY MR. MC CONNELL:
Q This is an article titled "Tars, Spent Catalysts and Complexes as Petrochemical Waste Sources."
A Yes, sir.
Q It's dated July 1959?
A Yes, sir.
Q And it was written by Jack T. Garrett?
A Yes, sir.
Q That's the same Mr. Garrett we've been talking about –
A That's correct.
Q – who worked in the medical department at Monsanto?
A Yes.

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Q Are you familiar with this article, sir?
A Yes, I am.
Q Let's look at the section titled "Scope of problem," Dr. Kelly. That starts off "A hypothetical process may be considered in which an organic liquid A and a gas B are reacted catalytically to produce crude AB. The crude material is subsequently distilled to give the refined product AB."
Is that generally the description of what happened in the styrene process at Texas City, Dr. Kelly?
A In a general fashion, yes, sir.
Q Is it pretty close, this is a hypothetical case, but is that the kind of process we're talking about?
A That's what we're talking about.
Q In the next sentence, Mr. Garrett's article goes on to say 'There are several places in this process where troublesome disposal problems could arise. The still tars from the distillation step would certainly constitute such a problem."
Do you see that, sir?
A Yes, sir.
Q And that's the styrene tars we've been talking

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about would be the still tars from the distillation step?
A Yes, sir.
Q So Mr. Garrett wrote in 1959 that the styrene tars presented a disposal problem?
A Yes, sir.
Q Monsanto knew that in 1959?
A Yes, sir.
Q And Mr. Garrett was the person on your medical department staff who was responsible for waste disposal matters?
A Yes.
Q Let's talk about monochlorobenzene, Dr. Kelly. Was that used in the styrene process at Texas City?
A I don't know if it was. I'm not sure.
Q You just don't know one way or the other?
A At the present time, I do not.
Q Is monochlorobenzene a narcotic?
A In sufficient dose. It's certainly not in the medicinal field, but it has anesthetic properties.
Q Does it affect the central nervous system?
A Yes, it does.
Q If you get too much, can it kill you?

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A I would think so.
Q Would you get headaches with overexposure to monochlorobenzene?
A Yes, sir.
Q Dizziness?
A Yes, sir.
Q Stupor?
A If you kept on going, yes.
Q Were all of those things known back in the 1950s, sir?
A Yes, sir.
Q What is ethylene dichloride, Dr. Kelly?
A Ethylene dichloride is a gas that also has – is an anesthetic – has anesthetic properties.
Q Is it a chlorinated solvent?
A Yes, it's dichloride. You have two chlorine atoms hooked up to an ethylene molecule.
Q Would overexposure to ethylene dichloride cause headache?
A Yes, sir.
Q Would it cause dizziness?
A Yes, sir.

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Q Would it cause stupor?
A In sufficient amounts.
Q If you got enough, could it be fatal?
A Yes, sir.
Q Is ethylene dichloride a narcotic?
A Well, it's an anesthetic. I don't know how I'd define the difference between a narcotic and an anesthetic.
Q Do you recall you called ethylene dichloride a narcotic in your deposition last week?
A Did I?
Q I think so.
A Well, I use the words interchangeably, I believe.
Q They essentially mean the same thing?
A Essentially in an industrial point of view. In a medical point of view, you're talking about a narcotic is used for pain and an anesthetic is used for rendering an individual unconscious.
Q It would cause unconsciousness?
A Yes.
Q Were all of these things about ethylene

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dichloride known to you and to Monsanto in the 1950s?

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A Yes, it was.
Q What is tertiary butylamine?
A It was a catalyst, but I do not know what it was a catalyst for and I do not know what the amine radical is on there. I don't know the chemical formulation of TBA or tertiary butylamine.
Q It's known as TBA?
A Yes.
Q It was used in various chemical reactions?
A Yes, it was.
Q Do you know, Dr. Kelly, whether it was used in the reaction to make ethylbenzene into styrene?
A I think it was.
Q Was it used at Monsanto's Texas City plant?
A Yes, sir.
Q Would you say that tertiary butylamine is a fairly severe toxic agent?
A I'm not at the present time familiar with the toxicity of it. I can't answer that.
MR. MC CONNELL: Let me show you a document that might help us out on that point, Dr. Kelly.

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Let's mark this as Kelly V-30.
(Kelly Exhibit V-30 identified.)
BY MR. MC CONNELL:
Q Do you recognize this as a memo that you wrote to Mr. John Fox?
A Yes.
Q It's dated January 13, 1971?
A Yes, sir.
Q And who was Mr. Fox?
A Well, he was a man who has surfaced in this deposition quite a few times. He was a Monsanto employee at Texas City who, I don't know whether his function was part industrial hygiene, part research, part safety, but he seemed to have something to do with all three areas.
Q If we can look at the memo, Dr. Kelly, it refers to a conversation employ the toxicology of tertiary butylamine?
A Yes.
Q The second sentence says "This, as you know, is a fairly severe toxic agent"?
A Yes.
Q So you knew when you wrote this in 1971 that TBA

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was a fairly severe toxic agent?
A Yes, sir.
Q It goes on to say "It is extremely toxic from the standpoint of inhalation in concentrated form" –
A Yes, sir.
Q – "and is only mildly toxic from the standpoint of the skin" – actually I inadvertently left out a sentence. The description of fairly severe toxic agent refers to the oral intake; is that right?
A Yes, sir.
Q So from the standpoint of oral intake, you said it was a fairly severe toxic agent?
A Yes.
Q And from the standpoint of inhalation, it was extremely toxic?
A That's what I said there, yes, sir.
Q Now, you knew that in 1971?
A Yes, sir.
Q Did you know that in the 1950s, sir?
A I don't know.
Q You don't remember?
A No, I do not.

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Q Do you remember when you first found out about the toxicity of TBA?
A No, sir, I don't.
Q In the second paragraph, Dr. Kelly you say that "Pathological investigation of the animals after taking the material orally showed effects on the lungs, liver and intestinal tract." Do you see that?
A Yes, I do.
Q So you knew in 1971 that TBA had effects on the lungs, liver and the intestinal tract?
A Yes, sir.
Q What is VCM, Dr. Kelly?
A Vinylchloride monomer.
Q Monsanto made vinylchloride monomer at Texas City?
A Yes, it did.
Q Vinylchloride monomer causes cancer?
A I've testified that it causes hemangiosarcoma of the liver in isolated cases in kettle cleaning in workers in the polymerization of vinylchloride monomer to vinylchloride polymer.
Q And hemangiosarcomas are cancers?

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A Yes, they are.
Q When did you find out about those vinylchloride cancer cases, Dr. Kelly?
A '71 or '72.
Q Did Monsanto stop making vinylchloride when you learned about those cancer cases?
A No. In the first place, no, we didn't because we didn't have any cases. In our type of operation, we did not use the cleaning methods that cancers were attributed to. We used a solvent cleaning for our kettles.
Q So you continued to make vinylchloride?
A Everybody did.
Q Even before you found out about the cancer cases in 1971, Dr. Kelly, did you know that vinylchloride was a narcotic?
A Well, in sufficient quantities. If you inhaled it, you could lose consciousness, yes, sir.
Q You knew that in the 1950s?
A Yes, sir.
Q You knew that it should not be breathed at elevated concentrations?

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A Well, or in confined spaces or in elevated levels.
MR. MC CONNELL: Dr. Kelly, let me show you a document which we will mark as Kelly V-31.
(Kelly Exhibit V-31 identified.)
BY MR. MC CONNELL:
Q Do you remember, Dr. Kelly, in 1975 identifying some additional serious conditions in some of Monsanto's plants?
A Potentially serious, yes, sir.
Q This was during the year that you were serving as more or less a full-time consultant for Monsanto?
A That's correct.
Q Do you recognize Kelly V-31 as a memo you wrote to Dr. George Roush, Jr.?
A Yes.
Q And who was Dr. Roush, sir?
A He was my successor as medical director.
Q The memo is dated March 25, 1975?
A Yes, it is.
Q The first sentence of the memo says "There are two potentially serious conditions in some of our

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manufacturing plants which demand an intensive investigation and correction."
A Yes, sir.
Q "They concern in-plant exposure to our workers and could involve possible development of occupational disease and/or government stoppage of our plant operations."
A Yes, sir.
Q And then the paragraph below that you've listed two separate sets of problems. The first one says "The DMAC, VER" or VBR – it's hard to read – "VNCL and AN exposures in our textile plants, especially Decatur and Lingen." Do you see that, sir?
A Yes, I do.
Q What is DMAC, Dr. Kelly?

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A Dimethyl acetamide. It's a solid for fibers.
Q Was that used at Texas City, Dr. Kelly?
A No.
Q What problems existed at that time with DMAC?
A We had abnormal liver functions in our workers.
Q Abnormal liver functions?
A Right.

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Q The next item, Dr. Kelly is either VER or VBR. Can you read that or do you know what it is?
A If it's vinyl bromide.
Q What is vinyl bromide?
A That's similar to vinylchloride, only you have a bromide radical, but I don't think we manufactured vinyl bromide. I don't know how that got into there.
Q You don't know what the problem with vinyl bromide was at that time?
A Well, it was so close to vinylchloride, we thought if they had problems with the kettles with vinylchloride, we were not going out looking for problems with vinyl bromide.
Q What's the next item, VNCL, Dr. Kelly?
A I don't know what that one was.
Q Do you think it was vinylchloride?
A Vinyl or vanilla – it could be vinylchloride, but I don't know where the particular problem was with that one. I'm not –
Q Monsanto made vinylchloride at the Texas City plant?
A Oh, yes, but we never had any problems, so I

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don't know what that's doing in there.
Q Well, apparenuly there was a problem at the time?
A Apparently. Either that or I thought there was.
Q And the next item is AN.
A Acrylonitrile.
Q And that was made at the Texas City plant as well?
A Yes, it was.
Q Do you remember what the acrylonitrile problem was, Dr. Kelly, in 1975?
A I mentioned our textile plants. And whether there was an exposure from our acrylic fibers and acrylonitrile was evolved from these fibers during storage, but I'm just assuming this and I don't know why –
Q You don't really remember what the problems were?
A I don't really remember. No, I don't.
Q And there's another paragraph that talks about "The SO2, fluorine, silica, nuisance dust and possibly arsenic in our phosphorus manufacturing units."
A Yes, sir.

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Q Do you remember those problems, sir?
A Yes, we had electric furnaces we had a lot of dust around there. We had a lot of vapors and we could tap a furnace, electric furnace, an awful lot of stuff comes besides phosphorus. You get SO2, you get fluorine out, you get silica out, you get a lot of dust and if there was arsenic in the ore, you get arsenic to come out, too.
Q That was a serious problem at the time?
A Potentially serious problem.
Q Dr. Kelly, what are the symptoms of chronic mercury toxicity?
A Symptoms are nervousness, irritability, muscular tremors, the size or loss of tissue around the gum, irritation of the gums, bleeding around the gums, loss of hair, a staggering gait, some neurological phenomena.
Q What do you mean by "neurological phenomena," Dr. Kelly?
A Well, I think there's some – in children, there may be mental retardation. There may be insomnia. There may be nervousness, whatever that is.
Q May cause retardation?

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A I'm not so sure about that. I mean, it depends on the doses. I believe there were cases where mercury was used or a treated grade – was treated with mercury in preservatives or insecticides, and it was fed to children inadvertently and I think there was some mental retardation in those cases, but I don't recall it in an industrial context.
Q Does it have an effect on the senses, Dr. Kelly?
A On the senses?
Q Yes, sir.
A Probably. I mean, if it's – if it affected the central nervous system, it certainly affected the senses in some way.
Q How long has this information about chronic mercury toxicity been known?
A Probably centuries.
Q It was certainly known in the 1930s and 1940s?
A Yes.
Q You mentioned tremors. What do you mean by that, Dr. Kelly?
A Mean by what?
Q Tremors.

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A Tremors?
Q Tremors.
A Shakes, involuntary movement of the muscles.
Q Do you remember there was a serious problem at a Japanese plant that was using mercury as a catalyst to make vinyl chloride?
A Yes.
Q And do you remember that small amounts of mercury were released as a waste from that plant?
A Yes, I do. It was picked up by shellfish or something like that.
Q It was bioaccumulation in the shellfish?
A I don't know, but anyway, they got a lot of mercury in the shellfish. Whether it was bioaccumulation or the shellfish seemed to thrive on it, I don't know.
Q It got in there somehow?
A Yes.
Q What happened then?
A People ate the shellfish, and they got illness from mercury.
Q Serious illness?
A I don't think there were fatalities, but I think

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there were serious illnesses, yes.
Q The kinds of symptoms we've been talking about?
A The what?
Q Were they the kinds of symptoms we've been talking about?
A Yes, I think they were considerably more serious.
Q Do you recall that took place in the 1950s?
A I don't remember the date.
MR. MC CONNELL: Let me see if I can help you out on that, Dr. Kelly. Let's mark this as Kelly V-32.
(Kelly Exhibit V-32 identified.)
BY MR. MC CONNELL:
Q Do you recognize this, Dr. Kelly, as minutes from a medical advisory committee meeting?
A Yes, I do.
Q It's dated October 5, 1960?
A Yes, sir.
Q This was a committee of the Manufacturing Chemists Association?
A Yes.
Q And do you see in the list of people present at

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the meeting you're listed as the chairman?
A Yes, I am.
Q I think we talked earlier today about your having been the chairman of this committee?
A Yes.
Q Let me direct your attention to the fourth page

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of that, sir. They're numbered at the top.
A Yes, sir.
Q There's a paragraph about roughly on the bottom third of the page that starts "Dr. Kelly quoted an example." Would you read that for us, sir?
A Yes, sir. Yes, sir.
Q Would you read that for us, sir.
A Oh. "Dr. Kelly quoted an example of a Japanese plant using mercury as a catalyst in the manufacture of vinyl chloride. Small amounts of mercury were released as waste and following concentration by reaction in shellfish were eaten by the local populace resulting in the development of neurological disorders."
Q So at least by October 5, 1960, you knew about the Japanese mercury poisoning incident we've been talking about?

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A Yes, sir, but I don't recall what had happened.
Q The mercury in Japan was used in a vinyl chloride plant there?
A Yes, it was.
Q Monsanto always used mercury in its vinyl chloride process at Texas City?
A Yes, sir.
Q Do you remember, Dr. Kelly, there was a problem with mercury exposure at Monsanto's Muscle Shoals plant?
A Oh, there we're going away from waste material to in-plant exposure. In other words, we used mercury as an electrode in manufacturing chlorine, and I think we got high levels. I don't know about the mercury and to clean up our operations, we may have had high levels of exposure. I don't recall any particular illness occurring. It may have, but I don't, off the top of my head, recall it at present.
Q Do you remember that was about 1953 when you had the mercury problem at Muscle Shoals?
A I don't remember much about it.
Q Was it well known in 1953 that it was important to avoid exposure to mercury?

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A Oh, yes.
Q What are the symptoms of acute mercury toxicity, Dr. Kelly?
A You get shutdown of the kidneys. You get kidney poisoning.
Q Let me ask you to look back at the document that we've marked as Kelly V-32, and to look at page 3, Dr. Kelly.
A Yes, sir.
Q Again, these are the minutes from the 1960 medical advisory committee meeting?
A Yes, sir.
Q Do you see at the very top of the page there's an entry in the minutes that says "Dr. Kelly: There is bound to be pollution." Was that true, Dr. Kelly, did you know in 1960 there was bound to be pollution?
A When? I mean, this, remember, is – this woman is picking almost like a TV bite out of my comments there. Well, certainly I knew that you don't produce a chemical product at 100 percent capacity. Everything you put into the reaction doesn't come out as a salable product. Some comes out as waste that you just can't

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use. Some has to be recycled. Some goes into a different process, but there is bound to be pollution. There still is.
Q Would you read the next sentence that appears there?
A "If industry could raise the price of its commodities, it could reduce the pollution level."
Q Is that true, Dr. Kelly?
A I don't know if it is true or not. I don't – I think I was getting a little out of my field there.
Q But you expressed that view in 1960?
A That's the way she interpreted it. Maybe if something got lost or got picked up in the translation between my thoughts and hers.
MR. MC CONNELL: Let me show you a document, Dr. Kelly, which we will mark as Kelly V-33.
(Kelly Exhibit V-33 identified.)
BY MR. MC CONNELL:
Q Do you recognize this, Dr. Kelly, as a memo you got from Mr. Wheeler in 1957?
A Yes, I do.
Q Mr. Wheeler worked for you in the medical

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department at Monsanto?
A Yes, he did.
Q I'd like to direct your attention to paragraph 2 in which Mr. Wheeler says "A policy which 'would assure that in the location of future company plants the question of possible fume, dust and smoke claims be given consideration' has been in existence for more than five years."
Do you see that, sir?
A Yes, I do.
Q And was there such a policy at Monsanto?
A That was one of the factors taken into account when you had – when you decide on a location for a new plant. There were a lot of factors. There was transportation. There was utilities. There was the labor force. There were raw material sources and the location, the possibility of dust and smoke claims was also be given consideration.
Q And Mr. Wheeler goes on to say next "To our knowledge, the potential problems related to air pollution have been given consideration." Do you see that, sir?
A Yes, I do.

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Q Was that true, Dr. Kelly, those problems were given consideration at the time?
A Yes, sir.
Q And then Mr. Wheeler goes on to tell you in the very next sentence "Difficulties have arisen only because management has not agreed in all cases that pollution sources must be controlled or eliminated." Mr. Wheeler reported to you that management had not agreed in all cases that pollution sources must be controlled or eliminated?
A Well, he says that. I don't know what he's talking about management. Is it the local management, the plant management or –
Q But that's what he wrote to you in 1957?
A That's what he wrote, yes, but he didn't say which level of management did not agree with this particular policy.
Q But he was talking about some level of Monsanto management, wasn't he?
A That's what he was talking about, yes.
Q Then he goes on to say "In other words, at some time during the design stages, management has decided that

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a calculated risk might be taken in the interest of conserving initial capital investment." Do you see that, Dr. Kelly?
A Yes, I do.
Q He reported to you that management decided to take a calculated risk?
A That's what he said.
MR. MC CONNELL: Thank you, Dr. Kelly. I have no further questions at this time.
THE WITNESS: Thank you.
MS. SCHIFFER: Should we get off the record.
MR. MANTA: Can we go off the record for a minute?
MR. MAGGIO: We're off the record at approximately 3:28 p.m.
(Discussion off the record.)
MR. MAGGIO: This is the end of videocassette number 2, volume 2 of the deposition of R. Emmet Kelly.
We're off the record at 3:44 p.m.
(Discussion off the record.)

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MR. MAGGIO: We're at the beginning of videocassette number 3, volume 2 of the deposition of R.

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Emmet Kelly. Back on the record at approximately 3:45 p.m.

EXAMINATION

BY MR. MANTA:

Q Dr. Kelly, good afternoon, sir.

A Good afternoon.

Q As you know, my name is Joe Manta and I represent Liberty Mutual in this litigation. In an effort not to cover a lot of territory which has been covered previously, I may have to bounce around a little bit from topic to topic, so I hope you'll bear with me on that.

A Fine.

Q Dr. Kelly, you indicated yesterday, I believe, that Jack Garrett was a registered lobbyist?

A At one time he was in the state of Texas. That's what he told me. I don't know.

Q Do you know who he was a lobbyist for?

A No, I don't. All I know is he said yeah, I'm a lobbyist down there.

Q Do you know what activities he engaged in as a lobbyist?

A No, I don't. I think the only activities were

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that he talked on Monsanto problems to various people in the legislature.

Q Would he have been involved in lobbying for certain types of legislation dealing with waste disposal, to your knowledge?

A I wouldn't know.

Q Dr. Kelly, you mentioned that there were frequent or relatively frequent hurricanes and flooding at the Texas City plant. Do you recall that?

A Yes.

Q What would happen when these hurricanes hit the plant in terms of the flooding?

A Well, sometimes there was damage to the plant. A lot of times there was power outages, and there was a lot of rain.

Q How did this come to your attention?

A Well, the one time that I know definitely they called me and said we had a hurricane down here, Hurricane Carla or something like that. We've got a lot of damage to the plant. We've got evacuation of a lot of our workers. We've got the ingress of a lot of the workers' families. They moved in because their houses were

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destroyed.

Q You also indicated that the water table was, I think you said about 2 inches below the surface?

A That may be an exaggeration. It was pretty high up.

Q How did you know that?

A Anecdotal, people told me.

Q You've used the term occasionally, Doctor, that substances were moderately toxic. Do you recall that?

A Yes.

Q Is that a term of art or is that just a phrase that you use?

A It determines on who you're listening to.

Q How would you define "moderately toxic" as you've been using the term?

A As I've been using it, I've been basing it on LD-50s, anything over 5 grams per kilogram we called practically nontoxic. Then we would go all the way down to things like parathion, which is a fraction of a gram per kilogram. We called it severely toxic. Then we had picked various numbers along there. I know along about 3.5 grams per kilogram in LD-50, we called moderately

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toxic and mildly toxic was someplace between 3-1/2 and 5. And I forget the designation we used for the group between moderately toxic and severely toxic. I don't know what figure we used on that. Other toxicologists, other people in papers, they had their own classification.

Q Are you saying that if there was 3.5 grams, to have 3.5 grams per what?

A Kilogram.

Q Kilogram of weight resulted in LD-50, that would be considered moderately toxic?

A That's correct.

Q Now, you say we determined those. Who's the "we"?

A Kelly, Wheeler. I mean, we used it in our correspondence. There was no definite criterion like boiling points or – in the toxicity field, it varied a great deal by whose paper you were reading.

Q So when you used the term "moderately toxic," "severely toxic," "mildly toxic" during this deposition, it was based on that scale which you just gave us; is that correct?

A Yes. Somebody next door may be using an

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entirely different scale.

Q Have you ever personally accompanied a Liberty Mutual industrial hygienist to the Texas City plant?

A I don't know whether I went at the time of the Texas City. I know they were there, and I saw them there. I didn't accompany them down there, but I saw them there and I don't know if there were industrial hygienists or if there were loss prevention people or – and I don't know when I went with Chuck Williams to Texas City. I don't know –

Q Would that have been in connection with the 1947 explosion?

A It might have been, but I never was in Texas City before the service. We didn't operate it before –

Q I'm sorry. Other than that visit to the Texas City plant in connection with the explosion, am I correct that you never accompanied any Liberty Mutual industrial hygienist at the Texas City plant?

A No, I'm not sure whether I went through with Williams sometime apart from the Texas City explosion.

Q Do you have any recollection of whether or not you did or not?

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A I have a vague recollection, but I'm not – as I said, I'm not sure about the dates, and I'm not sure whether it was before '42 or after '46. I just don't know.

Q Let me refer you to page 311 of your deposition, which was taken last week in this case, page 311.

A I don't think this is today's, this is yesterday's.

Q I think you have it in front of you.

MR. MC CONNELL: It's been marked as V-11, I believe.

THE WITNESS: Is that last week's?

MR. MC CONNELL: Yes.

MR. MANTA: Yes.

THE WITNESS: Okay. Yes. sir. Any particular page?

BY MR. MANTA:

Q Page 311.

A Yes, sir.

Q Let me read to you some questions and answers beginning with line 6.

A Yes, sir.

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Q My question to you at that time was "Do you recall any visits with any Liberty personnel to the Texas City plant"? Your answer was "Yes, at the time of the Texas City explosion." My next question was "that was in 1947?" Your answer was "Yes, sir": is that right?

A Yes.

Q My next question is "After that, do you recall any – specifically recall any visits you had with any Liberty Mutual employee to the Monsanto Texas City plant?" Your answer was "Your voice dropped off at the end."

Q My next question was "I'm sorry and I

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apologize. The question wasn't very clear either. Other than the Texas City explosion situation, do you recall any visits that you had to the Texas City plant with any employee of Liberty Mutual?" Your answer was "I don't recall."

A That's correct.

Q So you don't recall any –

A That's right. I have a vague recollection, but I don't know – I can't even be sure of that.

Q Now, you mentioned that Monsanto distinguished between their safety department and the industrial hygiene

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group; is that correct?

A That's correct.

Q And within the Liberty Mutual organization, wasn't there a similar distinction between their loss prevention representatives and their industrial hygiene representatives?

A I'm not sure because I don't know what relationship Williams had who was the industrial hygienist had to loss prevention. I don't know what relationship the people that Elmer Wheeler went around with at the time of when Bill Rand and the Liberty Mutual brass got together and had that six months' tour of the plants. I don't know what the Liberty Mutual's people, who were primarily industrial hygienists, what relationship they had to loss prevention. I don't know that.

Q Do you recall – you mentioned that 1950 visit, do you recall that the only Liberty Mutual representative who was on that survey was Mr. Williams?

A Well, I don't know. It was in one of these memoranda I saw during the last 10 days.

Q Did you see any memorandum indicating that any other Liberty Mutual employee was involved in that 1950

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visit?

A I don't recall seeing it, no.

Q Do you have any information anywhere indicating that any other Liberty Mutual employee other than Dr. Williams was present or Mr. Williams was present on that 1950 survey?

A No, sir, but I thought I had the impression, although I have no documentation on it that I've seen lately, that there were other people besides Williams. I don't think he was a sole representative that went around.

Q Now, were you on that –

A No, I wasn't. But remember, we're talking about –

Q Hold on. Were you on that survey that we're speaking of?

A Which survey are we talking about?

Q The 1950, early '50s survey of all the Liberty plants, the joint survey of both Monsanto and Liberty Mutual?

A No, I was not on that.

Q So any information you would have had about who was on that survey came to you from Elmer Wheeler?

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A Or a memorandum that I have seen, yes.

Q Do you recall seeing any memorandum on that in preparation of this deposition?

A No, I don't.

Q Do you have any recollection of whether or not, in fact, you did receive a memorandum from Mr. Wheeler on that topic?

A I have no recollection of such a memorandum, but you interrupted me one place. We were talking about the Rand Liberty Mutual conference, as it were.

Q Yes.

A There was other times that Williams went around with Wheeler to Monsanto plants, apart from this Rand episode.

Q And did you accompany him on those?

A I did to some plants. I don't know which ones. I know I did the St. Louis plants.

Q But not to Texas City?

A No, not that I know of.

Q Now, in connection with this visit, the Rand visit, as you call it, which occurred in the early '50s, do you have any – do you know what information was

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provided to Liberty Mutual during that visit?

MR. BRAY: Excuse me. Could I object to that for just a purpose of clarifying? You're calling it the Rand visit? I think that is a little different and it might create some confusion.

MR. MANTA: I thought I was using the witness' description, but I will rephrase it.

MR. BRAY: He said "the Rand conference."

THE WITNESS: The visits arranged by Rand.

MR. MANTA: All right.

MR. BRAY: Okay.

BY MR. MANTA:

Q During those visits, the visits arranged by Rand –

A Was there any what?

Q Do you recall – do you know what information was provided to Liberty Mutual during those visits?

A No, I wasn't on them.

Q Did you ever receive any subsequent written report from Mr. Wheeler about those visits?

A I received a report from somebody. It was a big thick report. I don't know if it was a combined report

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from Liberty Mutual and Wheeler or Wheeler sending me a separate one. I don't know, but I did receive a report on it.

Q Do you know the whereabouts of that report, sir?

A Oh, gee, no. Since 1974? I don't know what they did with it.

Q Have you seen that document in preparation for any of the depositions?

A No, I have not.

Q Do you have any recollection of what was in the contents of that document, sitting here today?

A No, sir, I don't have any detailed recollection.

Q I believe you testified that while – let me strike that.

After the visit that Rand arranged, do you recall any other similar joint visits or inspections to all of the Monsanto plants by Monsanto and Liberty Mutual people?

A To all of them?

Q Yes.

A No. We did go around to the PAB installations, but that was not all the plants.

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Q Now, the PAB situation that you referred to, that had to do with exposures to Monsanto employees, did it not?

A That's right.

Q And Liberty Mutual was involved as a workers' compensation carrier for Monsanto, was it not?

A Yes.

Q And its visits to the PAB plants were in connection with that role, was it not?

A Yes, but I think there were also – I don't know at what time, other workers for different companies would have claims. After the PAB problem, they became pretty popular. Claims popped up from truck drivers who drove some of the material out. Structural workers who had worked in one of the plants.

Q But the visits Liberty had to the plants that you've talked about were visits in connection with its role as workers' compensation carrier for Monsanto; isn't that correct?

A Yes, sir.

Q You mentioned during your deposition some neighbor claims and some claims as a result of damage to

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cars that were parked in a parking lot outside some of the plants. Do you recall that?

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A Yes, I do.
Q When these claims arise, the medical department does not handle – personally handle the claim, do they?
A No, they don't.
Q That's handled by the Monsanto insurance department; isn't that correct?
A Well, yes, but let me – here's a worker who's in the Monsanto parking lot. He comes into the dispensary and he says hey, I've got my auto that's been spotted all over.
Q He wanted the doctor to treat his auto?
A What?
Q He wanted the doctor to treat his auto?
A I guess, but treat his pocketbook, so he says what do I do about it? Well, I said go up to personnel and they'll send you up to the insurance claimant and see where you go from there.
Q When you say "insurance claim," you mean the Monsanto insurance department?
A That's right. What happened after that, I don't

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know.
Q So you don't know on these neighbor claims or the damage to the cars who actually – whose money actually paid for these claims if they were paid, do you?
A No, I do not know that.
Q And you don't know whether or not the insurance company involved actually agreed to provide any kind of coverage for these claims, do you?
A No, I don't.
Q I believe you testified that you did not visit or conduct any – strike that.
I believe you testified that you did not conduct any geological or hydrogeological studies of the Texas City plant or Brio or North 80 or South 20 or MOTCO. Do you recall that?
A That's correct, yes.
Q Did you ever see any studies, geological or hydrogeological studies of the ground under these plants and these locations?
A I saw one study about the ground relating to the aquifers under the Texas City/Brio site, I believe.
Q And when did you see that, sir?

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A Not until these depositions.
Q And who prepared that study?
A Mr. Bray.
Q Mr. –
A Yes. He showed it to me. I don't know who prepared it.
MR. MANTA: Mr. Bray, was that a document produced in this litigation?
MR. BRAY: Just continue questioning. We'll talk about documents at some other time.
MR. MANTA: No, I think – if the witness has seen a document, if it was produced, I'm entitled to know if it was a document that was produced in this litigation or whether you contend it's your work product, I'd like to know that.
MR. BRAY: You're in the middle of the deposition. You're asking the witness questions. If you want to talk to me, we'll talk, but not in the middle of a deposition.
MR. MANTA: Well, this question – the document may be relevant to this deposition that we're conducting the examination. So I gather –

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MR. BRAY: Do you want to recess and talk?
MR. MANTA: Yes, let's do that.
MR. BRAY: Okay.
MR. MAGGIO: We're off the record at approximately 4:06 p.m.
(Discussion off the record.)
MR. MAGGIO: Back on the record at approximately 4:07.
MR. MC CONNELL: Mr. Bray, on behalf of Travelers at this time, I'm going to request that you provide Defendants with copies of all documents that were shown to this witness in preparation for this deposition or the deposition last week. Will you honor that request?
MR. BRAY: Your request is noted.
MR. MC CONNELL: When can I have an answer from you, Jack, as to whether you'll provide that to us or not?
MR. BRAY: Later.
MR. MC CONNELL: Think we can find out about that by the end of the week?
MR. BRAY: Probably not.

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MS. SCHIFFER: Mr. Bray, I would note that under Delaware law, we are entitled to see any materials that have been used by the witness in preparation of his deposition. And if you cannot represent to us that only materials you showed him were materials that have already been produced, then I would repeat Mr. McConnell's request and note that under Delaware law, in fact, we are entitled to those materials.
MR. MC CONNELL: I'd like to ask, Jack, that you give us an answer to that, say, within the next seven days so that if you are not willing to provide copies of all materials shown to the witness, we can consider whether to file a motion to compel their production.
MR. BRAY: Noted.
MR. MANTA: And as far as I'm concerned, I will not consider the deposition concluded until we get either the documents or your representation that the documents which were shown him were all documents produced in this litigation.
THE WITNESS: Well, the only documents I saw –
BY MR. MANTA:
Q Okay. We're going to pursue it now. You

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mentioned the document which I got interested in, which was the geological report you mentioned. Now, can you describe that document to me.
A Yes. It had a – it was unlabeled, undated and showed a picture of various aquifers that allegedly underlay the Brio site was one particular document.
Q Do you know who prepared that document?
A No, I do not.
Q How many pages was the document?
A One.
Q One page? All right. Was there any text to the document besides –
A No text, no. No date, no signature, no text.
Q What did it show?
A It showed a level of – an aquifer here and something else down here. As I mentioned this morning, I was not a geologist, so I didn't get a great deal out of the document.
Q On the basis of that document, can you tell us anything about the geology or hydrogeology of the Brio site?
A No, sir. I certainly can't.

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Q In preparation for this deposition, the videotape deposition we're having today, did you have a question and answer series with Mr. Bray or Mr. Snively?
A No, sir. He showed me designated documents and he said these are – I didn't know what designated was but I thought they came from you people.
Q Did he ask you some of the questions, during that preparation some of the questions that he asked you during this deposition?
MR. BRAY: Excuse me. I object to that. That is not a proper line of inquiry and instruct the witness not to answer.
MR. MANTA: I think it is. I'm not asking him – well, I think it is.
If you can give me just a couple of minutes. I don't think we need to leave the record. I think I may be

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done.
BY MR. MANTA:
Q Do you know the names of any Liberty Mutual industrial hygienist other than Dr. Williams?
A No, I don't.
Q Have you ever met any other, to your knowledge,

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other Liberty Mutual industrial hygienist other than Mr. Williams?
A I was up at their office quite a while ago. I mean, I feel sure I met some of Williams' associates, but I don't know their names. I don't even know the time I was up there.
Q Do you know the educational background of any of the industrial hygienists at Liberty Mutual?
A Well, Williams is a PhD in something.
Q Other than Mr. Williams – Dr. Williams, do you know their educational background?
A No, I don't.
Q Let me refer you to a document marked as Kelly V-1?
A Which one?
Q Number 1, the first one. Do you have that document in front of you, Dr. Kelly?
A Yes, I do.
Q When is the first time you ever saw this document?
A Sometime after August the 6th, 1952.
Q Isn't this an internal Liberty Mutual document?

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A I beg your pardon?
Q Isn't this an internal Liberty Mutual document, Dr. Kelly?
A I can't read the title. It's from Lancaster who was a Liberty Mutual man.
Q And there's a carbon copy to Joseph E. Forrest, home office underwriting administration. Do you see that on the last page?
A Yes.
Q And if I –
A I don't know if it's internal. I don't know who he sent it to.
Q If you look on the first page on the left, doesn't it say "home office underwriting, Richard A. Booth"?
A I can't make out the top sentence at all, but I did see Richard.
Q If it was an internal Liberty Mutual document, would you agree that the first time you saw it was in preparation for this deposition?
A No, I can't agree with that because he is talking about a meeting in which I was a participant.

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Q I understand that. I'm talking about this document itself.
A Yes, I know, but that's what he's describing, and I don't know if that was a secret to me until this deposition.
Q If it were an internal – it's not a matter of being secret, Dr. Kelly, it's a matter of it's an internal Liberty Mutual document. You're not indicated as a copyee on this document, are you?
A It doesn't indicate any copies to anybody except the home office.
Q And you're not indicated as an addressee on this memo, are you?
A No. Presumably, the only addressee is that Richard Footh or Tooth.
Q Richard Booth?
A What?
Q Richard Booth.
A Booth.
Q Do you have any recollection of ever seeing this document before in preparation for this deposition today?
A I don't know when I might have seen it.

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Q Other than in preparation for this deposition, do you have any recollection sitting here today of ever seeing this before, this document?
A No, but I may have and not have any recollection of it.
Q Let me now refer you to document Kelly V-3.
A I beg your pardon?
Q 3, V-3.
A Yes, sir.
Q Do you have that before you, sir?
A Yes, I do.
Q And this is the document dealing with the Department 18 soot. Do you recall that?
A Yes.
Q Now, the first paragraph indicates that Mr. Houghton of Liberty Mutual had performed some tests. Do you see that?
A Yes, I do.
Q The last sentence of the paragraph says "Note that he has no plans for further tests and is waiting to hear from us." Do you see that, last sentence on the first paragraph.

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A I don't – are we talking about –
Q V-3.
A Oh, I'm on 2. Sorry.
Q First paragraph of V-3, he's talking about tests Mr. Houghton of Liberty Mutual was going to perform, the last sentence of that paragraph states "Note that he has no plans for further tests and is waiting to hear from us."
A That's correct.
Q Did he ever hear from you people, do you know?
A I don't know if he did or not.
Q Let me refer you to the second page. The author, Mr. Owens, sets up four possible courses of action. Do you see that?
A Yes.
Q Do you know which course of action was chosen?
A No, I don't.
Q Let me now refer you to Kelly V-9. This is the letter from the Environmental Defense Fund?
A Yes.
Q Do you see that, sir? And I want to refer you again to the second paragraph of that letter.

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A Yes, sir.
Q The fourth sentence of that paragraph reads as follows: "We continue to watch your PCB cleanup program to be sure that your action is as good as your word but, in the meantime, we are impressed by your sensitivity and responsibility." Do you see that, sir?
A Yes, I do.
Q Do you know what PCB cleanup program he was speaking about in 1970?
A Yes, I think so. I think it went all the way up to writing our customers and say send back your discarded PCBs, and we'll incinerate them, and our action in warning the customers to lessen their pollution – their dispersion of PCBs. I don't know what else he means by that, but we did take back drums. We did take back material, and we did incinerate stuff for them.
Q Did Monsanto at that time clean up any land that PCBs had been disposed on?
A Did Monsanto clean up any –
Q Any land – let me withdraw that question. For a period of time, weren't PCB wastes

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disposed of in landfills?
A Yes.
Q Did this sentence refer to activities by Monsanto in cleaning up some of those landfills, do you know?
A I don't know what he refers to there, what Cameron of EDF. I have no knowledge of Monsanto cleaning

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up any spills any place except on its own land.
Q I'm not talking about spills. I'm talking about landfills where they disposed of PCB wastes.
A I do not know of any such cleanup on the part of Monsanto.
Q Dr. Kelly, at your last deposition, you testified that only two visits to any Monsanto plant in which you were accompanied by a Liberty Mutual industrial hygienist that you could recall were visits to the Columbia plant and the Soda Springs plant. Do you recall that?
A Yes, sir.
Q And I asked you at that time if you could recall or remember any additional plants you visited with Liberty Mutual industrial hygienists to let me know. Since that

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time, do you recall any other – specifically any other plants that you visited with a Liberty Mutual –
A Yes. At the time of the PAB problem, we went to the plants that manufactured PAB.
Q And what was the purpose of those visits?
A They wanted to see if they could give us any help on how to minimize the exposure.
Q That had to do with the worker exposure to PAB?
A PAB, yes, sir.
Q And it was Dr. Williams?
A Yes, sir.
Q That was not the Texas City plant, was it?
A No, but –
Q Any other visits that you can recall?
A Yes, I went once with a Dr. Joe Bosworth, a Joseph Bosworth who was sort of a regional medical director for Liberty Mutual. Again, I think we went to the Texas City plant at that time. We certainly went down in Texas because he had an industrial nurse with him and she talked about her house being blown away by the hurricane.
Q This was a visit down to the Texas City plant?

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A Yes, it was plants that we had in the southern part of the United States, southeastern part.
Q What was the purpose of this visit?
A I think it was more from the standpoint of industrial health concerns of the employees and possibility of occupational illness at any of our plants.
Q And do you recall what was done at each plant during this visit?
A Oh, we walked around and we talked to the nurse. We showed our nurse – we showed them our medical records. We showed them our safety equipment. We showed them our methods for lessening exposure.
Q You and Dr. Bosworth visited down there?
A Yes, plus his nurse. He had an industrial nurse that came along.
Q And when was that?
A I don't know. It was – the only date I can say was – it was in one of these hurricanes because she talked about her – the only thing left was her ice box.
Q Where was she from? She was from the south too?
A I think they were out of Atlanta, so I can't give you the year.

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Q Any other visits that you can recall?
A No, sir.
MR. MANTA: That's all I have.
MR. BRAY: If you want to pause before you break, your questioning, to my satisfaction, identified the document referred to?
MR. MANTA: No.
MR. BRAY: It has to me, what I heard, I think I know what is being talked about. If you want to pause now, I'll get you all a copy.
MR. MANTA: That's fine.
MR. BRAY: Unless you'd like me to ask a couple of questions right now to identify it, but I think I can find it.
MR. MC CONNELL: No, it sounds like that one is resolved. I have a broader request, but we can deal with that at another time.
MR. BRAY: It's the same thing.
MR. MC CONNELL: No. I have a broader request as stated earlier, for all documents that he used or saw in preparation for the deposition, but we don't have to deal with that right now.

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MR. BRAY: It isn't broader because of what he said. Your request isn't broader – if you heard the testimony – your request is no broader than what we're talking about this document.
MR. MC CONNELL: Well, it is actually unless you're going to tell me that he only saw one document.
MR. BRAY: Do you want to clear that up? I don't want to get into affecting your record and as you know, while this deposition is open, I can't confer with the witness about it.
MR. MC CONNELL: That's right.
MR. BRAY: But what has been said here to me identifies the one document being talked about.
MR. MANTA: I think that –
MR. MC CONNELL: There's no doubt about that. I think we can probably suggest –
MR. BRAY: The witness has said –
MR. MC CONNELL: – successfully – you and I could probably discuss this off the record and probably resolve it. I don't know, but there is a remaining difference between us now.
MS. SCHIFFER: Mr. Bray, with the exception of

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this one document, can you represent that all of the materials that you used to prepare Dr. Kelly or that Dr. Kelly used to prepare for this deposition are materials that have been designated?
MR. BRAY: You want me to answer that now?
MS. SCHIFFER: I do.
MR. BRAY: My understanding is that that is correct. They're all designated. My understanding is also is that that's what he has said.
MR. MANTA: He wouldn't know.
THE WITNESS: Yes, I did.
MR. BRAY: Yes, he would know.
MR. MANTA: He wouldn't know if they were designated or not.
THE WITNESS: I was told they were designated.
MR. BRAY: This one thing, I recognize.
MR. MANTA: Why don't we take a break here and you can get it for us.
MR. BRAY: Do you want to do that now?
MS. SCHIFFER: Off the record.
MR. MAGGIO: We're off the record at 4:29 p.m.
(Recess.)

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MR. MAGGIO: We're back on the record at approximately 4:37 p.m.
(Kelly Exhibit V-34 identified.)
BY MR. MANTA:
Q Dr. Kelly, I show you a document marked for identification as Kelly V-34. Is that the document that you referred to that you were showed by Mr. Bray during the preparation of the deposition?
A Yes, it is.
Q Is there any other document that you've seen –
MR. MAGGIO: Excuse me. His microphone is not on.
THE WITNESS: Oh, sorry. I guess we start over.
BY MR. MANTA:
Q Dr. Kelly, other than the document marked for identification as Kelly V-34, have you ever seen any other document dealings with the geology or hydrogeology of either Texas City plant, the Brio site, South 20, North 80 or MOTCO?
A No, sir. None.

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Q You spoke about some visits you made to the

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Liberty Mutual – to the Monsanto plants with Liberty Mutual employees. Did any of these visits deal with inspections concerning off-site waste disposal of either liquid or solid wastes?

A No, sir.

MR. MANTA: I have no further questions.

MR. MC CONNELL: Maybe we should clear up the issue of the document, Jack. I think we've had some discussion of this off the record. This document cannot, in my view, be confirmed as one that's been produced in discovery in this case, and I would ask you whether there were other documents that were shown to Dr. Kelly in preparation for this deposition or the deposition last week which are of a similar nature in that they're not marked as having been produced in discovery in this case.

MR. BRAY: Shouldn't you be asking that of Dr. Kelly?

MR. MC CONNELL: I don't see that Dr. Kelly would have any way of knowing and I've directed a request to you to produce all the documents that were shown to Dr. Kelly in preparation for the deposition this week or the deposition last week.

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MR. BRAY: Other than designated documents.

MR. MC CONNELL: I'm not sure what you mean by designated documents.

MR. BRAY: Seven-day or three-day list "designated documents."

MR. MC CONNELL: Yes, if they're designated documents, I don't need to see those. I note, however, that this, as far as I can tell, was not a designated document.

MR. BRAY: And this is now shown to you.

MR. MC CONNELL: I understand that, but there may well be other documents that are not seven-day or three-day designated documents that were shown to Dr. Kelly in preparation for the deposition. If you want to take that under advisement, I'd like to get an answer from you within a week so we can decide where to go, but –

MR. BRAY: I will take it under advisement. My own recollection is that the answer is everything that he has seen is from the designations. However, I would have said that from recollection until hearing what he says about this document as well. I have in mind one other document that I am not sure is designated. I think it is,

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but let me check on that. Maybe I can do that right now, if you want to wait.

MR. MC CONNELL: That's fine. Or you could check on it tonight and we can look at it with you in the morning.

MR. BRAY: Let me look for a moment because it might even be an exhibit. No, it's one of the original exhibits.

MR. MC CONNELL: Why don't you check on that since we have a break overnight anyway, Jack.

MR. BRAY: I just did. It's an exhibit from the original deposition.

MR. MC CONNELL: Oh, I misunderstood you. I thought you said it was not.

MR. BRAY: It is. The other document I had in mind that I was not sure offhand was designated is an exhibit in the original deposition.

MR. MC CONNELL: Are you able to represent to us, Jack, that all of the materials shown to Dr. Kelly in preparation for this deposition or the other deposition were designated on the three-day or seven-day lists?

MR. BRAY: Yes, with the exception of this one

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page that he's described here.

MS. SCHIFFER: Which you've now produced.

MR. MC CONNELL: Okay. In that case, I think we have no problem.

MS. SCHIFFER: Mr. Bray, what I would propose is that since I expect my examination to go approximately – could go up to an hour and you've indicated that you have some further examination, that in light of the time and the fact that Dr. Kelly may be tired, that we defer both of those examinations until tomorrow.

MR. BRAY: What time?

MS. SCHIFFER: As early as you'll do it.

MR. BRAY: As early as what?

MS. SCHIFFER: As you'll do it.

MR. BRAY: As we will do it.

MS. SCHIFFER: Well, subject to my colleagues.

MR. BRAY: Mr. Manta?

MR. MANTA: I can get here, train willing, about the same time, between 10:00 and 10:15.

MR. MC CONNELL: Fine with me.

THE WITNESS: So we soldier at 10:00 tomorrow.

MR. BRAY: 10:00 here if we can, start as soon

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as Mr. Manta arrives.

MS. SCHIFFER: That would be fine, and I would hope we could be completed by lunchtime.

MR. BRAY: Okay.

MR. MAGGIO: We're off the record at approximately 4:43 p.m.

(Discussion off the record.)

(Whereupon, at 4:43 p.m., the deposition was adjourned, to reconvene at 10:00 a.m., on Thursday, February 4, 1993.)

_____

R. EMMET KELLY

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Look-See Concordance Report

- - -

2,611 UNIQUE WORDS
386 NOISE WORDS
32,207 TOTAL WORDS

- - -

SINGLE FILE CONCORDANCE

- - -

CASE SENSITIVE

- - -

WORD RANGES @ BOTTOM OF PAGE

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$3 [1] 207:15
$300 [1] 281:3

– 1 –

1 [7] 191:4; 203:20; 204:11; 275:11; 304:19; 324:3; 379:16
1,2,5,6-dibenzoanthracene [1] 311:2
1.6 [1] 323:8
1/13/71 [1] 190:18
10 [6] 245:19; 248:15; 249:5; 288:13; 321:14; 366:20
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