

UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF NEW YORK

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HOLLY M. SMITH, Administratrix of the
Estate of William R. Smith, Deceased,
and Individually as the Widow of
William R. Smith and as Parent of and
on behalf of the infant child,
ASHLEY MARIE SMITH,

Plaintiff,

vs

CA No. 94-CV-0393 S(H)

THE DOW CHEMICAL COMPANY; PPG INDUSTRIES,
INC, AND SHELL OIL COMPANY

Defendants and Third-Party
Plaintiffs,

vs

THE GOODYEAR TIRE & RUBBER COMPANY,

Third-Party Defendant.

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Tuesday, September 19, 1995

Washington, D. C.

VIDEOTAPE DEPOSITION OF:

MARCUS M. KEY, MD,

called for oral examination by counsel for the
plaintiff, in the offices of James & Hoffman, 1146 19th
Street, Northwest, Washington, D.C. 20036, beginning at
10:15, A.M. on Tuesday, September 19, 1995, before

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1 Maureen Donelson, Court Reporter, Notary Public in and
2 for the District of Columbia, when were present on behalf
3 of the respective parties:

4 ON BEHALF OF THE PLAINTIFF:

5 STEVEN H. WODKA, Esquire
6 21 Rosslyn Court,
7 PO Box 66
Little Silver, New Jersey 07739

8 ON BEHALF OF THE DEFENDANTS

9 NIXON, HARGRAVE, DEVANS & DOYLE, ESQUIRES
10 BY: SAMUEL GOLDBLATT, Esquire
1600 Empire Tower
Buffalo, New York 14202

11 ON BEHALF OF THE THIRD-PARTY DEFENDANT

12 VOLGENAU & BOSSE, ESQUIRES
13 DIANE F. BOSSE, ESQUIRE
750 Main Seneca Building
237 Main Street
14 Buffalo, New York 14203

15 ALSO PRESENT:

16 Shelley Sanders, video specialist

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I N D E X

EXAMINATION ON BEHALF OF:

WITNESS:

PLAINTIFF:
(Mr. Wodka)DEFENDANTS:
(Mr. Goldblatt)

MARCUS KEY, MD

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43

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(Ms. Bosse)

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E X H I B I T S

KEY
DEPOSITION
EXHIBITSFOR
IDENTIFICATION

1 - Notice of Deposition	5
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(Exhibit Nos. 1 thru 7 retained by counsel)

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P R O C E E D I N G S

(Documents marked Key Exhibit Nos. 1 through
6 marked before commencing the deposition)

VIDEO SPECIALIST: This is videotape No. 1.
The time on the screen is 10:15:05. We're on the record.

MR. WODKA: Please swear in the witness.
Thereupon,

MARCUS M. KEY, MD,
having been first duly sworn by the Notary Public, was
examined and testified as follows:

EXAMINATION ON BEHALF OF THE PLAINTIFF

BY MR. WODKA:

Q. Good morning.

A. Good morning.

Q. Would you please state your name and
address for the record?

A. I'm Marcus M. Key of Irvington, Virginia.
I am a retired professor from the University of Texas
Health Science Center in Houston.

Q. Dr. Key, what is your date of birth?

A. March 2, 1924.

Q. And would you briefly tell us your

1 educational background?

2 A. Columbia College, BA in '47 '48 -- '49, MD
3 from Columbia in '52, master of industrial health,
4 Harvard, '54.

5 Q. And did you also take an internship?

6 A. I interned in the Boston Marine Hospital,
7 part of the U.S. Public Health Service.

8 Q. Did you have any clinical training?

9 A. In addition to the training in occupational
10 medicine I got at Harvard, I felt I needed an additional
11 clinical specialty and went through a dermatology
12 residency at Columbia Presbyterian in New York and
13 Cincinnati General Hospital.

14 Q. Sir, it's my understanding in 1956 you
15 joined the federal government; is that correct?

16 A. As a medical officer in the division of
17 occupational health in Cincinnati.

18 Q. And eventually you rose to a position as
19 director of the Bureau of Occupation Safety and Health;
20 is that correct?

21 A. In Washington, in 1969.

22 Q. And in that year, it's my understanding you

1 also received an appointment as assistant Surgeon General
2 of the United States?

3 A. Yes.

4 Q. Now, sir, in 1970, it's my understanding
5 that the Occupational Safety and Health Act was enacted
6 by the United States Congress.

7 Do you know what the purpose of the
8 Occupational Safety and Health Act was?

9 MR. GOLDBLATT: I object to the form.

10 THE WITNESS: It's very nicely stated near
11 the beginning of the act. It was to insure as far as
12 possible safe and healthful working conditions, and to
13 preserve our nation's human resources.

14 BY MR. WODKA: (RESUMED)

15 Q. And as a result of the passage of the
16 Occupational Safety and Health Act in 1970, what happened
17 to the Bureau of Occupational Safety and Health that you
18 were director of?

19 A. It was deactivated and the personnel and
20 assets went into the newly created National Institute for
21 Occupational Safety and Health, which we'll refer to as
22 NIOSH.

1 Q. With the creation of NIOSH, did you receive
2 a new appointment?

3 A. I was given a promotion to the next level
4 of the system, assistant Surgeon General.

5 Q. With respect to NIOSH, did you hold a
6 position?

7 A. I was a director of the Institute, the
8 first director.

9 Q. And how long did you serve in that
10 capacity?

11 A. Until October of 1974, when I retired.

12 Q. Under the Occupational Safety and Health
13 Act, what are NIOSH's responsibilities for worker safety
14 and health?

15 A. A short answer would be NIOSH serves as the
16 research arm of OSHA. To elaborate, NIOSH has two major
17 responsibilities relating to OSHA: One is surveillance,
18 doing epidemiologic studies, industry wide studies,
19 health hazard evaluations in order to discover new
20 problems, and the other is to develop criteria for
21 standards through research and other studies, which can
22 end up as recommended standards that can be passed on to

1 OSHA for their rule making procedures.

2 Q. You mentioned --

3 A. We also had --

4 Q. I'm sorry. Go ahead.

5 A. NIOSH also had responsibilities under the
6 same act for manpower development, and under the Coal
7 Mine Health and Safety Act it had other responsibilities.

8 Q. You mentioned that NIOSH was to determine
9 or uncover new problems in the workplace; is that
10 correct?

11 A. That's correct.

12 Q. Was NIOSH to act as an early warning system
13 to OSHA of new occupational health hazards?

14 MS. BOSSE: Objection to the form.

15 MR. GOLDBLATT: Objection to the form.

16 MR. WODKA: You can answer.

17 THE WITNESS: Yes.

18 BY MR. WODKA: (RESUMED)

19 Q. Sir, what is vinyl chloride?

20 A. Vinyl chloride is a colorless vapor at room
21 temperature and pressure. It's a hydrocarbon, which is
22 used as a monomer to make the plastic which we know is

1 vinyl or PVC.

2 Q. And in 1973, do you know how much vinyl
3 chloride was manufactured in the United States?

4 A. Not exactly, within the billions of pounds.

5 Q. With respect to the vinyl chloride and poly
6 vinyl chloride industry, do you know how many workers
7 were employed in those industries in 1973?

8 A. Yes, we had that record on number, 1,500
9 making the monomer, and 5,000 making the polymer.

10 Q. So a total of 6500 workers in these
11 industries?

12 A. Yes. There were a lot more though in the
13 fabrication part of it. And if there had been any
14 carryover into the consumers, it would have been into the
15 hundreds of thousands.

16 Q. In 1973, do you know what the permissible
17 exposure limit was in the workplace for vinyl chloride?

18 A. OSHA had a limit of 500 parts per million
19 ceiling value, 8 hours a day, 5 days a week working
20 lifetime.

21 Q. In 1973, was NIOSH considering the
22 development of a recommended criteria for a new

1 occupational standard for worker exposure to vinyl
2 chloride?

3 A. Yes. We had developed a priority system
4 for criteria documents and recommendations to OSHA. We
5 published a request in the Federal Register in January of
6 '73 for potential toxicity information on some 23
7 substances, vinyl chloride among them. It was a high
8 priority substance.

9 Q. Now, in late June, 1973, was NIOSH
10 contacted by a representative of the Manufacturing
11 Chemists Association seeking a meeting regarding vinyl
12 chloride?

13 A. Yes.

14 Q. Generally were you familiar with who was or
15 what was the Manufacturing Chemists Association?

16 A. Yes.

17 Q. Can you tell us briefly what your
18 understanding of the Manufacturing Chemists Association
19 was?

20 A. It was a trade association made up of
21 members, manufacturing members of the chemical industry,
22 known today as CMA.

1 Q. And to your knowledge, would that
2 association include manufacturers of vinyl chloride?

3 A. Yes.

4 Q. Now, sir, as of this time, we're talking
5 about June, 1973, did you have any information to
6 indicate that occupational exposure to vinyl chloride at
7 500 parts per million could cause cancer?

8 A. No.

9 Q. Now, did that meeting take place with
10 representatives of the Manufacturing Chemists
11 Association?

12 A. Yes.

13 Q. When did it take place?

14 A. July 17, 1973.

15 Q. Where did the meeting take place?

16 A. In my office, Park Lawn Building, part of
17 the Public Health Service in Rockville, Maryland, just
18 outside of Washington.

19 Q. Who was present for NIOSH?

20 A. Myself, Keith Jacobson, Frank Mitchell, Don
21 Lassiter, Richard James.

22 Q. Now, these other four gentlemen that you

1 just mentioned, what was their positions with NIOSH?

2 A. They had staff appointments in the criteria
3 development branch of the Office of Research and
4 Standards Development of NIOSH.

5 Q. And regarding the Manufacturing Chemists
6 Association, do you know who was present for them?

7 A. George Best, their managing director, VK
8 Rowe, Dow Chemical, David Duffield, Imperial Chemical
9 Industries, ICI of Great Britain, Rhinehart and -- let's
10 see, Rhinehart was from Ethyl (phonetic), and Union
11 Carbide had a representative there, whose name I can't
12 recall, but will do so shortly.

13 Q. Was his name Ray Wheeler?

14 A. Wheeler, that is correct.

15 Q. Now, you mentioned a VK Rowe. Was he a
16 physician?

17 A. He was a toxicologist.

18 Q. And you told us that he was with the Dow
19 Chemical Company?

20 A. Out of Midland, Michigan.

21 Q. Did you know what his position was with Dow
22 Chemical?

1 A. He was in charge of industrial hygiene for
2 the company.

3 Q. With respect to the other gentlemen,
4 Rhinehart and Wheeler, did you know what their positions
5 were respectively with Ethyl and Union Carbide?

6 A. I may have, but I don't recall now.

7 Q. Who was the spokesman for the group, for
8 the MCA group, I should say?

9 A. VK Rowe was the spokesman.

10 Q. Prior to this meeting, had you ever met Dr.
11 Rowe?

12 A. Yes. I had known him professionally for a
13 number of years in my activities in the Bureau of
14 Occupational Safety and Health, and before that in the
15 Division of Occupational Health.

16 Q. What was your understanding of the purpose
17 of the MCA group of wanting to meet with you?

18 A. To brief NIOSH on European studies on vinyl
19 chloride and on proposed US studies on vinyl chloride.

20 Q. Now, was this information that they wanted
21 to bring to NIOSH's attention?

22 MR. GOLDBLATT: I object to the form.

1 MR. WODKA: Let me rephrase it.

2 BY MR. WODKA: (RESUMED)

3 Q. Did the Manufacturing Chemists Association
4 ask for this meeting?

5 A. Yes.

6 Q. And is it your understanding that they
7 asked for the meeting in order to inform NIOSH of certain
8 things?

9 A. Yes.

10 Q. Now, sir, was there a discussion during
11 this meeting of whether vinyl chloride could cause
12 cancer?

13 A. We were told that it had acted as an animal
14 carcinogen in European studies.

15 Q. And with respect to the European studies,
16 what was your understanding of the exposure levels that
17 were being tested?

18 A. Dr. Duffield was doing this part of the
19 meeting. He said that Professor Viola had been exposing
20 rodents to very high doses of vinyl chloride --

21 Q. Do you know how high the dosage was?

22 A. Thirty thousand parts per million, in order

1 to try to reproduce an unusual disease, acroosteolysis,
2 in the rats.

3 Q. And at 30,000 parts per million of vinyl
4 chloride, had Dr. Viola been successful in producing
5 tumors?

6 MR. GOLDBLATT: I object to the form.

7 MR. WODKA: You can answer.

8 THE WITNESS: Yes, he had. According to
9 Duffield, Viola's initial interpretation had to be
10 changed after tissue specimens were reexamined.

11 Initially Viola thought that tumors of the
12 lung and other organs were being produced; cancer, that
13 is, whereas on reexamination it appeared that the tumors
14 were cancers of the Zymbal gland, a ceruminous gland
15 found in the ear of rats, and that tumors seen elsewhere
16 were metastases from the Zymbal gland tumors.

17 BY MR. WODKA: (RESUMED)

18 Q. Did Dr. Duffield report to you on any new
19 animal testing that was going on in Europe?

20 A. Yes. He said there was a second order
21 study underway at more reasonable levels of exposure,
22 which we took to mean lower levels, that tumors had been

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1 seen, which seemed to confirm Viola's original findings,
2 which we took to mean Zymbal gland tumors, that the
3 studies were ongoing, and that NIOSH would be informed as
4 to the results.

5 Q. Now, at this point in time, in July, 1973,
6 you've told us that the permissible exposure limit for
7 vinyl chloride was 500 parts per million; is that
8 correct?

9 A. Yes.

10 Q. And Dr. Viola had been testing and finding
11 tumors at 30,000 parts per million; is that correct?

12 A. Yes.

13 Q. Were you informed during this meeting of
14 what the levels were that the animals were being tested
15 in this new second order study?

16 A. Only that the exposure levels were more
17 reasonable, no numbers.

18 Q. At any time during this meeting with the
19 MCA group, including Dr. Rowe, were you informed that
20 this new European study, this second order study that you
21 referred to, had found tumors of exposures as low as 250
22 parts per million?

1 A. No.

2 Q. At any time during this meeting with the
3 MCA group, including Dr. Rowe, were you informed that
4 tumors in this second order or new study had included
5 angiosarcoma of the liver of exposures as low as 250
6 parts per million?

7 A. No.

8 Q. Now, you've told us that at the time of
9 this meeting, that you had known Dr. Rowe for a number
10 of years in a professional sense, in a professional
11 manner?

12 A. Yes.

13 Q. At the time of this meeting, did you trust
14 Dr. Rowe as a professional colleague?

15 A. Yes.

16 Q. And at the time of this meeting, was it
17 your belief that if Dr. Rowe knew that angiosarcoma of
18 the liver had been produced in test animals as low as 250
19 parts per million, that he would have told you that
20 information?

21 MR. GOLDBLATT: Objection.

22 MR. WODKA: You can answer.

1 THE WITNESS: Yes.

2 BY MR. WODKA: (RESUMED)

3 Q. And, sir, we've been talking about these
4 numbers. We have the 18,000 parts per million producing
5 tumors, which you did know about at the time of July,
6 1973?

7 A. Thirty.

8 MR. GOLDBLATT: Objection.

9 MR. WODKA: I'm sorry. Let me start over.

10 BY MR. WODKA: (RESUMED)

11 Q. You did know about the 30,000 parts per
12 million producing tumors at the time of this meeting?

13 A. Yes.

14 Q. And the occupational exposure limit in the
15 United States at the time was 500 parts per million?

16 A. Yes.

17 Q. If you had been told during this meeting in
18 July, 1973, of effects as low as 250 parts per million --
19 and when I say effects, I'm talking about tumors in test
20 animals -- would that have been significant?

21 MR. GOLDBLATT: Objection to the form.

22 MS. BOSSE: Objection to the form.

1 MR. WODKA: You can answer.

2 THE WITNESS: Yes.

3 BY MR. WODKA: (RESUMED)

4 Q. What would have been the significance of
5 knowing of tumors being produced at 250 parts per
6 million?

7 A. The significance was that vinyl chloride
8 might have to be upgraded from an animal carcinogen to a
9 suspected human carcinogen.

10 Q. And is that a government action that you're
11 referring to?

12 A. It's a toxicologic way of looking at animal
13 studies. It's not a government action per se, but it
14 would usually result in a health standard for the
15 substance.

16 Q. And in your position as director of NIOSH
17 in July, 1973, would the upgrading of its status have
18 triggered any action on your behalf?

19 MR. GOLDBLATT: Objection to the form.

20 MS. BOSSE: Objection to the form.

21 MR. WODKA: Strike that.

22 MR. WODKA: Would the upgrading of the

1 status of vinyl chloride as a result of that information
2 have caused NIOSH to take any action?

3 MR. GOLDBLATT: Objection to the form.

4 MS. BOSSE: Objection to the form.

5 MR. WODKA: You can answer.

6 THE WITNESS: Yes.

7 MR. WODKA: Can you just tell us briefly
8 what action typically would occur when NIOSH would
9 receive that kind of information?

10 MR. GOLDBLATT: Objection to the form.

11 MS. BOSSE: Objection to the form.

12 MR. WODKA: You can answer.

13 THE WITNESS: The action would have been
14 quite similar to that taken in January of the next year
15 where NIOSH learned of the three deaths from angiosarcoma
16 in Louisville and of Maltony's production of angiosarcoma
17 in rodents.

18 MR. WODKA: We'll get on to that.

19 BY MR. WODKA: (RESUMED)

20 Q. At the time of this meeting, again with the
21 MCA group including Dr. Rowe, were you provided with the
22 identity of the researcher in Europe who was performing

1 this new test?

2 A. No.

3 Q. Did you take notes at this meeting?

4 A. I did not, but some of the staff did.

5 Q. And do you know who on your staff took
6 notes?

7 A. Jacobson and Mitchell.

8 Q. And was it your regular practice to have a
9 staff member take notes of discussions in your office
10 with members of the public?

11 A. Usually.

12 Q. And subsequent to this meeting that we're
13 talking about in July, 1973, were those notes reviewed?

14 MR. GOLDBLATT: Objection to the form.

15 MR. WODKA: You can answer.

16 THE WITNESS: I asked Lassiter and Mitchell
17 to review their notes and write me a memo as to what they
18 concluded of the meeting, as to what transpired in the
19 meeting.

20 BY MR. WODKA: (RESUMED)

21 Q. Doctor, I show you what's been marked as
22 Key Exhibit No. 2 and ask you if you can recognize this

1 document?

2 A. Yes, but what happened to Key Exhibit No.
3 1?

4 Q. Key Exhibit No. 1 is just a notice of the
5 deposition. You're keeping track of us.

6 With respect to Key Exhibit No. 2, can you
7 tell us what it is?

8 A. It's a memo to me from Jacobson and
9 Mitchell telling what went on at the meeting with MCA.

10 Q. And is Key Exhibit No. 2 authored by the
11 same Dr. Jacobson and Dr. Mitchell who attended the
12 meeting with you and the MCA representatives?

13 A. Yes.

14 Q. To your knowledge, is Key Exhibit No. 2
15 based on Dr. Jacobson's and Dr. Mitchell's notes of the
16 meeting?

17 A. Yes.

18 MR. GOLDBLATT: Objection to the form.

19 MS. BOSSE: Objection to the form.

20 MR. WODKA: Was Key Exhibit No. 2 kept in
21 the course of regularly conducted business activities of
22 NIOSH?

1 MR. GOLDBLATT: Objection to the form.

2 MR. WODKA: What is your objection?

3 MR. GOLDBLATT: I object to leading.

4 MR. WODKA: Let me repeat it.

5 Was Key Exhibit No. 2 kept in the course of
6 regularly conducted business activity of NIOSH?

7 THE WITNESS: Yes.

8 BY MR. WODKA: (RESUMED)

9 Q. Now, sir, I'd like to refer you to page 2
10 of Key Exhibit No. 2 and to the paragraph at the top. It
11 states, "There was no mention of angiosarcomas."

12 Do you see that, sir?

13 A. Yes.

14 Q. Is that sentence consistent with your
15 recollection of what transpired at the meeting with the
16 MCA representatives?

17 A. Yes.

18 Q. And, sir, looking a little bit further down
19 the page, the next to the last paragraph on page 2 of Key
20 Exhibit No. 2, it states, "A recent conversation with VK
21 Rowe in May, 1974 elicited the comment after he consulted
22 his notes of the meeting that NIOSH had been told that

1 the new Italian study had found tumors at 250 parts per
2 million but not at lower concentrations. NIOSH staff
3 notes and recollection are nonconfirmatory."

4 Do you see that paragraph, sir?

5 A. Yes.

6 Q. Can you tell us what nonconfirmatory means?

7 MR. GOLDBLATT: Objection to the form.

8 MS. BOSSE: Objection to the form.

9 MR. WODKA: You can answer.

10 THE WITNESS: It means that we thought our
11 recollection was correct and VK Rowe's was incorrect.

12 MR. WODKA: Now, sir, at the time of this
13 meeting in July, 1973, did you know that it had been
14 planned for more than two months in advance by the MCA?

15 MR. GOLDBLATT: Objection to the form.

16 MR. WODKA: You can answer.

17 THE WITNESS: No.

18 MR. WODKA: Did you know at the time of
19 this meeting that the MCA representatives had the goal
20 that NIOSH and OSHA "not overreact" on vinyl chloride?

21 MR. GOLDBLATT: Objection to the form.

22 MS. BOSSE: Objection to the form.

1 MR. WODKA: You can answer.

2 THE WITNESS: No.

3 MR. WODKA: At the time of this meeting,
4 did you know it was their intention -- I'm talking about
5 the MCA representatives -- to describe the animal testing
6 results from Europe "in very general terms without
7 leaving any written information?"

8 MR. GOLDBLATT: Objection to the form.

9 MS. BOSSE: Objection to the form.

10 MR. WODKA: You can answer.

11 THE WITNESS: No.

12 BY MR. WODKA: (RESUMED)

13 Q. You met with a Dr. Wheeler. He was a
14 representative from Union Carbide at this meeting.

15 A. I believe it was a Mr. Wheeler.

16 Q. I'm sorry, you're correct, Mr. Wheeler.

17 Did you know at the time of this meeting in
18 July, 1973, that Dr. Wheeler had written five months
19 earlier that Dr. Maltony's results of tumors at 250 parts
20 per million "are probably undeniable?"

21 Did you know that?

22 MR. GOLDBLATT: Objection to the form.

1 MS. BOSSE: Objection to the form.

2 THE WITNESS: No.

3 MR. WODKA: Did Mr. Wheeler say anything
4 like that to you at the meeting?

5 MR. GOLDBLATT: Objection to the form.

6 MS. BOSSE: Objection to the form.

7 THE WITNESS: No.

8 MR. WODKA: You also met with a Dr.

9 Rhinehart from Ethyl at the meeting in July, 1973. Did
10 you know at the time that Dr. Rhinehart five months
11 earlier had written, "Dr. Maltony's study is considered
12 good and all agree the results certainly indicate a
13 positive carcinogenic effect above or at 250 parts per
14 million?"

15 Did you know that Dr. Rhinehart had written
16 that at the time of your meeting in July of 1973?

17 MR. GOLDBLATT: Objection to the form.

18 MS. BOSSE: Objection to the form.

19 THE WITNESS: No.

20 MR. WODKA: Did Dr. Rhinehart at the
21 meeting in July, 1973, state anything along those lines
22 or make a statement to that effect?

1 MR. GOLDBLATT: Objection to the form.

2 THE WITNESS: No.

3 BY MR. WODKA: (RESUMED)

4 Q. Sir, in your role as director OF NIOSH,
5 when did the next significant event occur concerning
6 vinyl chloride?

7 A. January of 1974.

8 Q. Can you tell us what happened in January,
9 1974?

10 A. A meeting with a physician from BF Goodrich
11 and his consultant in epidemiology was held at NIOSH
12 January 22nd. And Maurice Johnson was the medical
13 director of Goodrich and Irving Tabershaw was the
14 consultant.

15 Q. What did Dr. Johnson tell you in that
16 meeting?

17 A. That they had discovered three cases of
18 angiosarcoma, a malignant liver tumor, among employees at
19 the Louisville plant exposed to vinyl chloride.

20 And at the same time we learned that
21 Professor Maltony in Europe had been conducting the
22 second order toxicology study, and had produced tumors in

1 rat livers as low as 250 parts per million in
2 concentration of vinyl chloride.

3 Q. Were you told at this meeting what type of
4 tumors were produced in the livers of those test animals?

5 MR. GOLDBLATT: Objection to the form.

6 MR. WODKA: You can answer.

7 THE WITNESS: Angiosarcoma, the same as in
8 humans.

9 MR. WODKA: Was January 22, 1974, the first
10 time that you learned of an unusual incidence of cancer
11 in workers exposed to vinyl chloride?

12 MR. GOLDBLATT: Objection to the form.

13 MR. WODKA: You can answer.

14 THE WITNESS: Yes.

15 BY MR. WODKA: (RESUMED)

16 Q. And that cancer was angiosarcoma of the
17 liver; is that correct?

18 A. Yes.

19 Q. And is angiosarcoma of the liver a rare
20 form of cancer in humans?

21 A. Quite rare.

22 Q. Was January 22, 1974, the first time that

1 you learned that Dr. Maltony had previously produced the
2 same rare form of cancer in test animals at exposures of
3 250 parts per million?

4 A. Yes.

5 Q. On January 22, 1974, did you believe that a
6 new occupational health hazard had been discovered?

7 MR. GOLDBLATT: Objection to the form.

8 MR. WODKA: You can answer.

9 THE WITNESS: Yes.

10 BY MR. WODKA: (RESUMED)

11 Q. And in your position as director of NIOSH,
12 what did you do as a result?

13 A. We moved rapidly, sending a team into the
14 Goodrich plant in Louisville to ascertain exposure levels
15 there. We conferred with other toxicologists and with
16 clinical physicians at the National Institutes of Health
17 to develop some guidelines for diagnosing the tumor for
18 early diagnosis, and for medical surveillance.

19 We then proceeded to develop three types of
20 documents that were sent to OSHA for proposed rule
21 making: One was recommended work practices for those
22 exposed over a certain level, another was recommended

1 medical surveillance, and the third was recommended
2 environmental surveillance or monitoring.

3 Q. Now, sir, let me show you what's been
4 marked as Key Exhibit No. 3, and ask you if you recognize
5 this document?

6 A. Yes.

7 Q. Can you tell us what Key Exhibit No. 3 is?

8 A. It's a letter I wrote to George Best at
9 Manufacturing Chemists Association relating what we had
10 discovered thus far about the vinyl chloride problem, and
11 in closing recommended monitoring and control procedures
12 for the polymerization process.

13 Q. And, sir, if you can tell us what is the
14 date of this document?

15 A. January 31, 1974.

16 Q. And this is nine days after your first
17 meeting with BF Goodrich?

18 A. Quite soon.

19 Q. Sir, let me show you what's been marked as
20 Key Exhibit No. 4, and ask if you can recognize this
21 document?

22 A. Yes.

1 Q. Can you tell what Key Exhibit No. 4 is?

2 A. It is a memorandum from me to the assistant
3 secretary of labor, the person in charge of the
4 Occupational Safety and Health Administration, containing
5 recommended occupational health standards for the
6 manufacture of the synthetic polymer, PVC, from vinyl
7 chloride.

8 Q. Was Key Exhibit No. 4 NIOSH's formal
9 recommendation to OSHA regarding vinyl chloride?

10 A. It was the first of several. It was
11 followed by a more specific recommendation on health
12 monitoring and a more specific one on environmental
13 monitoring, but it was the first of a series.

14 Q. What was the date that Key Exhibit No. 4
15 was transmitted to OSHA?

16 A. March 11, 1974.

17 Q. Sir, I'd like you to turn, if you would, to
18 the second page of Key Exhibit No. 4, and I'll refer you
19 down to I think it's the third paragraph where it states,
20 "As previously indicated, NIOSH considers this to be a
21 most serious problem and strongly urges that
22 expedited rule making be implemented by OSHA to ensure

1 that the health of exposed workers is promptly and
2 adequately safeguarded."

3 Do you see that paragraph, sir?

4 A. Yes.

5 Q. Did you hold the same position at the time,
6 that rule making be expedited?

7 A. Yes.

8 MR. GOLDBLATT: Objection to the form.

9 MS. BOSSE: Objection to the form.

10 BY MR. WODKA: (RESUMED)

11 Q. Now, sir, after you transmitted Key Exhibit
12 No. 4 to OSHA, did OSHA respond?

13 A. Yes, they promulgated -- they went through
14 the rule making process and promulgated an emergency
15 temporary standard the next month, April the 5th, I
16 believe.

17 Q. Sir, let me show you what's been marked as
18 Key Exhibit No. 5 and ask if you recognize this document?

19 A. Yes, it is the emergency temporary standard
20 for exposure to vinyl chloride that OSHA promulgated.

21 Q. And what is the date of the emergency
22 temporary standard?

1 A. April 5, 1974.

2 Q. And, sir, I'd like to refer you to the
3 middle column of the first page of Key Exhibit No. 5,
4 where it states, "We therefore conclude that the present
5 standard for vinyl chloride should be lowered from a
6 ceiling of 500 parts per million to a ceiling of 50 parts
7 per million for the following reasons:

8 A) In light of the evidence referred to
9 above, including the Maltony experiments demonstrating
10 that vinyl chloride" -- they have it down as VC -- "is
11 carcinogenic in animals at 200 parts per million, we
12 conclude that VC, vinyl chloride, must be considered
13 carcinogenic in man at the same level."

14 Do you see that, sir?

15 MR. GOLDBLATT: Objection to the form.

16 BY MR. WODKA: (RESUMED)

17 Q. Do you see that paragraph?

18 A. Yes.

19 Q. At this time, did NIOSH also agree that
20 vinyl chloride must be considered carcinogenic to man at
21 250 parts per million?

22 MR. GOLDBLATT: Objection to the form.

1 MS. BOSSE: Objection to the form.

2 MR. WODKA: You can answer.

3 THE WITNESS: Yes, we agreed to
4 subparagraph A, but not to the introduction of that
5 paragraph.

6 BY MR. WODKA: (RESUMED)

7 Q. And what is it about the introduction you
8 did not agree with?

9 A. We did not agree that it should be lowered
10 to a ceiling of 50 parts per million.

11 Q. What did NIOSH recommend with respect to an
12 exposure level?

13 A. If I may go back to the previous exhibit.

14 Q. Yes, sir.

15 A. The second page, bottom paragraph, our
16 objection had to do with the concept that there is no
17 threshold for carcinogens, that for even very low levels
18 of exposure, some cancer can be expected.

19 Under section 20(A)3 of the Act that we
20 were operating under, we could only recommend a safe
21 exposure level. And since we didn't think that any level
22 of exposure was safe, we felt we couldn't go along with

1 the 50 parts per million. I'm paraphrasing what is in
2 that last paragraph.

3 Hence, we -- our recommended approach was
4 one that required initial monitoring to see what the
5 exposure level was. We decided that one part per million
6 was the lower limit of detection at that time, and that
7 any levels found above that would constitute vinyl
8 chloride exposure, and the persons exposed would have to
9 be suited up and given respirator protection.

10 Q. Let me see if I understand what you're
11 saying. Are you saying that as of April 5, 1974 --
12 strike that.

13 You're saying that as of March 11, 1974, it
14 was NIOSH's position that any exposures above one parts
15 per million for vinyl chloride, the worker should have
16 separate supplied air to breathe?

17 MS. BOSSE: Objection to the form.

18 MR. GOLDBLATT: Objection to the form.

19 THE WITNESS: There were three transmittals
20 to OSHA in March from NIOSH. If I may go back to Exhibit
21 No. 5.

22 BY MR. WODKA: (RESUMED)

1 Q. You're looking at Exhibit 4.

2 A. So I am. If I may go back to Exhibit 4.

3 Yes, that's the one in which we mention, "where
4 detectable levels of vinyl chloride are measured, a
5 control plan shall be developed and implemented."

6 Q. Doctor, if you would go to, on that exhibit
7 you're looking at, there is a Bates number in the lower
8 right-hand column. If you go back to page 902572.

9 A. 902572, yes.

10 Q. And I'm referring to small paragraph Roman
11 numeral iv. Do you see that?

12 A. Yes.

13 Q. Is this the recommendation that we're
14 discussing that, "until exposures to vinyl chloride are
15 reduced below detectable levels, employees entering any
16 regulated area shall be required with and required to
17 wear and use a full face supplied air respirator?"

18 A. Yes.

19 MS. BOSSE: Objection to the form.

20 BY MR. WODKA: (RESUMED)

21 Q. And the detectable level that we are
22 talking about here is one part per million; is that

1 correct?

2 A. Yes.

3 Q. Now, sir, this time frame that we have been
4 discussing, January 22, 1974 to April 5, 1974, is less
5 than three months, correct?

6 A. Yes.

7 Q. And by April, 1974, you had been working in
8 the federal government for 18 years, if I understand you?

9 A. Yes.

10 Q. As of April, 1974, had the federal
11 government ever on any prior occasion responded with the
12 issuance of an emergency standard to protect workers in
13 less than three months after the discovery of a new
14 occupational health hazard?

15 A. Not before and not since.

16 Q. Now, sir, I'd like to show you what's been
17 marked as Key Exhibit No. 6. When is the first time you
18 ever saw this document?

19 A. Earlier this year.

20 Q. And Key Exhibit No. 6 bears the date of
21 January 30, 1973?

22 A. Yes.

1 Q. So the first time you saw it was some 22
2 years later?

3 A. Yes.

4 Q. And, sir, I'd like you to turn to the
5 seventh page of Key Exhibit No. 6. There is a seven at
6 the top of the page.

7 And, sir, do you see it says at the top,
8 "81-week summary, four hours per day, five days per week
9 for 52 weeks?"

10 A. Yes.

11 Q. And do you see a dashed line underneath the
12 column that begins with, or excuse me, underneath the
13 line that begins with "exposure concentration 250"?

14 A. Yes.

15 Q. And do you see also on that line, sir, that
16 it says, "Endothelial angiosarcoma of the liver" and it
17 has a 1?

18 A. Yes.

19 MR. GOLDBLATT: Objection to the form.

20 MR. WODKA: It has "nephroblastoma of the
21 kidney" and it has 2?

22 THE WITNESS: Yes.

1 MR. GOLDBLATT: Objection to the form.

2 THE WITNESS: Yes.

3 BY MR. WODKA: (RESUMED)

4 Q. Did you see that, sir?

5 A. Yes.

6 Q. Now, sir, this document, as will be shown
7 in this case, refers to Dr. Maltony's experiments with
8 test animals of vinyl chloride that he had been
9 conducting in 1972.

10 And it will be shown in this case that Key
11 Exhibit No. 6 was presented to representatives of the Dow
12 Chemical Company in January of 1973, and it will also be
13 shown in this case that Key Exhibit No. 6 was in the
14 possession of the Manufacturing Chemists Association and
15 in the possession of representatives of PPG and Shell and
16 Goodyear as of January, 1973.

17 Sir, if you had been shown this data
18 contained in Key Exhibit No. 6 during your meeting with
19 the Manufacturing Chemists Association in July, 1973,
20 indicating that tumors, specifically angiosarcoma of the
21 liver, had been produced in test animals at 250 parts per
22 million, what if anything would you have done as a

1 result?

2 MS. BOSSE: Objection to the form.

3 MR. GOLDBLATT: Objection to the form.

4 MR. WODKA: You can answer.

5 THE WITNESS: I would have moved on two
6 fronts. One, I would have had our toxicologist get
7 together with Maltony to confirm the data, to confirm the
8 protocol.

9 I would have then called a meeting of
10 toxicologists from some of our sister programs, like the
11 National Cancer Institute and the Food and Drug
12 Administration, to see if we could get a consensus among
13 the toxicologists that vinyl chloride's classification
14 should be upgraded from that of an animal carcinogen to a
15 suspected human carcinogen.

16 On the other front, our industrial
17 hygienist would have been making surveys of monomer and
18 polymer plants to see what the levels of exposure were.

19 Having the information from these two
20 activities would be very significant information for OSHA
21 to become alerted to the possibility of rule making.

22 I would have transmitted this information

1 to OSHA. I would have put out a public alert on the
2 potential problem, and I would have begun to look for
3 human cases of cancer among those exposed to vinyl
4 chloride, heavily exposed for a number of years.

5 MR. WODKA: Are the steps that you just
6 outlined similar if not identical to what you did in
7 January, 1974, after your meeting with the
8 representatives of the BF Goodrich Company?

9 MR. GOLDBLATT: Objection to the form.

10 MS. BOSSE: Objection to the form.

11 THE WITNESS: Yes, except that it was not
12 necessary to send somebody over to talk to Professor
13 Maltony. He came over here, I believe, in February of
14 '74.

15 MR. WODKA: That's all the questions I have
16 right now. Thank you, sir.

17 VIDEO SPECIALIST: We're going off the
18 record. The time on the screen is 11:08:53.

19 BY MR. GOLDBLATT: We're back on the record the
20 time on the screen is 11:16:09.

21 EXAMINATION ON BEHALF OF THE DEFENDANTS

22 BY MR. GOLDBLATT:

20021012

1 Q. Good morning, Dr. Key.

2 A. Good morning, Mr. Goldblatt.

3 Q. Dr. Key, I want to begin by asking you some
4 background questions and fill in some context to some of
5 the things you've talked about this morning.

6 If at any time you don't understand any of
7 the questions that I ask, will you tell me that so that I
8 can ask the question a different way or try and rephrase
9 it for you?

10 A. Yes.

11 Q. When did you start as director of the newly
12 formed NIOSH?

13 A. January of 1971.

14 Q. Dr. Key, is it correct that NIOSH had no
15 rule making authority, that is, the authority to
16 establish rules for exposure to chemical substances in
17 the workplace?

18 A. NIOSH had rule making authority certainly
19 under the Federal Coal Mine Health and Safety Act, and
20 NIOSH had rule making authority for respirators used in
21 the workplace, but not for health or safety standards in
22 the workplace.

1 Q. Is it correct, sir, that NIOSH's
2 responsibility was to research and make recommendations
3 for consideration by the Department of Labor?

4 A. Yes.

5 Q. So, then, it is fair to say that as to
6 health and safety standards, NIOSH had no rule making
7 authority; is that right?

8 A. That's right.

9 Q. And the recommendations that NIOSH made did
10 not carry the force and effect of law in the United
11 States unless adopted and approved by the Department of
12 Labor; is that correct?

13 A. That is correct.

14 Q. Now, Dr. Key, I'd like to talk to you for a
15 few minutes about NIOSH's relationship to the Department
16 of Labor and other agencies of the United States
17 Government, okay?

18 A. Yes.

19 Q. Was NIOSH a part of the Department of
20 Labor?

21 A. No.

22 Q. Was NIOSH a part of the Occupational Safety

1 and Health Administration?

2 A. No. It was under a different department of
3 government, the Department of Health, Education and
4 Welfare.

5 Q. Is it correct then that NIOSH did not
6 report to either the Department of Labor or to OSHA?

7 A. Correct.

8 Q. NIOSH reported to to an entity within the
9 Department of Health, Education and Welfare; is that
10 correct?

11 A. That's correct.

12 Q. And was that entity the Centers for Disease
13 Control in Atlanta, Georgia?

14 A. In the latter part of this period, it was.

15 Q. When you say the latter part of this
16 period, what are you referring to, Dr. Key?

17 A. NIOSH has had a checkered history.
18 Initially it was part of a different organization called
19 HSMA, Health Services and something else administration.
20 And then it was freestanding, not under any part of HEW
21 other than the public health service, and finally, and I
22 don't remember the date, maybe the last year that we're

1 talking about here, it was part of the Centers for
2 Disease Control in Atlanta.

3 Q.. Was it a part of the Centers for Disease in
4 Atlanta during the period of time that we've been talking
5 about during the deposition today?

6 A. Yes.

7 Q. Are you familiar with a governmental entity
8 called the National Cancer Institute?

9 A. Yes.

10 Q. What is the National Cancer Institute?

11 A. It's one of the institutes within the
12 National Institutes of Health authorized to conduct
13 in-house research and give grants to study the problem of
14 carcinogenesis and to detect earlier cancer in humans.

15 Q. Who was the director of the CDC during this
16 same period of time that you were director of NIOSH?

17 A. David Sensor.

18 Q. Was NIOSH ever a sister entity to either
19 the CDC or the NCI?

20 A. Yes, at one time in the organizational
21 structure within the Public Health Service, NIOSH was at
22 the same level as CDC.

1 Your question also asks about a
2 relationship with NCI. Administrative relations are
3 difficult to compare between one agency and another. I
4 would say that NIOSH was roughly equivalent in
5 organizational structure to the National Cancer
6 Institute.

7 Q. Now, as I understand your testimony, NIOSH
8 intended to fulfill its research and recommendation
9 mission by bringing together information in the form of
10 criteria documents; is that correct?

11 A. That's correct.

12 Q. And when had NIOSH adopted that strategy?

13 A. Earlier on.

14 Q. And what was the purposes of the criteria
15 documents?

16 A. To provide the research background,
17 including data on animal and human studies, including
18 sampling methods and early detection methods, so it could
19 be transmitted in a package to OSHA for their
20 consideration in rule making.

21 Q. So, was it then an attempt to pull together
22 the available information into one document for

1 presentation to OSHA so that OSHA could perform its
2 governmental function?

3 A. Yes.

4 Q. Now, did you form a committee within NIOSH
5 on research and standards development?

6 A. In NIOSH's organizational structure, I had
7 an office of research and standards development.

8 Q. Was that the office that was responsible
9 for creating these criteria documents?

10 A. Yes.

11 Q. And was it their responsibility to gather
12 the information that you talked about before and pull it
13 together in this fashion?

14 A. Yes.

15 Q. Am I correct that as the director of the
16 institute, that wasn't something that you were personally
17 doing at the time, was it?

18 A. No, I did not become involved in the
19 criteria document review until it was almost finished.
20 There was a final stage of director's review and
21 sign-off.

22 Q. Now, as I understand it, at a point in time

1 the committee created a list of different substances that
2 they intended to create criteria documents on, and that
3 also included vinyl chloride; is that correct?

4 A. Yes, except it wasn't a committee. It was
5 this Office of Research and Standards Development.

6 Q. And who headed that office?

7 A. I believe Vernon Rose did at the time of
8 the vinyl chloride problem.

9 Q. What was his position within NIOSH?

10 A. I believe he was an assistant director.

11 Q. Did he have a staff working for him at the
12 time?

13 A. Yes.

14 Q. Who was on that staff?

15 A. These four individuals who attended the
16 July 17, 1973 meeting with MCA, plus a number of others.

17 Q. Tell me about that. The four individuals
18 who attended the meeting with you, were they all part of
19 this Office of Research and Standards Development under
20 Mr. Rose?

21 A. Yes, I believe they were all in the
22 criteria development branch of that office.

1 Q. Now, you told us before that in January of
2 1973, NIOSH published a notice in the Federal Register;
3 is that correct?

4 A. January 30, 1973, yes.

5 Q. What was the purpose of that notice?

6 A. To request information on potential
7 toxicity of some 23 substances and agents that were on
8 our high priority list.

9 Q. You used the word toxicity. Are you using
10 that different from the word cancer or tumor?

11 A. Toxicity is more generic. Cancer you might
12 say is a subset of toxicity, maybe the most severe form
13 of toxicity.

14 Q. So, at the time this notice was published
15 in the Federal Register, I'm correct that NIOSH was
16 studying the toxicity of these 23 substances, not
17 necessarily carcinogenesis of the substances per se; is
18 that right?

19 A. That's right.

20 Q. Now, I'd like you to tell me in as much
21 detail as possible what NIOSH had done as of January 30,
22 1973, to research the toxicity of vinyl chloride?

1 A. In order to make an evaluation of priority,
2 it was necessary to have reviewed the scientific
3 literature, animal studies as well as human studies. So
4 in answer to your question, NIOSH had reviewed what was
5 available in the literature.

6 Q. Tell use who did that for NIOSH?

7 A. Someone in the Office of Research and
8 Standards Development.

9 Q. Who?

10 A. I don't know.

11 Q. Tell us when that was done?

12 A. The priority list came out in '72, the
13 Federal Register request came out in January of '73. I
14 would say sometime the end of '72 or early '73.

15 Q. So, as of that time, it's your testimony
16 that NIOSH had looked at the available scientific
17 literature that you just described; is that right, sir?

18 A. Yes.

19 Q. Where was that information kept at NIOSH?

20 A. I suppose the files of that office.

21 Q. You used the word "suppose." Do you know,
22 sir?

1 A. No.

2 Q. Now, in preparation for the July 17, 1973
3 meeting with the representatives of the MCA, did you
4 review the materials that NIOSH had garnered earlier?

5 A. No. But as an occupational health
6 professional, I had firsthand experience with some of the
7 problems with vinyl chloride, and I was reasonably
8 familiar with the literature. But no, I did not
9 specifically review it in preparation for the meeting.

10 Q. It's correct, sir, that during the 1960's
11 you had some firsthand experience with the disease known
12 as acroosteolysis; is that correct?

13 A. That's correct.

14 Q. In fact, you had been in the BF Goodrich
15 Louisville facilities during the 1960's; is that correct,
16 sir?

17 A. That's correct, and stuck my head down
18 inside one of the reactors while they were cleaning it.

19 Q. As a result of or during the course of that
20 effort, sir, did you then have occasion to become
21 familiar with the then existing body of scientific
22 literature on vinyl chloride?

1 A. Yes.

2 Q. Would you tell me, sir, what time frame are
3 you talking about?

4 MR. WODKA: I'm going to object to what
5 time. I thought you said in the 1960's.

6 BY MR. GOLDBLATT: (RESUMED)

7 Q. Can you be more specific as to the 1960's,
8 sir?

9 A. No, but it would be easy to verify that by
10 looking at the reports on acroosteolysis when they were
11 published. I don't remember.

12 Q. Now, as of January 31, 1973, when the
13 notice was placed in the Federal Register, had any one
14 person within NIOSH been given specific responsibility
15 for developing the vinyl chloride criteria document?

16 MR. WODKA: Objection. I think it was
17 January 30, 1973. -

18 MR. GOLDBLATT: I'm sorry, January 30,
19 1973. Thank you, Mr. Wodka.

20 THE WITNESS: No, because there had been no
21 decision that we should go forward with the criteria
22 documents at that time.

1 BY MR. GOLDLBATT: (RESUMED)

2 Q. So as of January 30, 1973, when the notice
3 was published, no decision had been made by NIOSH to
4 proceed with a criteria document; is that correct?

5 A. That's correct.

6 Q. Was NIOSH then in the information
7 collecting stage, if you will?

8 A. Yes. That's why we published the request
9 in the Federal Register. We were collecting information
10 that we weren't able to garner.

11 Q. What type of information were you
12 requesting that you weren't able to garner?

13 A. I believe the request was information on
14 potential toxicity of these 23 substances and agents.

15 Q. Who is the Federal Register directed to?

16 A. The short answer is the public. I realize
17 the public doesn't read it. It's too much to ask for
18 anybody. But the Federal Register is monitored closely
19 by industry, probably by organized labor, by academic
20 institutions and other federal agencies and Congress.

21 Q. Did NIOSH publish the request for
22 information in any other form?

1 A. I don't think so.

2 Q. Dr. Key, would you agree with me that the
3 notice in the Federal Register was an invitation for
4 interested persons possessing information about these 23
5 substances to share that information with NIOSH?

6 A. Yes.

7 Q. Am I correct, sir, that there was nothing
8 compulsory or mandatory about the request?

9 A. That's correct.

10 Q. It did not carry the force of law, did it?

11 A. No.

12 Q. So whatever information was provided in
13 response to it was provided voluntarily by interested
14 persons; is that right?

15 A. That is right.

16 Q. And any of those persons could have
17 included academia, industry, government, or organized
18 labor; is that right?

19 A. Yes.

20 Q. Now, Dr. Key, did NIOSH receive a letter of
21 response to the notice in the Federal Register?

22 A. No. There are only three responses prior

1 to the July meeting with MCA. One came from MCA, one
2 came from a mine safety organization, and the third came
3 from an industrial hygiene organization.

4 Q. And you're speaking specifically with
5 reference to vinyl chloride; is that right?

6 A. That's right.

7 Q. Was the response similar with respect to
8 the other 22 substances that were referred to in the
9 Federal Register?

10 A. The response was disappointingly meager.

11 Q. Dr. Key, is it correct that the request by
12 MCA for a meeting with NIOSH about vinyl chloride was the
13 first request that NIOSH had ever received?

14 A. To the best of my memory, yes.

15 Q. And was this the first time that an
16 industry had come forward and asked for a meeting with
17 the government and said we want to share with you
18 information about ongoing research and planned research?

19 MR. WODKA: Objection to the form.

20 THE WITNESS: I believe it was.

21 MR. GOLDBLATT: Did you consider that
22 extraordinary at the time?

1 MR. WODKA: Objection.

2 THE WITNESS: Well, we had put out a
3 request in the Federal Register in January of '73, and
4 here it was July we were hearing about European and U.S.
5 studies.

6 You asked was it extraordinary? I think it
7 could be expected as a result of the Federal Register
8 request, but it was gratifying to see an industry group
9 come forward.

10 BY MR. GOLDLBATT: (RESUMED)

11 Q. And you expressed that gratitude to the
12 representatives who came to meet with you on July 17,
13 didn't you, sir?

14 A. I believe I did.

15 Q. Now, Dr. Key, in and around this time in
16 1973, there were other governmental agencies that were
17 interested in vinyl chloride; is that right, sir?

18 A. Yes.

19 Q. And in fact NIOSH was not the only
20 governmental agency that was looking at the toxicity of
21 vinyl chloride, was it?

22 A. Other government agencies were interested

1 in it. I believe FDA was the only one that was looking
2 into the toxicity of it because of the -- PVC was used as
3 a container for distilled spirits.

4 Q. Was NIOSH working with FDA in that regard?

5 A. Not until we realized it was a suspect
6 human carcinogen.

7 Q. You are aware, sir, that in 1973, the
8 National Cancer Institute was also collecting information
9 about vinyl chloride, aren't you, sir?

10 A. I didn't realize it in '73. It was not
11 until '74 that I realized they had an interest in vinyl
12 chloride.

13 Q. When in 1974 did you first realize that,
14 sir?

15 A. I don't recall when. It was probably at
16 one of the Congressional hearings on the subject when Dr.
17 Saffioti testified:

18 Q. Who is Dr. Saffioti?

19 A. A well known toxicologist from the National
20 Cancer Institute with an expertise in carcinogenesis.

21 Q. What position did he hold at this time?

22 A. I don't know. He was certainly a high

1 level official within the Cancer Institute.

2 Q. Did there come a time, sir, that you
3 learned that Dr. Saffioti and members of his staff at the
4 National Cancer Institute had been working on a monograph
5 on vinyl chloride in 1973, that was scheduled for
6 publication by the International Agency for Research on
7 Cancer?

8 MR. WODKA: Objection.

9 THE WITNESS: I believe I learned about
10 that at the same Congressional hearing at which Saffioti
11 testified.

12 BY MR. GOLDBLATT: (RESUMED)

13 Q. Is this the Congressional hearing that
14 occurred in July of 1974 that was conducted by Senator
15 Tunney's committee?

16 A. Yes.

17 Q. And are you telling us that it was at that
18 Congressional hearing when you heard Mr. Saffioti testify
19 that you first learned that his agency had been involved
20 with vinyl chloride and carcinogenesis the preceding
21 year?

22 A. I believe that was my first knowledge.

1 Q. What is the International Agency for
2 Research on Cancer, sir?

3 A. It is an agency under the jurisdiction of
4 the World Health Organization located in Lion, France,
5 charged with developing consensus documents as to the
6 classification of carcinogens by bringing together
7 experts who have been studying the particular problem,
8 the particular substance, called a panel.

9 Q. So those panels were focusing in on the
10 carcinogenesis of substances; is that right, sir?

11 A. That's correct.

12 Q. Did NIOSH participate in any IARC
13 activities during 1973?

14 A. No, but I believe the following year when
15 IARC held a panel on vinyl chloride, a representative
16 from NIOSH as well as CDC attended.

17 Q. Are you aware of any other governmental
18 entities besides Dr. Saffioti's that was involved in IARC
19 activities on vinyl chloride during 1973?

20 A. I believe the National Institute of
21 Environmental Health Sciences, which is also one of the
22 institutes within the National Institutes of Health, had

1 a representative at that IARC panel. It could have been
2 its director, David Rawl.

3 Q. During 1973, did NIOSH contribute to the
4 monograph that IARC was working on with respect to vinyl
5 chloride?

6 MR. WODKA: Objection.

7 THE WITNESS: '73, no. We didn't know
8 about it.

9 BY MR. GOLDBLATT: (RESUMED)

10 Q. In 1973, you had no knowledge that the
11 National Cancer Institute was working on a monograph on
12 vinyl chloride for IARC; is that correct, sir?

13 A. No, no knowledge.

14 Q. In fact, sir, did you know that
15 Dr. Saffioti was the chairman of the committee that was
16 responsible for peer reviewing that monograph on vinyl
17 chloride?

18 MR. WODKA: Objection.

19 THE WITNESS: No.

20 BY MR. GOLDBLATT: (RESUMED)

21 Q. Sir, you also learned at the time of this
22 Congressional hearing in 1974, that Dr. Saffioti had

1 attended an international symposium on cancer detection
2 that was organized by Professor Maltony in Bologna,
3 Italy, in April of 1973; is that right, sir?

4 A. Yes.

5 Q. Was that the first time that you learned
6 that Dr. Saffioti had been to that symposium?

7 A. At the Congressional hearing.

8 Q. And did you also learn, sir, that
9 Dr. Saffioti had attended a presentation by Professor
10 Maltony on carcinogenesis of substances including vinyl
11 chloride?

12 A. Yes.

13 Q. And did you also learn that at that same
14 time in April, 1973, in conjunction with that symposium,
15 Dr. Saffioti had toured Professor Maltony's laboratory at
16 which the vinyl chloride research was being conducted?

17 MR. WODKA: Objection. What time?

18 MR. GOLDBLATT: April, 1973.

19 MR. WODKA: Your question was what time did
20 he learn.

21 MR. GOLDBLATT: Let me restate the
22 question.

1 BY MR. GOLDBLATT: (RESUMED)

2 Q. Did you first learn during the
3 Congressional hearing, that in April of 1973, in
4 conjunction with that symposium, Dr. Saffioti had visited
5 and toured Professor Maltony's laboratory?

6 A. Yes.

7 Q. And he had seen the setup that was used for
8 the vinyl chloride studies that Professor Maltony was
9 then performing?

10 A. Would you repeat that question, please?

11 Q. During the Congressional hearing, you
12 learned for the first time that in April of 1973, several
13 months before the July, 17, 1973 meeting with the MCA
14 representatives, Dr. Saffioti of the National Cancer
15 Institute, had seen the laboratory and the setup that
16 Professor Maltony was using for the study, right?

17 A. Yes.

18 Q. In response to the notice in the Federal
19 Register published by NIOSH, did your agency receive any
20 information whatsoever from the National Cancer
21 Institute?

22 A. No.

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1 Q. At any time during 1973, did members of
2 your staff contact any of the other government entities
3 that were involved with vinyl chloride to find out what
4 information they had?

5 A. I don't think so.

6 MR. WODKA: Are you done?

7 MR. GOLDBLATT: I'm sorry, are you finished
8 with your answer?

9 THE WITNESS: No. NIOSH did have some kind
10 of liaison with the National Cancer Institute, the
11 details of which I cannot recall. I can't recall who it
12 was at NIOSH and who it was at the Cancer Institute.
13 There were contacts, but I can't say that any occurred on
14 the subject of vinyl chloride in '73.

15 BY MR. GOLDBLATT: (RESUMED)

16 Q. Dr. Key, wasn't it Dr. Saffioti who was the
17 primary liaison between NIOSH and NCI?

18 A. I think so, but I can't be sure.

19 Q. At any time during 1973, did Dr. Saffioti
20 or the National Cancer Institute brief members of NIOSH
21 on the status of Maltony's research or any of the data
22 that he had generated or the results that he had observed

1 concerning tumors in the species that he was testing?

2 A. No.

3 Q. Dr. Key, do you agree with me, sir, that it
4 is quite possible that Dr. Saffioti was well aware of
5 Professor Maltony's results long before you were?

6 MR. WODKA: Objection.

7 THE WITNESS: Is that speculation?

8 MR. WODKA: That's why I objected.

9 THE WITNESS: Do you want me to answer it?

10 MR. GOLDBLATT: Can you answer it, Doctor?

11 MR. WODKA: Objection.

12 THE WITNESS: No.

13 BY MR. GOLDBLATT: (RESUMED)

14 Q. Have you ever talked to Dr. Saffioti about
15 this subject?

16 A. I've talked to Dr. Saffioti. I can't
17 recall where or when or about the subject matter.

18 Q. After the --

19 A. I mean, we were both together at the
20 hearing.

21 Q. I want to know whether you talked about
22 this subject with Dr. Saffioti before the Congressional

1 hearing, sir. Did you?

2 A. No.

3 Q. Am I correct, sir, that on February 1,
4 1974, NIOSH and CDC conducted a joint briefing of other
5 governmental agencies on vinyl chloride?

6 A. Yes.

7 Q. And this was after you had the meeting with
8 the BF Goodrich representatives concerning the discovery
9 of the angiosarcoma of the liver cases in their plant,
10 right?

11 A. Yes.

12 Q. And was Dr. Saffioti present at that
13 briefing?

14 A. I don't recall.

15 Q. Were you present at that briefing?

16 A. Yes.

17 Q. Who arranged the briefing?

18 A. NIOSH did.

19 Q. What was the purpose of the briefing?

20 A. To brief other federal agencies with
21 enforcement regulatory responsibility in this field as to
22 the findings thus far on vinyl chloride.

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1 Q. Was it also to get together with them and
2 share information and gain the benefit of their thinking
3 concerning the available information?

4 A. Yes, a two-way street.

5 Q. Was that a day-long briefing?

6 A. I don't recall how long it took. It was
7 all done within a day.

8 Q. At any time during the course of that
9 briefing, did any of the members of the National Cancer
10 Institute that were present brief NIOSH on what NCI had
11 known about the status of Professor Maltony's work during
12 1973?

13 A. I don't believe so. -

14 Q. Did you ask whether any of the other
15 governmental agencies had any information about this that
16 predated NIOSH's?

17 A. I don't recall, but since it was a two-way
18 street, we probably did.

19 Q. Who did?

20 A. The person conducting the meeting.

21 Q. Who was that?

22 A. Probably myself.

1 Q. You used the word probably.

2 A. I don't --

3 Q. Are you telling us that you did that or are
4 you telling us you don't know? What is it you're trying
5 to tell us, doctor? Did you ask him that or not, do you
6 know?

7 A. I don't know.

8 Q. After you heard Dr. Saffioti's testimony
9 before Congress, did you then ask him --

10 A. No.

11 Q. -- why they hadn't brought to NIOSH's
12 attention the information that they had in 1973?

13 A. No.

14 MR. WODKA: Objection to form.

15 THE WITNESS: Would you like to know why?

16 BY MR. GOLDBLATT: (RESUMED)

17 Q. You mentioned another entity, the National
18 Institute for Environment, Health and Sciences; is that
19 correct?

20 A. Environmental Health Sciences.

21 Q. Who was the head of that group?

22 A. David Rawl.

1 Q. What is his background?

2 A. Toxicologist, and I believe also a
3 physician.

4 Q. Do you know a Mr. Craybill (phonetic)?

5 A. Herman Craybill, Food and Drug
6 Administration, yes.

7 Q. What was his position at this time?

8 A. One of the leading toxicologists within the
9 Food and Drug Administration.

10 Q. Were Rawl and Craybill people that you
11 would look to for information about the toxicology of
12 particular substances?

13 A. Yes.

14 Q. Dr. Key, I'd like to talk to you now about
15 the July 17, 1973 meeting in some more detail. Okay?

16 Do you recall who made the arrangements for
17 that meeting?

18 A. I believe George best, MCA's managing
19 director, made the arrangements through Ed Bair, my
20 deputy.

21 Q. What was Ed Bair's role at NIOSH at the
22 time?

1 A. He ran the institute when I wasn't there.

2 Q. He was your second in command?

3 A. Second in command.

4 Q. What was his background?

5 A. Industrial hygiene at the state level in
6 Pennsylvania.

7 Q. Did you yourself have any conversation with
8 Mr. Best about this meeting?

9 A. He called just before the meeting to make
10 sure I would be there.

11 Q. Do you recall that conversation?

12 A. Only that I said I'd be there.

13 Q. Was there a question about whether you
14 would be there or not?

15 A. There wasn't in my mind. There was
16 probably in his, because Bair had -- he had made the
17 arrangements through Ed Bair.

18 Q. Had your personal attendance been requested
19 by the MCA?

20 A. Yes.

21 Q. Do you know why that is?

22 A. I can hazard a guess. These were high

1 level people being brought, and high level people deserve
2 a meeting with high level people within NIOSH.

3 Duffield crossed the ocean for that
4 meeting. And from a protocol point of view, it wouldn't
5 have been right to have them meet with a branch chief or
6 someone farther down the line.

7 Q. Was Dr. Christiansen involved in the
8 arrangements for the meeting?

9 A. I remember Herb Christiansen well, another
10 very good toxicologist on our staff. I don't recall what
11 his role was.

12 Q. Who decided who would be present for NIOSH?

13 A. I don't recall that.-

14 Q. Did you select the NIOSH representatives?

15 A. I don't recall that.

16 Q. Do you know why Mr. Rose was not present?

17 A. I don't know.

18 Q. What was Dr. Mitchell's background?

19 A. Mitchell is a physician who had, I believe,
20 been an anesthesiologist originally and had gone over
21 into the specialty of occupational medicine.

22 Q. How long had he been with you at NIOSH or

3 A. Well, in '73 NIOSH was only a couple of
4 years old. It must have been a year or two.

5 Q. Was Dr. Lassiter a toxicologist?

6 A. Was and is, yes.

7 Q. What was Keith Jacobson's background?

8 | A. Also a toxicologist.

9 Q. What was Richard James's background?

10 | A. I don't recall.

11 Q. Were Mr. Bair or Mr. Christiansen present
12 for any part of the meeting?

13 A. Not to my knowledge. -

14 Q. What if anything did NIOSH do to prepare
15 for the meeting?

16 A. Other than making sure the conference room
17 was in order, I don't know of anything.

18 Q. Was there any premeeting meeting at NIOSH?

19	A. No.
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20 Q. Did you request that any members of the
21 staff brief you on vinyl chloride before the meeting?

22 A. No.

1 Q. Did you make any inquiry of your staff as
2 to what the status of the vinyl chloride literature was
3 as of that time?

4 A. No.

5 Q. Did NIOSH contact any other government
6 agencies that might have had an interest in this subject
7 matter and request their presence at the meeting?

8 A. No.

9 Q. As of the time of this meeting, had a
10 decision been made by NIOSH to go forward with a vinyl
11 chloride criteria document?

12 A. No.

13 Q. Was there a timetable for creating a vinyl
14 chloride criteria document as of this meeting?

15 A. In July of '73, we did have timetables for
16 criteria documents. I don't know whether vinyl chloride
17 was listed on the timetable of July of '73. It would be
18 easy enough to ascertain.

19 NIOSH was frequently asked by Congress as
20 well as OSHA when are you going to come out with your
21 next criteria document and how many are going to come out
22 during the year. We were being measured by our output.

1 Q. You told us before that you were familiar
2 with several of the representatives of MCA and industry
3 that came to NIOSH on that day; is that right?

4 A. Yes.

5 Q. You knew Mr. Best and Mr. Rowe and Mr.
6 Duffield; is that right?

7 A. That was the first time I met Dr. Duffield.
8 I had known Best and Rowe previously.

9 Q. Did you consider them to be knowledgeable
10 men in their fields?

11 A. Yes.

12 Q. Did you consider them to be well respected
13 in their fields?

14 A. Yes.

15 Q. And did you subsequently get to know Dr.
16 Duffield better?

17 A. Yes.. He made other visits to the States.

18 Q. Had you known Mr. Wheeler or Mr. Rhinehart
19 earlier?

20 A. I don't believe so.

21 Q. Now, am I correct, Doctor, that this
22 meeting began at about 1:00, PM?

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1 A. I think it began after lunch and lasted a
2 couple of hours.

3 Q. How many hours?

4 A. I said a couple.

5 Q. Do you mean two? Do you mean three?

6 A. Approximately two.

7 Q. And were you present throughout that two
8 hours?

9 A. Yes.

10 Q. Was there any point in time other than a
11 break or something like that that the meeting went on
12 outside of your presence?

13 A. No.

14 Q. Was there one meeting or more than one
15 meeting that afternoon?

16 A. Only one meeting with the MCA
17 representatives.

18 Q. Dr. Key, do you have any recollection
19 of a second meeting in your office between you,
20 Dr. Christiansen and Mr. Bair and the MCA
21 representatives?

22 A. I remember VK Rowe stayed on after the

1 meeting, after the MCA meeting, but I don't recall for
2 what purpose or who else was there.

3 Q. Did you have a separate meeting with Dr.
4 Rowe on that day?

5 A. That's the one we were just talking about
6 when he stayed on after the meeting.

7 Q. Did he stay on and meet with you is what
8 I'm asking?

9 A. Yes.

10 Q. How long was that meeting?

11 A. I don't know.

12 Q. Do you recall what was said during that
13 meeting?

14 A. No, I don't.

15 Q. No recollection about what was discussed?

16 A. No recollection.

17 Q. Dr. Key, were you aware of any concerns
18 expressed by the European representatives about the
19 confidentiality of their research?

20 MR. WODKA: Where, at the meeting?

21 MR. GOLDBLATT: At or before the meeting in
22 July of 1973.

1 THE WITNESS: Certainly not before the
2 meeting. During the meeting, Duffield had mentioned that
3 the European second order research was being sponsored by
4 a group of European countries, but I don't remember
5 anything about the confidentiality agreement that these
6 companies may have had.

7 BY MR. GOLDBLATT: (RESUMED)

8 Q. Was it your understanding that the European
9 countries were the sponsors of the second stage or order
10 study that you referred to?

11 A. Yes.

12 Q. And that is the study that you say you
13 first learned from the BF Goodrich people in January of
14 1974 was being done by Professor Maltony; is that right?

15 A. Yes.

16 Q. So you understood that the MCA and the US
17 representatives that were there were not sponsors of that
18 European research; is that right?

19 A. That's right.

20 Q. And you understood that that is why Dr.
21 Duffield was coming over from Europe, to brief NIOSH
22 about that work; is that right?

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1 A. Yes.

2 Q. Do you know what if anything the MCA had to
3 do in order to arrange for the European representatives
4 to come to the U.S. to brief NIOSH?

5 A. No.

6 MR. GOLDBLATT: Let's take a short break.

7 VIDEO SPECIALIST: We're going off the
8 record. The time on the screen is 12:07:43

9 (Brief recess taken)

10 VIDEO SPECIALIST: This is videotape No. 2,
11 the continuation of the deposition of Dr. Key. Today is
12 September 19, 1995. The time on the screen is 12:20:37.
13 On the record.

14 BY MR. GOLDBLATT: (RESUMED)

15 Q. Dr. Key, you did not make any notes at the
16 July 17, 1973 meeting; is that correct?

17 A. Correct.

18 Q. It was not your practice to take notes at
19 meetings unless you had something that you needed to
20 follow up on; is that right, sir?

21 A. Yes.

22 Q. Would it be fair to say that during this

1 period of time in your tenure as director of NIOSH, you
2 were attending many meetings during each week?

3 A. Yes.

4 Q. Now, is it correct, sir, that no one from
5 the NIOSH group was given the specific responsibility of
6 taking notes for the group; is that right, sir?

7 A. I knew that notes were being taken by
8 Lassiter and Mitchell. I don't recall who gave them that
9 responsibility.

10 Q. Well, my question is, was it a
11 responsibility that you say you gave to someone or did
12 you leave it up to the practice of the individuals
13 whether to take notes or not take notes?

14 A. I don't recall.

15 Q. Is it fair to say that you don't recall
16 whether any notes were made by Mr. James or Mr.
17 Lassiter?

18 A. I don't recall.

19 Q. And is it also correct, sir, that no one
20 from NIOSH prepared a contemporaneous memoranda of what
21 was discussed at this meeting?

22 A. Correct.

1 Q. The only memoranda that was prepared was
2 the one that was created by Mr. Jacobson nearly a year
3 later; is that right, sir?

4 A. Correct.

5 Q. And that memo has been marked as Deposition
6 Exhibit No. 2; is that right, sir?

7 A. Correct.

8 Q. The meeting was July 17, 1973; is that
9 right, sir?

10 A. Correct.

11 Q. Mr. Jacobson's memo is dated May 24, 1974;
12 is that correct, sir?

13 A. Correct.

14 Q. Are you telling us, sir, that it was the
15 regular practice of NIOSH to prepare memos of meetings
16 nearly a year after the meeting had occurred?

17 A. No, I'm not telling you that.

18 Q. The memo that Jacobson prepared, Exhibit 2,
19 was prepared at your specific instance and request nearly
20 a year after the meeting, right?

21 A. Correct.

22 Q. After the meeting, was there any effort by

1 NIOSH to brief any other governmental agencies?

2 A. No.

3 Q. Was there any follow-up research conducted
4 by NIOSH?

5 A. No.

6 Q. During the course of the meeting, there was
7 reference to the study conducted by Professor Viola; is
8 that right?

9 A. Yes.

10 Q. You do recall that discussion, right?

11 A. Yes.

12 Q. Following the meeting, did you review
13 Professor Viola's article?

14 A. No.

15 Q. Did you ask anyone on your staff to get it
16 for you?

17 A. I don't recall.

18 Q. Did you assign anyone on your staff
19 responsibility to do any follow-up research with respect
20 to the matters that were discussed at that meeting?

21 A. No.

22 Q. I'd like to talk to you now in a little

1 more detail about exactly what was discussed at the
2 meeting. Okay?

3 A. Fine.

4 Q. Do you recall, sir, that at the outset of
5 the meeting, NIOSH was advised that Dr. Gorlonda from
6 Italy had been unable to attend?

7 A. Yes.

8 Q. Who was Dr. Gorlonda?

9 A. Mount Edison (phonetic) toxicologist.

10 Q. Did you understand that his company was
11 also one of the sponsors of Professor Maltony's study?

12 A. Yes.

13 Q. And you understood that he had intended to
14 be present at the meeting but was unable; is that right?

15 A. Yes.

16 Q. Who was the first speaker at the meeting?

17 A. VK Rowe was the spokesman for MCA. He
18 introduced Duffield.

19 Q. And Duffield was the spokesman with respect
20 to the European work; is that right?

21 A. That's right.

22 Q. And do you recall what Dr. Rowe spoke

1 about?

2 A. The latter part of the meeting he spoke
3 about MCA's plan to do a toxicity study and an
4 epidemiologic study.

5 Q. What about at the early part of the
6 meeting?

7 A. I don't remember what he said at the early
8 part of the meeting other than indtroducing Duffield.
9 Oh, yes, I think he reviewed the limits for vinyl
10 chloride up to that time.

11 Q. Do you recall Dr. Rowe outlining the
12 background for the investigative program and the
13 magnitude of the vinyl chloride and poly vinyl chloride
14 industries?

15 A. I do now.

16 Q. Does that refresh your recollection, sir?

17 A. Yes.

18 Q. You do recall Dr. Rowe briefing NIOSH about
19 that subject, right?

20 A. Yes.

21 Q. By the way, sir, you gave us some figures
22 before on the number of workers on the monomer and in the

1 polymerization portion of the industry. Do you recall
2 that testimony?

3 A. Yes.

4 Q. How many companies, separate companies,
5 were involved in production of vinyl chloride monomer?

6 A. I think it was on the order of six or
7 seven.

8 Q. A fairly limited group then of producers of
9 monomer; is that correct?

10 A. That's correct.

11 Q. How large was the group of companies that
12 were engaged in polymerization of monomer into poly vinyl
13 chloride?

14 A. On the order of 13 to 15.

15 Q. Also a fairly small group of companies?

16 A. Yes.

17 Q. And did you recognize them as all major
18 U.S. companies?

19 A. Yes.

20 Q. All with their own medical, industrial
21 hygiene and toxicology staffs?

22 MS. BOSSE: I object to the form.

1 THE WITNESS: I don't know whether they all
2 had it, but the vast majority of them had both hygiene as
3 well as medical staff.

4 MR. GOLDBLATT: Did you recognize them as
5 sophisticated users and producers of chemical and other
6 products?

7 MS. BOSSE: Objection to the form.

8 MR. WODKA: Objection.

9 THE WITNESS: When you object, do I still
10 have to answer?

11 MR. GOLDBLATT: When they object, they are
12 objecting for purposes of noting on the record so the
13 judge can make a ruling at a later time. But as with Mr.
14 Wodka's questions and any objections made at that time,
15 you are still obliged to give an answer.

16 Can you answer that question?

17 THE WITNESS: Would you repeat the
18 question?

19 MR. GOLDBLATT: What I'm trying to
20 understand is, did you recognize these companies as all
21 being knowledgeable and sophisticated companies when it
22 came to medical and toxicological information about their

1 products?

2 MS. BOSSE: Objection to the form.

3 MR. WODKA: Objection.

4 THE WITNESS: Yes.

5 MR. GOLDBLATT: Did Dr. Rowe then proceed
6 to discuss a number of scientific papers including papers
7 on the documentation of threshold limit values?

8 MR. WODKA: Objection. Why don't you ask
9 him exactly what, you know, instead of characterizing.

10 MR. GOLDBLATT: Mr. Wodka, with all due
11 respect, if you have an objection to the form, I would
12 ask you to do what everyone else has done during your
13 examination, and note your objection for the record.

14 I certainly did not, despite having lots of
15 opportunity to do so, characterize in any way how you
16 should ask a question.

17 MR. WODKA: We obviously have a witness
18 here who is not familiar with the deposition process.

19 BY MR. GOLDBLATT: (RESUMED)

20 Q. Dr. Key, do you have the question in mind?

21 A. Would you mind repeating it?

22 Q. Not at all, sir.

1 Do you remember Dr. Rowe discussing the
2 subject of threshold limit values for vinyl chloride?

3 A. Yes.

4 Q. Do you recall Dr. Rowe discussing MCA's
5 role in administering a scientific study of
6 acroosteolysis in the 1960's?

7 A. Yes.

8 Q. Do you recall Dr. Rowe talking about MCA's
9 role in arranging consultation meetings in 1971 with
10 Professor Viola about his studies?

11 A. No.

12 Q. Do you recall Dr. Rowe discussing Professor
13 Viola's study at all?

14 A. No. It was Duffield who discussed the
15 study.

16 Q. Is it your best recollection that it's Dr.
17 Duffield who discussed Professor Viola's 1970-1971 study
18 and not Mr. Rowe or any of the other members of the MCA
19 group? Is that your best recollection?

20 A. I agree with the first part of your
21 question, that it was Duffield who discussed it. I can't
22 say that others didn't also discuss it, but I don't

1 recall them having done so.

2 Q. Do you recall Dr. Rowe telling the group
3 that the MCA's research program had been held up in order
4 to gain information about the European research?

5 A. Yes.

6 Q. Do you recall Dr. Duffield beginning his
7 presentation by talking about a post examination of the
8 histologic specimens from Dr. Viola's work?

9 A. Yes.

10 Q. You do recall that discussion in some
11 detail; is that right, Doctor?

12 A. Yes.

13 Q. And do you recall that there was a question
14 about some of the conclusions that Professor Viola had
15 reported in 1971 about his 1970 study?

16 A. Yes.

17 Q. And there was some question about whether
18 the cancers or tumors that he had observed were primary
19 tumors or were metastasis from another part of the body;
20 is that right?

21 A. Correct.

22 Q. And you were advised by Dr. Duffield that

1 they had taken another look at Professor Viola's research
2 and reached different conclusions; is that right?

3 A. Taking another look at his research as well
4 as the tissue -- as well as the slides from the tissues
5 that were affected, and had come do a different
6 conclusion.

7 Q. Would you agree with me, Dr. Key, that it's
8 good science to reexamine results that are reported that
9 are considered unusual or new or different?

10 A. Oh, yes.

11 Q. Do you recall Dr. Duffield reminding the
12 group of the purpose of Dr. Viola's research?

13 A. Yes.

14 Q. And do you recall what that was?

15 A. To find an animal model for production of
16 acroosteolysis.

17 Q. You do recall him saying that?

18 A. Yes.

19 Q. Do you recall Dr. Duffield explaining that
20 the European program was directed both to epidemiology
21 and animal testing?

22 A. Yes.

1 Q. Do you recall that he reported on the
2 preliminary results of ICI's epidemiology work?

3 A. Yes.

4 Q. What do you recall him reporting about
5 that?

6 A. It was early on. The study had not been
7 completed. They were looking for excess cancer among the
8 exposed population. And thus far it looked good, which I
9 interpreted to mean they weren't finding any excess
10 cancer.

11 Q. Did you interpret that to mean that the
12 epidemiology work was not confirmatory of the animal work
13 at that point in time?

14 A. Was not confirmatory of the animal work at
15 the time. That is a funny question. I have to think
16 about that. Neither one was complete. Both of these
17 studies were in progress. And you couldn't use an
18 in-progress study to confirm or deny another in-progress
19 study, at least I couldn't.

20 Q. So you would want to wait until the studies
21 were complete and you had the final data before reaching
22 a conclusion on whether or not --

1 A. Or nearly complete.

2 Q. Now, what is epidemiology, sir?

3 A. It's the study of exposed populations to
4 ascertain the excess of certain conditions or
5 characteristics that are not present in a controlled
6 population.

7 Q. And when you say study populations, you're
8 studying human beings, right, Doctor?

9 A. Yes.

10 Q. You're looking for the incidence of a
11 certain disease in a particular population as compared to
12 you say a controlled population?

13 A. Or the general public.

14 Q. Is that right?

15 A. Yes.

16 Q. What is the animal or toxicology kinds of
17 studies that you've been talking about this morning? How
18 does that differ from epidemiology?

19 A. Well, the same principle applies in that
20 there is an exposed population of animals and a control
21 group of animals who are not exposed. And similar
22 statistical methods are used to determine if there is an

5 Q. Now, when you refer to the toxicology
6 studies, we're talking about the administration of a
7 particular substance to an animal species in an attempt
8 to study whether it produces a certain disease; is that
9 right?

10 | A. Yes.

11 Q. Now, is it good science, sir, to conduct
12 both toxicology studies and epidemiology studies before
13 drawing any conclusions about the incidence of disease in
14 human beings?

15 MR. WODKA: Objection.

16 THE WITNESS: That would be the ideal
17 approach, to have information from both kinds of studies,
18 but in occupational health, we seldom have all the
19 information that's needed to recommend an exposure limit.

20 BY MR. GOLDBLATT: (RESUMED)

21 Q. Don't you want to get as much information
22 as is possible, Doctor? Isn't that what you want to do?

1 A. Yes, but you don't want to wait until the
2 bodies start piling up.

3 Q. Nobody is suggesting that you do that, sir.
4 I'm just trying to understand what the practice was at
5 the time.

6 A. Yes.

7 Q. In fact, that's something that NIOSH would
8 strive to do, to get all of the information that was
9 available, right?

10 A. I refer to -- yes and no. I refer to
11 20(A)3 of the Act. There is another provision a little
12 farther down, 20(A)6, which imposes some urgency on
13 NIOSH, that when NIOSH discovers a heretofore unknown
14 toxic problem, to gather as much data on it as is
15 available and immediately transfer it to OSHA.

16 There is another place in the Act that
17 imposes an immediate requirement of taking what is
18 available and moving it over to OSHA, so they can get an
19 early start on the problem.

20 And I suppose this was inserted by one of
21 the House or Senate committees writing the Act to force
22 NIOSH into early action and not wait until the bodies

1 piled up, as I said before.

2 Q. Note my objection to the answer as being
3 nonresponsive.

4 Do you recall, Dr. Duffield mentioning that
5 the European countries intended to also brief their
6 respective governments about the progress of their work?

7 A. I believe so.

8 Q. Subsequent to the meeting on July 17, 1973,
9 did you or any member of your staff contact your
10 counterparts in Europe concerning vinyl chloride?

11 A. We had a good relationship with the British
12 occupational health people, but I don't recall whether we
13 contacted them about vinyl chloride. It seems that after
14 the January '74 disclosure, we did pass on information to
15 some of the foreign governments.

16 Q. Do you recall Dr. Rowe explaining the
17 particulars of MCA's program?

18 MR. WODKA: Objection. What program?

19 MR. GOLDBLATT: Let me rephrase the
20 question.

21 Do you recall Dr. Rowe explaining the
22 particulars of the animal testing and the epidemiology

1 study that MCA was sponsoring?

2 MR. WODKA: Objection.

3 THE WITNESS: I remember some of the
4 details. I think he identified the organization doing
5 each one, but as far as concentrations to which the
6 animals would be exposed or the number of animals or the
7 kinds of animals or where the exposed populations would
8 be studied, I don't recall him mentioning that.

9 BY MR. GOLDBLATT: (RESUMED)

10 Q. But you do recall the subject being
11 discussed, that is, the research that was going to be
12 performed and sponsored by MCA, right?

13 A. Yes.

14 Q. Do you recall Dr. Rowe or the members of
15 the MCA group distributing proposed protocols for that
16 research and asking for NIOSH's input on those protocols?

17 A. I don't recall that.

18 Q. Now, if that subject was discussed in
19 detail, is that something that someone else on your staff
20 besides you would have been involved in?

21 A. If MCA had asked for NIOSH's comments on
22 their proposed tox and epi studies, I would not have been

1 the one to proffer those comments. Our epidemiologist
2 and toxicologist would have responded.

3 Q. You had some toxicologists at the meeting
4 with you, didn't you, sir?

5 A. Yes.

6 Q. Mr. Lassiter was one?

7 A. Yes.

8 Q. Were there other toxicologists?

9 A. Yes. Jacobson was a toxicologist.

10 Q. Would they have been the people at the
11 meeting at least who might have been in a position to
12 offer comments about protocols and things of that nature?

13 A. It's possible.

14 Q. Prior to the July 17, 1973 meeting, do you
15 recall seeing any press releases or notices about the MCA
16 sponsored research?

17 A. No.

18 Q. As of the time you went into this meeting
19 then, was it the first time you had heard that MCA was
20 sponsoring testing on vinyl chloride?

21 A. Yes.

22 Q. Now, do you recall, was there a point in

1 the meeting or points at the meeting where it was open
2 for question and answer?

3 A. I don't recall.

4 Q. Do you recall questions being asked of the
5 MCA representatives?

6 A. Jacobson had some questions for Duffield.

7 Q. You would agree that certainly there was
8 nothing about the meeting that precluded any sharing of
9 information or questions and answers, right?

10 A. No.

11 Q. Now, do you recall Dr. Jacobson inquiring
12 about the strain of rats that were selected for the test
13 protocol?

14 A. Yes, Sprague Dolly (phonetic) strain of
15 rat.

16 Q. So you do recall him asking that question?

17 A. Yes.. That was one of the preferred strains
18 in use in this country, and he wanted to know if the
19 Italians were using that.

20 Q. Do you recall Dr. Lassiter making comments
21 about the inclusion of food, water and bedding exposure
22 comparisons in the animal group?

1 A. I remember somebody asking about that.

2 Q. But you don't recall as you sit here today
3 whether it was Lassiter or someone else, right?

4 A. No, I don't.

5 Q. Do you recall Dr. Duffield responding to
6 that inquiry?

7 A. Yes.

8 Q. Do you recall questions being asked by
9 Dr. Lassiter about the exposure range for the European
10 study?

11 A. No. All I remember was Dr. Duffield saying
12 the exposures would be more realistic.

13 Q. And Dr. Key, did you or anyone on your
14 staff ask what that meant?

15 A. No.

16 Q. Would that be the kind of question that a
17 toxicologist would ask?

18 A. Yes, except where the tumors that were
19 produced were Zymbal gland tumors. Even today nobody
20 knows how to make the extrapolation from Zymbal gland
21 tumors in rats to human beings, because we don't have
22 glands like that.

1 Q. One of the things that concerns
2 toxicologists and other scientists who do animal testing
3 is what if anything you can extrapolate from animals to
4 human beings; is that right?

5 A. That's correct.

6 Q. Is this referred to as concordance in the
7 field?

8 A. Yes.

9 Q. And there is a fair amount of room for
10 discussion and debate and difference of opinion between
11 scientists as to just how much concordance there is
12 between animal testing and the human experience; is that
13 right, Doctor?

14 A. Quite a bit.

15 MR. WODKA: Objection.

16 BY MR. GOLDBLATT: (RESUMED)

17 Q. And one of the reasons you referred to the
18 absence of concordance, if you will, about finding tumors
19 in rodents to the human experience is that we don't have
20 a concordant cell structure, we don't have Zymbal glands,
21 right?

22 A. That's a good way of putting it.

1 Q. Let me ask a more specific question about
2 some of the things discussed at the meeting.

3 Do you recall Dr. Duffield, in response to
4 a question from your staff identifying the exposure range
5 of the European study, the second order study that you
6 later found out was Professor Maltony's, to be in the
7 range of 50 to 10,000 parts per million with repetition
8 of the 30,000 part per million level that Professor Viola
9 had studied? Do you recall that one way or the other?

10 A. I remember that the 30,000 was going to be
11 repeated. I don't recall the range of the study. I
12 don't recall whether he told us the range of the study.

13 Q. Now, do you recall questions being asked by
14 your staff about the range of the second order study, the
15 Professor Maltony study, at which tumors had been
16 observed?

17 MR. WODKA: Objection. I thought that was
18 just asked and answered.

19 THE WITNESS: No, I don't recall.

20 BY MR. GOLDBLATT: (RESUMED)

21 Q. Do you recall Dr. Duffield, in response to
22 a question from your staff, stating that tumors had been

1 observed in the second order study, the study you later
2 found out was performed by Professor Maltony, at levels
3 as low as 250 parts per million? Do you recall that one
4 way or the other?

5 A. My recollection is he did not tell us that
6 tumors had been observed at 250 parts per million.

7 Q. Do you recall the question being asked that
8 was, at what levels tumors were observed?

9 A. No, I don't.

10 Q. Do you recall Drs. Mitchell and Jacobson
11 making comments about the need to document the exposure
12 levels in the epidemiological surveys?

13 A. Vaguely.

14 Q. Do you recall Dr. Lassiter pointing out the
15 desirability of separating smokers from nonsmokers?

16 A. Vaguely. After all, this is 22 years ago.

17 Q. I appreciate it's 22 years ago, Doctor, and
18 I'm trying to find out as much as possible about what you
19 do remember and what you don't remember.

20 Do you recall suggesting that the MCA
21 representatives speak with other members of your staff?

22 A. No.

1 Q. Do you recall suggesting that they speak
2 with Dr. Stokenger?

3 A. I recall suggesting, or someone on our
4 staff suggested, that they confer with Dr. Stokenger in
5 regard to the tox study that MCA was planning to do.

6 Q. Who was Dr. Stokenger?

7 A. He was in the Cincinnati laboratory, our
8 head toxicologist there doing studies on exposed animals
9 to see what the toxic effects were.

10 Q. So he was in the lab that NIOSH had that
11 was capable of doing the kinds of studies that you
12 understood the U.S. and European representatives were
13 sponsoring?

14 A. That's right.

15 Q. Is he a well-regarded toxicologist?

16 A. Indeed.

17 Q. He was based in Cincinnati, not Washington;
18 is that right?

19 A. Cincinnati.

20 Q. Was he also active in the American
21 Conference of Governmental Industrial Hygienists?

22 A. He chaired the ACGIH Threshold Limit Value

1 Committee for a number of years.

2 Q. What was that committee? What was its job
3 or function?

4 A. Its job was to recommend safe exposure
5 levels for a great variety of chemical and physical
6 agents.

7 Q. These would be recommendations that were
8 different from those recommendations that were made and
9 carried the force of law from OSHA; is that right?

10 A. It was their recommendation, ACGIHTLV's,
11 that were originally adopted by OSHA under another
12 federal act, but as of the time period we're talking
13 about here, their recommendations did not have the force
14 of law.

15 Q. They would not have the force of law unless
16 they were subsequently adopted by OSHA; is that right?

17 A. That's correct.

18 Q. Do you know what the ACGIH recommended
19 exposure level for vinyl chloride was in 1973?

20 MR. WODKA: I'm going to object. This goes
21 beyond the scope of the direct.

22 Go ahead if you know.

1 THE WITNESS: In '73. Well, after all, I
2 chaired ACGIH for a year. I think it was 500 parts per
3 million ceiling value eight hours a day, five days a week
4 working lifetime.

5 BY MR. GOLDBLATT: (RESUMED)

6 Q. And you chaired that committee, so you're
7 certain of that, right, Doctor?

8 A. In '73, yes. That was the ACGIH
9 recommended limit at the time.

10 Q. Do you recall asking your staff some
11 questions about when vinyl chloride was due for
12 consideration in the criteria documents program?

13 A. No, I don't recall.

14 Q. Do you recall Dr. Jacobson asking some
15 questions about inquiries concerning availability of
16 vinyl chloride for uses in aerosol component?

17 A. Yes. I didn't understand his interest in
18 the question, but I remember him asking that.

19 Q. Do you recall, sir, were papers left with
20 you and your staff by the MCA representatives?

21 A. I don't recall.

22 MR. GOLDBLATT: I'd like this document

1 marked as Exhibit No. 7.

2 (Document marked Key Exhibit No. 7)

3 BY MR. GOLDBLATT: (RESUMED)

4 Q. Dr. Key, I show you what's been marked as
5 Deposition No. 7. Do you recognize that document?

6 A. I believe this is one of the documents
7 discovered in the discovery process.

8 Q. The document is a memo dated July 20, 1973
9 from George Best; is that right?

10 A. That's right.

11 Q. And attached to that memo is a document
12 that's entitled, "notes on meeting between
13 representatives of MCA technical task group and vinyl
14 chloride research and National Institute for Occupational
15 Safety and Health, Rockville, Maryland, July 17, 1973."

16 Is that right, sir?

17 A. Correct.

18 Q. Do you recognize this document as Mr.
19 Best's notes on the meeting that we've been discussing
20 here today?

21 MR. WODKA: Objection; no foundation.

22 THE WITNESS: I don't know whether they are

1 his notes or not, but he transmitted it to management
2 contacts.

3 BY MR. GOLDBLATT: (RESUMED)

4 Q. Dr. Key, did you review this document in
5 preparation for your testimony here today?

6 A. Yes.

7 Q. Did you review other documents in
8 preparation for your testimony here today?

9 A. Yes.

10 Q. Were you provided with a group of documents
11 by Mr. Wodka to review in preparation for your testimony?

12 A. Yes.

13 Q. So this is one of the documents that you
14 reviewed, Exhibit 7; is that right?

15 A. That's right.

16 Q. I'd like to refer you to the fourth page of
17 the exhibit, which is page 3 of Mr. Best's notes.

18 Are you on that page, sir?

19 A. Yes.

20 Q. Would you look at the next to last
21 paragraph of the document and read it to yourself, sir?

22 A. Yes.

1 Q. Have you had a chance to do that, sir?

2 A. Yes.

3 Q. In that paragraph, there is a reference to
4 comments by Dr. Duffield, and let me read it so it's
5 clear: "1) identify the European study" -- strike that.

6 Let me do it this way. You've had a chance
7 to look at that paragraph?

8 A. Yes.

9 Q. Does that paragraph refresh your
10 recollection on the question of whether Dr. Duffield
11 talked about the levels at which tumors had been observed
12 in the second level study? Does it refresh your
13 recollection about that subject?

14 A. It does not refresh my recollection because
15 I don't believe Duffield mentioned 250 parts per million.

16 Q. So you would agree with me that your
17 recollection of what was discussed at the meeting differs
18 from what's reported in these notes, Exhibit 7, right?

19 A. Mr. Goldblatt, when there is a problem
20 about what is said in an oral report, there are usually
21 two versions, one in the mind of the speaker and another
22 in the mind of the listener.

1 I give you what I and others were listening
2 to. I can't tell you what Duffield thought he was
3 saying. Apparently this is what he thought he was
4 saying, but we didn't hear it that way.

5 Q. I understand your testimony in that regard,
6 but the document you're looking at is not Duffield's
7 notes. It's Best's notes, isn't it, sir?

8 MR. WODKA: Objection; no foundation.

9 THE WITNESS: I don't know whose notes they
10 are.

11 BY MR. GOLDBLATT: (RESUMED)

12 Q. Who signed the document, sir?

13 A. George Best.

14 Q. So what you're telling me, Doctor, is that
15 it's human experience that at any event that's observed
16 by multiple people, there can be different perceptions of
17 what is said?

18 MR. WODKA: Objection.

19 THE WITNESS: Not any event, but where
20 there is a difference of opinion, there are usually two
21 versions, the speaker's version and the listener's
22 version.

1 BY MR. GOLDBLATT: (RESUMED)

2 Q. And in this meeting we have several
3 different people who were both speakers and listeners; is
4 that right?

5 A. Correct.

6 I'd like to make a gratuitous comment.

7 Q. No, sir, there is no question pending on
8 the record. If you would like to go off the record and
9 make a gratuitous comment to everybody, you're free to do
10 that.

11 MR. WODKA: Do you want to take a break?

12 THE WITNESS: No. I was just thinking
13 that --

14 MR. WODKA: He is right. If you want, we
15 can go off the record.

16 THE WITNESS: Off the record for a minute.

17 VIDEO SPECIALIST: We're going off the
18 record. The time on the screen is 1:01:19.

19 (Brief recess taken)

20 VIDEO SPECIALIST: We're back on the
21 record. The time on the screen is 1:03:12.

22 BY MR. WODKA: (RESUMED)

1 Q. Dr. Key, if I understand your testimony
2 correctly, your next significant recollection about vinyl
3 chloride after that meeting is receiving a call either
4 from BF Goodrich or a representative of BF Goodrich in
5 January, 1974; is that right?

6 A. That's correct.

7 Q. And was there a meeting with BF Goodrich
8 that same day?

9 A. No, I believe it was the following day, on
10 the 22nd of January.

11 Q. And was it at that meeting that you were
12 advised by BF Goodrich representatives about the results
13 of Professor Maltony's study for the first time?

14 A. Yes.

15 Q. And would you tell us what they told you at
16 that time about Professor Maltony's study?

17 A. That liver tumors, angiosarcoma of the
18 liver type tumors, had been observed in his rats exposed
19 down to 250 parts per million, period.

20 Q. Did you ask when that observation had first
21 been made?

22 A. I don't recall.

1 Q. Now, am I correct, sir, that after that
2 meeting, you had no contact with the MCA representatives
3 about what they knew about Professor Maltony's results?

4 A. I don't recall.

5 Q. As you sit here today, do you recall going
6 back to the MCA representatives and making any inquiry
7 about Professor Maltony's study once you first learned of
8 it?

9 A. I don't recall.

10 Q. Do you have any notes or memos that address
11 that subject in any fashion?

12 A. Whether I went back to MCA?

13 Q. Yes.

14 A. No, I don't have any notes or recall.

15 Q. Now --

16 A. May I explain why I wasn't as interested in
17 that subject as were you?

18 Q. Dr. Key, please stay with the questions.
19 If you feel you need to expand upon an answer, by all
20 means tell us that, but the framework for this kind of a
21 proceeding is question and answer.

22 A. I understand.

1 Q. Now, in January of 1974, you did get back
2 to Mr. Best; is that right?

3 A. I sent him one of the exhibits indicating
4 our progress to date and recommendations for work
5 practices.

6 Q. Are you referring to Deposition Exhibit No.
7 3, sir?

8 A. Yes.

9 Q. And that's a letter that you wrote to Mr.
10 Best; is that correct?

11 A. That's correct.

12 Q. By the way, did you draft it or did the
13 staff draft it?

14 A. I don't recall.

15 Q. Did you send the same letter to other
16 people as well?

17 A. I don't recall.

18 Q. In the letter, you request assistance in
19 disseminating information about NIOSH's recommended
20 monitoring and control procedures for polymerization
21 processes involving vinyl chloride; is that right?

22 A. Yes, to his member companies.

1 Q. So this was a document that you expected
2 would be distributed to the different companies that were
3 then engaged in the polymerization of vinyl chloride; is
4 that right?

5 A. And the manufacture of the monomer.

6 Q. Was it your hope and intent that the
7 procedures outlined in this enclosure would be considered
8 by them for immediate adoption in their plants if they
9 had not already been doing that?

10 MS. BOSSE: Object to the form.

11 THE WITNESS: Yes.

12 BY MR. GOLDBLATT: (RESUMED)

13 Q. And that was your purpose in sharing it
14 with Mr. Best and asking for that assistance; is that
15 right?

16 A. Yes.

17 Q. Did your staff sponsor a meeting with
18 industry and labor in February of 1974?

19 A. We sponsored a meeting in the early part of
20 that year. I don't remember the date.

21 Q. And did you attend that meeting?

22 A. I don't recall.

1 Q. After you were contacted by BF Goodrich on
2 January 22, 1974, did you communicate with any
3 representatives of the Oil, Chemical and Atomic Workers
4 Union concerning vinyl chloride?

5 A. Yes.

6 Q. Who did you contact and what was the nature
7 of the communication?

8 A. I believe it was Tony Mazzoky (phonetic),
9 and I believe it was to inform him that there was an
10 emergent problem with vinyl chloride and there would be a
11 meeting with labor and industry.

12 Q. Dr. Key, would you agree with me, sir, that
13 there was no controversy about what was discussed at the
14 July 17, 1973 meeting until an article appeared in the
15 Chemical and Engineering News on May 20, 1974?

16 A. That was the first -- the appearance in
17 Chemical and Engineering News was the first time that I
18 and members of my staff realized that there was a
19 controversy.

20 Q. How did that article come to your
21 attention, sir? Do you remember?

22 A. I believe it was, a reporter called me and

1 asked my reaction to it, and I had not yet seen it and
2 asked what article.

3 Q. As a result of that, did you secure a copy
4 of the article?

5 A. Oh, yes.

6 Q. Tell me how.

7 A. I don't know. I don't believe we
8 subscribed to C&E News. We must have gone to a library
9 to get it. It's easily available.

10 Q. In the article there was a statement that
11 suggested that, and I quote, "There was a major question
12 mark concerns what was said by MCA to the National
13 Institute for Occupational Safety and Health in July,
14 1973 and earlier."

15 Do you recall seeing that in the article?

16 A. Yes.

17 Q. And was it that paragraph that first led
18 you to believe there was a controversy in one form or
19 another as to what was said?

20 A. That is correct.

21 Q. Now, after you reviewed that, did you
22 convene your staff?

1 A. I wouldn't agree to the word convene. I
2 asked two of the senior people who were at the meeting,
3 who I knew took notes, to write me a memo relating their
4 recall and what was in their notes regarding the meeting.

5 Q. Had you shown them the article?

6 A. I don't recall.

7 Q. Do you know if they were aware of the
8 article at the time?

9 A. I don't recall.

10 Q. Was there some question in your mind as to
11 exactly what was said such that you wanted confirmation
12 one way or the other from your staff?

13 A. Well, I had my own memory of the meeting.
14 I did not brief these two as to what my recall was. I
15 thought it would be better if they wrote this on their
16 own without me telling them how I remembered it. If the
17 director says he remembered it a certain way, it's a
18 possibility that the staff might recall it also that way.

19 Q. So it's your testimony, sir, then that you
20 took pains to make sure that they didn't know what you
21 thought before you asked them to go back and check their
22 notes? Is that your testimony?

1 A. I may have said that there is an article,
2 there is a recent article that recalls that -- that
3 reports the events of the meeting in a different fashion
4 than my recall. I probably said that as an introduction
5 to telling them to review their notes and write a memo as
6 to what they recall and what was in their notes.

7 Q. And did you make that request to one person
8 or more than one person?

9 A. I don't recall. I made it to two of them,
10 Mitchell and Jacobson.

11 Q. Are you sure of that, sir?

12 A. I think so.

13 Q. And the reason I asked the question is
14 because the memo that was marked as Exhibit No. 2 that
15 you talked about earlier, I think it appears was written
16 by Jacobson, but then it looks like he had Mitchell read
17 it and sign off on it.

18 Is that your understanding?

19 A. I didn't have Mitchell read it. Jacobson
20 must have had him read it.

21 Q. I said Jacobson, sir.

22 A. Yes.

1 Q. But that is your understanding of what
2 occurred?

3 A. Yes.

4 Q. My question to you was, did you ask both of
5 them to do this or did you just ask Jacobson to do it?

6 A. I think I asked both of them.

7 Q. Did you ask Lassiter to check his notes and
8 tell you what his notes said?

9 A. No. These were the two senior people.

10 Q. Sir, I didn't ask you who was senior. I
11 asked you whether you asked Lassiter or not. Did you?
12 Yes or no, sir?

13 A. I don't recall.

14 Q. Did you ask James to check his notes and
15 let you know what he recalled about what his notes
16 reflected?

17 A. No, I wouldn't have asked James.

18 Q. Was James still in the agency at the time?

19 A. In July? I believe so.

20 Q. In fact, all four of the people who
21 attended the meeting with you were still with the agency
22 in May, 1974; is that right?

1 A. Yes.

2 Q. But so far as you recall, sir, the only two
3 to whom inquiry was made was Jacobson and Mitchell; is
4 that right?

5 A. Yes.

6 Q. Did you yourself ever look at Mitchell and
7 Jacobson's notes of the meeting?

8 A. No.

9 Q. Did you ever ask Lassiter or James for
10 their notes of the meeting?

11 A. No.

12 Q. At any time prior to today have you ever
13 seen any notes generated by any staff member of NIOSH who
14 attended that meeting concerning what was said or what
15 occurred?

16 A. No.

17 Q. I take it you did look at Exhibit 2 in
18 preparation for your testimony here today; is that right?

19 A. Correct.

20 Q. Did you ask Jacobson or Mitchell to contact
21 any of the MCA representatives or the European
22 representatives who attended the meeting?

1 MR. WODKA: About what or when?

2 BY MR. GOLDBLATT: (RESUMED)

3 Q. Let me be more specific.

4 At the time you had your conversation with
5 Jacobson about checking his notes and writing you a memo,
6 did you ask him to make inquiry of any of the non-NIOSH
7 people about what they remembered?

8 A. No, but Jacobson had had a recent
9 conversation with VK Rowe, and that appears in there.

10 Q. And in fact, on the second page of
11 Jacobson's memo, he states that he had a recent
12 conversation with VK Rowe in May, 1974, and he quotes
13 some comments or refers to some comments by Mr. Rowe as
14 to what his notes suggested NIOSH had been told about the
15 new Italian study; is that right?

16 A. Yes.

17 Q. Did Rowe contact Jacobson or did Jacobson
18 contact Rowe?

19 A. I don't know.

20 Q. You do know, though, that at least as of
21 May, 1974, Rowe's notes of the meeting differed with your
22 recollection?

1 A. Yes.

2 MR. WODKA: Objection.

3 THE WITNESS: Well, I don't know about his
4 notes. I wasn't privy to his notes. All I know about is
5 that the 250 part per million part of his notes differed.

6 BY MR. GOLDBLATT: (RESUMED)

7 Q. Let me refer you to Exhibit No. 2, the May
8 24, '74 memo from Jacobson.

9 Does he not state on the bottom of page 2,
10 "A recent conversation with VK Rowe in May, 1974,
11 elicited the comment, after he consulted his notes of the
12 meeting, that NIOSH had been told that the new Italian
13 study had found tumors at 250 parts-per million but not
14 at lower concentrations, NIOSH staff notes and
15 recollection are nonconfirmatory"?

16 Did I read that correctly, sir?

17 A. You read that correctly, but your question
18 encompassed more than that information.

19 Q. My question is very simple, sir.

20 As of the time you received this memo, you
21 knew that as to this point VK Rowe's notes differed from
22 your recollection, right?

1 MR. WODKA: Objection.

2 THE WITNESS: In regard to the 250 parts
3 per million?

4 MR. GOLDBLATT: Yes.

5 THE WITNESS: Yes. I don't know anything
6 about the rest of his notes.

7 BY MR. GOLDBLATT: (RESUMED)

8 Q. And was it your understanding of Jacobson's
9 conclusion that NIOSH staff notes and recollections were
10 nonconfirmatory of VK Rowe's notes?

11 A. It seems quite clear.

12 Q. And that was your understanding, right?

13 A. It was my understanding too.

14 Q. Were any other memos prepared concerning
15 anyone's recollections at this meeting, any other NIOSH
16 documents?

17 A. I don't recall any others.

18 Q. After you received that memo in May, 1974,
19 did you talk to Jacobson and Mitchell or any of the other
20 two staff people who were present about their
21 recollections?

22 A. I don't recall.

1 Q. As of the time you asked them for this
2 memo, had you decided to reply to anything stated in the
3 Chemical and Engineering News article?

4 A. No. I wanted to see what their memory was,
5 Jacobson and Mitchell.

6 Q. Did you subsequently use what was in this
7 memo to prepare a response that you submitted to Chemical
8 and Engineering News?

9 A. Yes.

10 Q. When this controversy occurred, did you
11 contact Duffield and talk to him about what was said at
12 the meeting?

13 A. No.

14 Q. Did you call Rowe and ask him about what
15 was said at the meeting?

16 A. No.

17 Q. Did you call Mr. Best and ask him about
18 what was said at the meeting?

19 A. No.

20 Q. Did you call Mr. Rhinehart and ask him what
21 was said at the meeting?

22 A. No.

1 Q. Did you call Mr. Wheeler and ask him what
2 was said at the meeting?

3 A. No.

4 Q. As you sit here today, do you have any
5 knowledge one way or the other about what their
6 respective notes and recollection suggests was discussed
7 at the meeting about the concentration level at which
8 tumors had been observed in Maltony's study?

9 A. None other than what VK Rowe told Jacobson.

10 Q. And none other than what may be contained
11 in Mr. Best's notes, Exhibit 7; is that right?

12 MR. WODKA: Objection.

13 MR. GOLDBLATT: Is that right, sir?

14 MR. WODKA: Objection.

15 THE WITNESS: That's right.

16 BY MR. GOLDBLATT: (RESUMED)

17 Q. Dr. Key, was there a discussion at the July
18 17, 1973 meeting about how many different species of
19 animals were included in the second stage Italian study
20 that you referred to?

21 A. No discussion, but there was mention that
22 it was only one species, and that was rats.

1 Q. Was it one species of rats or more than one
2 species of rats?

3 A. Rats are a species. My understanding is
4 that they were all Sprague Dolly rats, which would mean
5 one species.

6 Q. Was that your understanding of the animals
7 that were tested in the Viola study as well?

8 A. I don't recall what kind of animals other
9 than rodents he tested.

10 Q. Dr. Key, there did come a time when you
11 wrote a letter to the editor of C&E, or Chemical and
12 Engineering News, about this controversy; is that right?

13 A. That's right.

14 Q. Do you recall stating in that letter, "The
15 ICI representative also reported an uncompleted industry
16 sponsored study of several rodent species at more
17 reasonable levels of vinyl chloride"?

18 A. I did write that.

19 Q. Were you mistaken when you wrote that?

20 A. I was mistaken.

21 Q. What led you to believe you were mistaken?

22 A. I don't know, but I did correct my mistake

1 when I wrote a letter to the Senate committee hearing
2 testimony on the vinyl chloride problem.

3 Q. This would be --

4 A. A couple of months later.

5 Q. This would be several months later?

6 A. Yes.

7 Q. Could you tell me what is it that you
8 looked at, if anything, to correct your recollection on
9 this point as to whether he had talked about one species
10 or more than one species?

11 A. What I looked at?

12 Q. Yes.

13 A. I don't -- the only thing I had to look at
14 was the memo that Jacobson and Mitchell had sent me.

15 Q. But you had that available to you when you
16 wrote the letter to the editor; isn't that right?

17 A. Yes..

18 Q. What I'm trying to find out is if you
19 looked at something else that we haven't talked about
20 already that helped correct your recollection in that
21 point?

22 A. No.

1 Q. Now, do you recall, sir, that David
2 Duffield also wrote a letter to the editor at Chemical
3 and Engineering News about his recollection of what was
4 said at the NIOSH meeting?

5 A. I recall a -- someone from ICI writing a
6 letter. I don't remember it being Duffield. I thought
7 it was someone named Brainard.

8 Q. Do you recall reading that letter at the
9 time?

10 MR. WODKA: At what time?

11 MR. GOLDBLATT: At the time it first
12 appeared.

13 THE WITNESS: I think the first time I saw
14 it was in the record produced by the Senate committee
15 holding the hearing.

16 BY MR. GOLDBLATT: (RESUMED)

17 Q. You do know that it was attached as an
18 exhibit or as part of the record; is that right?

19 A. Yes.

20 Q. After you reviewed that document, did you
21 recognize or appreciate that ICI's recollection of what
22 had been said at the meeting differed from yours too?

1 A. Oh, yes.

2 Q. Did you then call David Duffield and ask
3 him about the subject?

4 A. No.

5 Q. Let's go off the record for a moment while
6 I search for an exhibit.

7 VIDEO SPECIALIST: Off the record. The
8 time on the screen is 1:28:44.

9 (Brief recess taken)

10 VIDEO SPECIALIST: We're back on the
11 record. The time on the screen is 1:39:25.

12 BY MR. GOLDBLATT: (RESUMED)

13 Q. Dr. Key, there came a time when you
14 testified before Congress; is that correct, sir?

15 A. Yes.

16 Q. And this was at the so-called Tunney
17 hearing; is that right?

18 A. Yes.

19 Q. This was in August of 1974; is that right?

20 A. I believe so.

21 Q. Other people from NIOSH testified at the
22 same time; is that right?

1 A. Yes.

2 Q. As well as Dr. Saffioti; is that right?

3 A. Yes.

4 Q. And also some representatives from
5 industry, Mr. Torkelson from the Dow Chemical Company
6 testified as well; is that right?

7 A. Yes.

8 Q. Did you have an occasion or a chance to
9 review that testimony that you gave in preparation for
10 your testimony here today?

11 A. Yes.

12 Q. And if I understand correctly, you
13 submitted a written statement that you read into the
14 record and you were also available to answer questions at
15 the time of that hearing; is that right?

16 A. Yes.

17 Q. Earlier you indicated that on the
18 assumption that you had learned information that you say
19 you didn't learn at the July 17 meeting, you would have
20 called a meeting of various toxicologists from sister
21 programs like NCI and FDA to see if there was a consensus
22 among toxicologists about upgrading the status of vinyl

1 chloride.

2 Do you recall that testimony earlier?

3 A. Yes.

4 Q. Am I correct, sir, that one of the
5 toxicologists that you would have contacted from MCI and
6 brought into the loop would have been Dr. Saffioti?

7 A. Yes.

8 Q. Doctor, you also were asked some questions
9 earlier today about the emergency temporary standard that
10 was adopted by the Occupational Safety and Health
11 Administration of the Department of Labor that's been
12 marked as Exhibit 5; is that right?

13 A. Yes.

14 Q. If I understand your testimony correctly,
15 OSHA, in reviewing the recommendations that your agency
16 made, decided not to adopt those recommendations in whole
17 but in fact promulgated an emergency temporary standard
18 that differed in some respects from what you had
19 recommended; is that right?

20 A. Yes.

21 Q. And that was their prerogative to do; is
22 that right, sir?

1 A. Yes.

2 Q. And in fact, it was OSHA that had the
3 obligation to promulgate the standard; is that right?

4 A. Correct.

5 Q. Do you know a Dr. Dawl?

6 A. Yes.

7 Q. Who is Dr. Dawl?

8 A. Sir Richard Dawl is an Englishman,
9 generally considered to be the dean of epidemiologists,
10 on two occasions was a visiting professor at our school
11 in Houston.

12 MR. WODKA: I'm going to object that any
13 questions about Dr. Dawl go beyond the scope of the
14 direct examination.

15 MR. GOLDBLATT: And do you consider Dr.
16 Dawl to be one of the foremost epidemiologists in the
17 world?

18 MR. WODKA: Objection.

19 THE WITNESS: Yes.

20 MR. GOLDBLATT: I have no further questions
21 at this time.

22 Let's go off the record.

1 VIDEO SPECIALIST: We're going off the
2 record. The time on the screen is 1:43:19.

3 MR. GOLDBLATT: Back on the record. We're
4 going to take a break for lunch, and I'm simply going to
5 request that there be no discussions between the witness
6 and counsel concerning the substance of his testimony,
7 since all of the examinations and cross examinations have
8 not been completed at this time.

9 MR. WODKA: Counsel is free to inquire
10 after lunch if any discussions took place.

11 (Lunch recess taken)

12 VIDEO SPECIALIST: We're back on the
13 record. The time on the screen is 2:51:41.

14 EXAMINATION ON BEHALF OF THE THIRD-PARTY
15 DEFENDANT

16 BY MS. BOSSE:

17 Q. Good afternoon, Dr. Key.

18 A. Good afternoon, ma'am.

19 Q. Is it fair to say that the disclosure of
20 the BF Goodrich cases of angiosarcoma of the liver among
21 its poly vinyl chloride workers presented an acute
22 problem to NIOSH?

1 A. Indeed.

2 Q. And is it fair to state that the disclosure
3 of these deaths presented a problem that was urgent in
4 nature?

5 A. Indeed.

6 Q. And is it fair to say that NIOSH responded
7 to the disclosure of these deaths in an almost
8 crisis-like manner?

9 A. Yes.

10 Q. OSHA conducted a fact finding hearing on
11 February 15, 1974; is that correct?

12 A. Yes.

13 Q. Were you at that hearing?

14 A. I believe I testified at part of it.

15 Q. Did Mr. Vernon Rose testify on behalf of
16 NIOSH at that hearing, do you know?

17 A. Maybe he was the one who testified. I
18 don't remember.

19 Q. There is a reference in the transcript at
20 one point to a Marcus Keane, K-e-a-n-e of NIOSH. Would
21 that have been a mistake for you?

22 A. It must have been.

1 Q. There was no Marcus Keane at NIOSH at that
2 time, was there?

3 A. No.

4 Q. Were you present when Mr. Rose made the
5 statement before that hearing that, "NIOSH considers the
6 situation that has developed in the Louisville facility
7 of BF Goodrich to be extremely serious, and indeed our
8 reaction to the information as presented to us one of,
9 you might consider, an almost crisis response on our
10 part?"

11 A. I don't recall whether I was present at
12 that OSHA hearing or not.

13 Q. Would you agree with that statement,
14 nonetheless?

15 A. I would agree with that statement.

16 Q. This hearing was convened just three weeks
17 after you learned of these deaths of the BF Goodrich
18 workers; is that correct?

19 A. Yes.

20 Q. Had you ever seen a hearing of this nature
21 convened so rapidly?

22 A. No.

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1 Q. You testified yourself at an OSHA hearing
2 conducted in June of 1974; is that correct?

3 A. June of '74, I believe so.

4 Q. And did you make a statement on the
5 proposed permanent OSHA standard at that time citing the
6 urgency of the vinyl chloride problem?

7 A. I believe so.

8 Q. Was the urgency that you referred to the
9 urgency created by the reports of these deaths of the BF
10 Goodrich workers, and by that time deaths among other PVC
11 workers?

12 A. Yes.

13 Q. You told us earlier you also testified
14 before Senator Tunney's committee in August of 1974?

15 A. Yes.

16 Q. And did you tell Senator Tunney's committee
17 that the vinyl chloride problem became acute with the
18 report of the deaths of the PVC workers at BF Goodrich?

19 A. It sounds like something I said.

20 Q. Is that true, that the vinyl chloride
21 problem became acute with the report of these deaths?

22 A. Yes.

1 Q. And you told Senator Tunney's committee,
2 did you, that the urgency and potential seriousness of
3 the problem in recognition of that, you convened this
4 meeting of the agencies with health research
5 responsibility?

6 A. Yes.

7 Q. And the urgency and potential seriousness
8 you referred to again was the deaths of the PVC workers?

9 A. Yes.

10 Q. Is it fair to say, assuming that you were
11 not told in July of 1973 that there had been reports of
12 tumors found by Professor Maltony in his preliminary work
13 at 250 parts per million exposure of vinyl chloride --

14 A. I missed the first part of that question.

15 Q. All right. Let me start over, because I
16 think it was not perhaps well phrased.

17 Let's assume that you were not told in July
18 of 1973 that Professor Maltony's preliminary results
19 indicated that tumors had been produced at exposures of
20 250 parts per million.

21 If you had known that in July of 1973,
22 would that have presented the same urgent problem that

1 faced NIOSH in January of 1973?

2 MR. WODKA: January of '74.

3 MS. BOSSE: January of '74, thank you.

4 THE WITNESS: Almost, but not quite. The
5 occurrence of human cases made the problem much more
6 acute.

7 BY MS. BOSSE: (RESUMED)

8 Q. And in the appearance of human cases making
9 the problem much more acute, did it make NIOSH's response
10 much more immediate?

11 A. By that you mean NIOSH's response to the --

12 Q. Report of the human cases.

13 A. To the report of the cases, yes.

14 Q. Now, let's talk for a moment about what you
15 did know, according to your testimony, in July of 1973.

16 You did know that cancerous tumors had been
17 produced in laboratory animals exposed to vinyl chloride
18 at 30,000 parts per million; is that correct?

19 A. Yes.

20 Q. And this was Dr. Viola's research, and you
21 knew of Dr. Viola by name, correct?

22 A. Yes.

20000000

1 Q. Had you ever read his report?

2 A. No.

3 Q. Did you know as of that time that the
4 cancers had been produced, in addition to the Zymbal
5 glands, in the skin, bones and lungs of those animals?

6 A. I hesitate because of the word "produced".
7 It had been found in those other organs. It was the
8 first time I had learned that.

9 Q. You told us earlier that there might have
10 been some issue of metastasis that was discussed at your
11 meeting in July of 1973?

12 A. Yes.

13 Q. But nonetheless, you were told that the
14 studies by Dr. Viola had resulted in tumors as
15 originalled reported --

16 A. As originally reported, correct.

17 Q. -- being found in multiple organs?

18 A. Yes.

19 Q. And you understood that there was an
20 ongoing study in which laboratory animals were being
21 exposed to vinyl chloride in, I believe the words of your
22 testimony was, more realistic levels?

1 A. Yes.

2 Q. And did you understand more realistic
3 levels to mean levels more closely approximating the
4 occupational exposure, anticipated levels of exposure in
5 the occupational setting?

6 A. Yes.

7 Q. And you knew at that time that in that, I
8 think you called it second order study at that time,
9 tumors had been produced?

10 A. Yes.

11 Q. And did you learn anything about what organ
12 such tumors were induced in?

13 A. The information was presented in such a way
14 that it led us to believe that the tumors had been
15 produced in the Zymbal glands of the rodents.

16 Q. Do you recall specifically one way or
17 another whether there was discussion of tumors appearing
18 in any other organ?

19 A. No.

20 Q. Is this a conclusion that you drew? When
21 you say the information, you're hesitating, which leads
22 me to think maybe my question perhaps was not clear to

1 you.

2 You said that the information was presented
3 in such a fashion that you were led to believe that the
4 tumors were produced in the Zymbal gland?

5 A. Yes.

6 Q. What I'm asking you is, do you recall
7 specifically what you were told about what organ or
8 organs the tumors were produced in?

9 A. No.

10 Q. You don't recall one way or the other?

11 A. No.

12 Q. Now, you knew that the research in this
13 so-called second order study was ongoing, correct?

14 A. Yes.

15 Q. You knew that there was a European
16 epidemiological study that was ongoing, correct?

17 A. It was in the UK, which the British don't
18 consider part of Europe, but yes.

19 Q. In any event, I guess as an American across
20 the ocean, there was a study going on?

21 A. Yes.

22 Q. And you knew as of that time that thus far

1 that epidemiological study had produced negative results?

2 A. Correct.

3 Q. You knew at that time that MCA was

4 conducting their own animal inhalation studies?

5 A. Yes.

6 Q. And you had the protocol for that, correct?

7 A. Yes.

8 Q. And that MCA was also doing an

9 epidemiological study, correct?

10 A. Yes.

11 Q. And you had the protocol for that?

12 A. I believe we did.

13 Q. Are you suggesting that with this

14 background, if you knew in addition, assuming you didn't

15 know, that tumors were produced at 250 parts per million

16 by Dr. Maltony in the preliminary report of his work,

17 that you would have reported this to OSHA under section

18 20(A)6?

19 A. Not immediately.

20 Q. And when you say not immediately, are you

21 suggesting that you would have waited for some further

22 developments with regard to the studies that were

1 ongoing?

2 A. Yes.

3 Q. And is it fair to say that at whatever
4 point you passed information on to OSHA, what OSHA might
5 have done with that information or not have done in terms
6 of the exercise of their rule making authority and
7 mandate, it would be pure speculation for us to know what
8 they would have done?

9 MR. WODKA: Objection.

10 MS. BOSSE: Well, strike that.

11 BY MS. BOSSE: (RESUMED)

12 Q. Would we be speculating to say that OSHA
13 would have acted in one way or another with regard to any
14 particular report?

15 A. I hesitate knowing that OSHA requires a
16 certain amount of information before they will proceed
17 with rule making. And initially in this hypothetical
18 situation, all we had was tumors produced at 250 parts
19 per million.

20 Do you want me to speculate? I think OSHA
21 would have said, thank you for this information, Dr. Key,
22 keep us informed.

1 Q. Thank you.

2 Now, you told us that when you transmitted
3 -- well, ultimately you transmitted a recommendation to
4 OSHA, correct?

5 A. March 11.

6 Q. And the recommendation that you transmitted
7 to OSHA -- well, strike that.

8 In developing the recommendation that you
9 transmitted, was it part of your statutory mandate to
10 consider economic impact?

11 A. Absolutely not. This is OSHA's
12 responsibilities under the Act.

13 Q. Was it part of your responsibility to
14 consider technical feasibility, technological
15 feasibility?

16 A. We always commented on whether it was
17 technically feasible in making our criteria document
18 recommendations, but I believe the ultimate decision was
19 OSHA's.

20 May I elaborate on that?

21 Q. You may.

22 A. NIOSH would have to point out that it's

1 technically feasible to do air sampling in this manner.
2 It would have to point out that some companies have been
3 able to control the exposure with a certain kind of
4 technology, but I still believe it was OSHA's ultimate
5 responsibility to rule on technical and economic
6 feasibility.

7 Q. And in this instance, when OSHA issued its
8 emergency temporary standard, in fact OSHA found that in
9 its practical judgment, the 50 part per million standard
10 that it enacted as an emergency temporary standard, was
11 the lowest level that could be complied with immediately;
12 is that correct?

13 A. Correct.

14 Q. Now, you talked about the fact that -- and,
15 again, assuming that you weren't told, if you had been
16 told of Dr. Maltony's preliminary results of inducing
17 tumors at 250 parts per million in July of 1973, you
18 would have convened a meeting of some of the other
19 agencies or branches of government that had health
20 research responsibility, correct?

21 A. After I had confirmed the results of
22 Maltony's experiment, preferably in the form of hard

1 copy.

2 Q. And you told us that the purpose of that
3 meeting would be to determine whether to upgrade vinyl
4 chloride from an animal carcinogen to a suspected human
5 carcinogen?

6 A. Yes.

7 Q. Would that upgrade, so to speak, have any
8 regulatory impact?

9 A. No.

10 MS. BOSSE: That's all I have. Thank you.

11 MR. WODKA: Off the record.

12 VIDEO SPECIALIST: We're going off the
13 record. The time on the screen is 3:07:52.

14 (Brief recess taken)

15 VIDEO SPECIALIST: Back on the record. The
16 time on the screen is 3:08:37.

17 FURTHER EXAMINATION ON BEHALF OF THE PLAINTIFF

18 BY MR. WODKA:

19 Q. Good afternoon, Dr. Key. I just have a few
20 brief issues I just want to touch on.

21 Under the Occupational Safety and Health
22 Act, both NIOSH and OSHA have direct responsibility for

1 workers' safety and health; is that correct?

2 A. Right.

3 MS. BOSSE: I object to the form.

4 MR. GOLDBLATT: I object to form.

5 MR. WODKA: Doctor, under the Occupational
6 Safety and Health Act, what agencies have direct
7 responsibility for workers' safety and health?

8 MS. BOSSE: I object to the form of the
9 question.

10 MR. WODKA: What is the objection?

11 MS. BOSSE: I think workers' safety and
12 health responsibility is an undefined term.

13 MR. WODKA: We'll let the judge rule on
14 that one. You can answer.

15 THE WITNESS: The Occupational Safety and
16 Health Administration of the Department of Labor and the
17 National Institute for Occupational Safety and Health and
18 the Department of HEW.

19 MR. WODKA: Under the Act as you know it,
20 is the National Cancer Institute given any direct role
21 for workers' safety and health?

22 MR. GOLDBLATT: I object to the form.

1 MS. BOSSE: I object to the form.

2 THE WITNESS: No.

3 MR. WODKA: Doctor, if a manufacturer of a
4 product found that there was a potentially new toxic
5 effect of their material or their product that would
6 affect worker health and safety under the Occupational
7 Safety and Health Act as it existed in 1973, which is the
8 first agency that they should report that information to?

9 MR. GOLDBLATT: I object to the form.

10 MS. BOSSE: I object to the form.

11 MR. WODKA: You can answer.

12 THE WITNESS: Usually it would be to NIOSH
13 unless it involved a fatality or multiple fatalities, in
14 which case there was a statutory authority that they
15 reported to OSHA within a certain number of days.

16 MR. WODKA: So, is it fair to say then that
17 it would either be NIOSH or OSHA would be the first
18 agency? It would not be the National Cancer Institute;
19 is that correct?

20 MR. GOLDBLATT: Objection to the form.

21 MS. BOSSE: I object to the form.

22 BY MR. WODKA: (RESUMED)

1 Q. We've had a lot of discussion today about
2 Dr. Maltony's results at 250 parts per million that
3 apparently he discovered at some time in 1972.

4 This effect at 250 parts per million was
5 within the permissible exposure limit that was in effect
6 in the United States for workers as of 1973; is that
7 correct?

8 A. Yes.

9 MR. GOLDBLATT: I object to the form.

10 BY MR. WODKA: (RESUMED)

11 Q. And it is our understanding, is it not,
12 that the MCA group wanted to meet with you in July, 1973
13 in order to inform you as to what they were doing about
14 vinyl chloride; is that correct?

15 A. Yes.

16 MS. BOSSE: I object to the form.

17 BY MR. WODKA: (RESUMED)

18 Q. And is it your understanding that they
19 wanted to bring you up to date on what they knew about
20 vinyl chloride?

21 A. I think so.

22 Q. When they came to meet with you on July 17

1 1973, should they have presented to you Dr. Maltony's
2 data at 250 parts per million in writing?

3 MR. GOLDBLATT: I object to the form.

4 MS. BOSSE: I object to form.

5 MR. WODKA: You can answer.

6 THE WITNESS: Yes.

7 MR. WODKA: If they had done so, would that
8 have been of assistance to the agency?

9 MR. GOLDBLATT: I object to the form.

10 MS. BOSSE: I object to the form.

11 THE WITNESS: Yes.

12 MR. WODKA: Finally, Doctor, Ms. Bosse had
13 asked you a series of questions as to what would or would
14 not have happened had you received that information about
15 Dr. Maltony's experiments in July of 1973. And she asked
16 you a question as to what you thought OSHA would or
17 haven't have done.

18 Let me ask you this, if you had received
19 Dr. Maltony's data in July of 1973, would you without
20 question have issued at some point an alert to employers
21 of workers to workers and to unions who had members who
22 had exposure to vinyl chloride?

1 MR. GOLDBLATT: I object to the form.

2 MS. BOSSE: I object to the form.

3 THE WITNESS: Yes.

4 MR. WODKA: That's all I have.

5 MR. GOLDBLATT: I have no further
6 questions.

7 MS. BOSSE: I have nothing, Doctor. Thank
8 you.

9 MR. WODKA: You are done. Thank you very
10 much, sir.

11 VIDEO SPECIALIST: This ends the
12 deposition. We're going off the record. The time is
13 3:14:28.

14 MR. WODKA: Doctor, you have the right to
15 read and sign your deposition. Do you want to do that or
16 waive your signature?

17 THE WITNESS. I would like to review it,
18 the written record, the printed record.

19 (Thereupon, signature not having been
20 waived, the videotape deposition of MARCUS
21 M. KEY, MD, was concluded at 3:14, PM)

22 - 0 -

ACKNOWLEDGEMENT OF DEPONENT

I, MARCUS M. KEY, MD, do hereby acknowledge that I have read and examined the foregoing 149 pages of testimony, and the same is a true, correct and complete transcription of the testimony given by me, and any changes and/or corrections appear on the attached errata sheet signed by me.

(Date)

(Signature)

1 CERTIFICATE OF STENOTYPE REPORTER - NOTARY PUBLIC

2 I, Maureen Donelson, Court Reporter, the officer
3 before whom the foregoing deposition was taken, do hereby
4 certify that the witness, MARCUS M. KEY, MD, was duly
5 sworn by me; that the foregoing transcript is a true,
6 correct and complete record of the testimony given; that
7 said testimony was taken by me stenographically and
8 thereafter reduced to typewriting by me; and that I am
9 neither counsel for, related to, nor employed by any of
10 the parties to this litigation and have no interest,
11 financial or otherwise, in its outcome.

12 IN WITNESS WHEREOF, I have hereunto set my hand
13 and affixed my notarial seal this 27TH day of September,
14 1995.

15 My commission expires:

16 March 31, 1998



17 NOTARY PUBLIC IN AND FOR THE

18 DISTRICT OF COLUMBIA
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22