

1 B-126,986

2 RUSSELL ALLEN, ET AL * IN THE DISTRICT COURT OF

3 VS. * JEFFERSON COUNTY, TEXAS

4 AMERICAN PETROFINA, ET AL * 60TH JUDICIAL DISTRICT

5 A-134,614

6 FRENCH HICKS, ET AL * IN THE DISTRICT COURT OF

7 VS. * JEFFERSON COUNTY, TEXAS

8 BETHLEHEM STEEL CORP., * 58TH JUDICIAL DISTRICT

9 ET AL *

10 B-141,242

11 ROOSEVELT SCOTT * IN THE DISTRICT COURT OF

12 VS. * JEFFERSON COUNTY, TEXAS

13 AMERICAN OPTICAL CORP., * 60TH JUDICIAL DISTRICT

14 ET AL *

15 A-138,633

16 MARGARET FAULKNER, ET AL * IN THE DISTRICT COURT OF

17 VS. * JEFFERSON COUNTY, TEXAS

18 AKRON CHEMICAL CO., ET AL * 58TH JUDICIAL DISTRICT

19 A-136,143

20 KEITH GIBLIN, ET AL * IN THE DISTRICT COURT OF

21 VS. * JEFFERSON COUNTY, TEXAS

22 MOBIL OIL CORPORATION, * 58TH JUDICIAL DISTRICT

23 ET AL *

VOLUME II

VIDEO DEPOSITION OF VERALD K. ROWE
TAKEN ON MAY 11, 1993, AND MAY 12, 1993

1 E-141,216

Page 1

2 JOSEPH E. BARNARD, ET UX * IN THE DISTRICT COURT OF
3 VS. * JEFFERSON COUNTY, TEXAS
4 ALLIED-SIGNAL, INC., *
ET AL * 172ND JUDICIAL DISTRICT

A-140,498

6 JOYCE A. BORNE, ET AL * IN THE DISTRICT COURT OF
7 VS. * JEFFERSON COUNTY, TEXAS
8 ALLIED-SIGNAL, INC., *
9 ET AL * 58TH JUDICIAL DISTRICT

VOLUME II

VIDEO DEPOSITION OF

VERALD K. ROWE

19 On May 11, 1993, and May 12, 1993, Volume II
20 of the videotaped deposition of Verald K. Rowe, a
21 Witness in the above-styled causes, was taken, the
22 deposition having begun on October 1, 1992. The
23 deposition was held at the Arizona Biltmore Resort
24 Hotel, 24th Street and Missouri Avenue, Phoenix,
25 Arizona, pursuant to Stipulation of Counsel.

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

2

3 IT IS STIPULATED AND AGREED BY COUNSEL FOR
4 THE PARTIES HERETO:

5 That the deposition of the Witness named
6 herein is taken pursuant to the Texas Rules of Civil
7 Procedure;

8 That the Witness may sign the deposition
9 before any duly authorized and acting Notary Public
10 for the appropriate area in which signature is
11 obtained;

12 That this deposition, or any part thereof,
13 when so taken may be used upon the trial of this cause
14 with the same force and effect as if the Witness were
15 present in court and testifying in person;

16 That all objections, other than those that
17 relate to the form of the question and responsiveness
18 of the answer, are hereby preserved and may be made at
19 the time any testimony herein is sought to be offered
20 upon the trial of this cause, despite no objection
21 having been made at the time the testimony was
22 taken;

23 That an objection made by one Defendant
24 shall serve as an objection by all Defendants for
25 purposes of this deposition;

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1 That the deposition is to be videotaped by
2 Gary Brewton of Project Video;

3 That Sandra S. Sullivan, a Certified
4 Shorthand Reporter in and for the State of Texas, may
5 act as a Certified Shorthand Reporter in and for the
6 State of Arizona for the purposes of swearing the
7 Witness in this deposition;

8 That the original transcript of the
9 deposition, pursuant to Rule 206 of the Texas Rules of
10 Civil Procedure, will be given to Joseph C. Blanks for
11 safekeeping and use at trial. In the event the
12 original deposition is unavailable at the time of
13 trial, an unsigned copy of the transcript may be
14 utilized in lieu thereof.

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1 (REPORTER'S NOTE: PRIOR TO THE
2 VIDEOTAPED PORTION OF THE DEPOSITION,
3 THE FOLLOWING PROCEEDINGS WERE HAD:)

4 THE REPORTER: Same stipulations?

5 MR. PIERCE: Yes. And the witness

6 will read and sign.
7 MR. PAPPAS: An objection made by
8 one is an objection by all?
9 MR. BLANKS: Oh, yes.
10 (AT THIS TIME THERE WAS A BRIEF
11 OFF-THE-RECORD DISCUSSION AND THE
12 WITNESS WAS RESWORN BY THE REPORTER.
13 AT 9:16 A.M. THE VIDEOTAPED PORTION OF
14 THE PROCEEDINGS THEN BEGAN AS FOLLOWS:)
15 MR. PIERCE: Just a statement for
16 the record and for the room: As you
17 may recall, Dr. Rowe has a severe
18 hearing problem. He wears a hearing
19 aid in each ear. Minor rustling of
20 papers and whispering causes him great
21 discomfort and inability to hear the
22 questions. So, we'd appreciate it if
23 you could be very careful about the
24 amount of background noise here. Thank
25 you.

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1 VERALD K. ROWE,
2 having been duly resworn, testified as follows,
3 to-wit:
4 RESUMPTION OF EXAMINATION BY MR. BLANKS:
5 Q. Good morning, Dr. Rowe.
6 A. Good morning.
7 Q. How are you today, sir?
8 A. Fine.

9 Q. Thank you for joining us. Was it the case,
10 Dr. Rowe, that you were not served with a subpoena for
11 this deposition?

12 A. I was not.

13 Q. All right, sir. Well, we appreciate your
14 being here this morning. And could you just tell us
15 who's here representing you today so we know from the
16 start? Is Mr. Almquist here for you?

17 MR. ALMQUIST: I'm here for Dow
18 Chemical.

19 MR. POFF: Could the witness speak
20 up, please?

21 A. Dr. Pierce is representing me.

22 Q. Okay. Dr. Rowe, when we adjourned
23 previously, we were midway into talking about asbestos
24 matters and your knowledge and some history from Dow
25 Chemical and those years that you worked there.

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1 It was not clear to me in rereading the
2 deposition nor in looking at your resume or your C.V.
3 what years you actually worked in or had any
4 supervision over people doing industrial hygiene at
5 Dow. And I would appreciate it if you could make that
6 clear for me.

7 I note that your C.V. says from '70 to '73
8 you were the Director of Toxicology and Industrial
9 Hygiene in Chemical Biology Research. The period
10 before that, '64 to '70, you show yourself as
11 Assistant Director of Biochemical Research

12 Laboratory.

13 Was any of that period, '64 to '70, time
14 where you had any kind of administrative or
15 supervisory responsibility for Dow industrial
16 hygienists anywhere?

17 A. I don't believe I had any administrative
18 responsibility during those years.

19 Q. During those years of '64 to '70, could you
20 tell us who would have had the administrative
21 responsibility or would have been in charge of the Dow
22 industrial hygienists?

23 MR. PIERCE: Objection to the
24 form; compound question.

25 A. Would you repeat, please.

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1 Q. Yes, sir. During the years '64 to '70 who
2 at Dow was in charge of the industrial hygienists?

3 A. Mr. Hoyle was head of the industrial hygiene
4 section.

5 Q. To whom did Mr. Hoyle report during that
6 period, '64 to '70?

7 A. I believe he reported to Dr. Adams.

8 Q. And Dr. Adams would have been in the
9 biochemical research laboratory?

10 A. Yes.

11 Q. Were you, yourself, reporting to Dr. Adams
12 during any of those years of '64 to '70?

13 A. Yes.

14 Q. And would you remind me, then? What was

15 Dr. Adams' title during that time, if you recall, or
16 his effective job description?

17 A. He -- As I recall, assistant director of the
18 laboratory.

19 Q. Of the biochemical research laboratory, --

20 A. Yes.

21 Q. -- is it? And you're confusing me. And I'm
22 not meaning to confuse you; but you, yourself, were
23 assistant director of the biochemical research
24 laboratory in '64 to '70. So, does that mean there
25 were two assistant directors or more?

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1 A. Yes.

2 Q. Okay. And then in the years before '64,
3 going back to the - when Mr. Hoyle was hired, do you
4 recall to whom or to what office he would have been
5 reporting during those prior years?

6 A. He reported to Dr. Adams.

7 Q. So, your recollection would be that on back
8 to into the Forties, whenever Mr. Hoyle joined the
9 company, Dr. Adams would have been the man that was in
10 charge of the industrial hygienists and then --

11 A. That is my recollection.

12 Q. Okay. But there was a time in those years
13 between '37 and '70 when you, yourself, did have some
14 role in the industrial hygiene program at Dow, wasn't
15 there?

16 A. Yes.

17 Q. Could you just briefly summarize that for

18 us?

19 A. In the early years I worked - assisted
20 Dr. Adams in pursuit - occasionally in the industrial
21 hygiene area. But I - my responsibility was not
22 within industrial hygiene.

23 Q. Your work was essentially toxicology in the
24 laboratory?

25 A. That's right.

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1 Q. And to the extent the toxicology work was
2 helpful to the industrial hygienists, you had some
3 role in the industrial hygiene program, I suppose.

4 A. Oh, yes. All of us are aware of these
5 situations, but you asked me about responsibility.

6 Q. Yes, sir. Okay. And up to the time that
7 you retired from Dow in 1979, did industrial hygiene
8 remain a subdepartment of the biochemical research
9 laboratory?

10 A. The biochemical research laboratory name
11 changed earlier like - but industrial hygiene remained
12 as a section in the -- Industrial hygiene in
13 toxicology was more or less separated and made a unit
14 in about 1970.

15 Q. Okay. If I'm understanding you, then: In
16 the early years industrial hygiene and toxicology were
17 two, like, parallel groups or offices; but both were
18 in the biochemical research lab, or whatever it was
19 called, during the different years. Is that the shape
20 of it?

21 A. I will ask you to repeat that one.

22 Q. From an organizational standpoint, the
23 toxicology department was part of the biochemical
24 research lab.

25 A. Yes.

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1 Q. During all the years you were at Dow.

2 A. No.

3 Q. No? Changed around 1970?

4 A. Yes.

5 Q. Okay. And from the beginning of the
6 industrial hygiene program at Dow, up until around
7 1970, industrial hygiene was also part of the
8 biochemical research lab.

9 A. That's right.

10 Q. And the industrial hygiene staff and the
11 toxicology staff worked together from time to time but
12 not in the same department from an organization
13 standpoint.

14 A. In what time frame?

15 Q. Up until about 1970.

16 A. Yes. They worked -- They were pretty
17 independent groups.

18 Q. And then in 1970 there was some
19 reorganization, and toxicology and industrial hygiene
20 were merged together. And that's when you were
21 director.

22 A. Yes.

23 Q. Okay. And so far as you know, toxicology

24 and industrial hygiene remained in one group up until
25 the time you retired in 1979.

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1 A. I don't remember.

2 Q. But the medical department during none of
3 the 42 years you were with the company was in charge
4 of industrial hygiene, was it?

5 A. No.

6 Q. And I think you told us that the reason that
7 the toxicology department was created at Dow was
8 because of Dr. Willard Dow's concern for the health
9 and safety of people working in the Dow plants.

10 A. Yes.

11 Q. And that this concern was triggered or the
12 catalyst for creating the department with some
13 unfortunate incident where some workers were injured
14 by some chemical exposure in a plant. Do you recall
15 that?

16 A. Yes.

17 Q. And wasn't it the case, then, that the
18 toxicology lab really had a charter to know about the
19 toxicity of the materials that workers in the Dow
20 plants would encounter in doing their work in the
21 plants?

22 A. Our charge really was to learn as much as we
23 could about the toxicological effects of materials,
24 yes.

25 Q. And one of the ways you did that was to test

1 all the materials that were used at Dow for which you
2 couldn't find toxicological information already
3 existing in the literature?

4 A. That was our purpose; but, of course, that
5 took over a number of years to accomplish that.

6 Q. All right, sir. But basically where the
7 toxicity of a material used in the Dow plant was
8 unknown, that - that material would have been on your
9 list of materials to investigate?

10 A. As much as was humanly possible with the
11 staff we had at that time.

12 Q. All right, sir. But if a material that was
13 used in Dow plants was already written up in the
14 literature, discussed in the literature, was it the
15 case, then, that you relied on what was in the medical
16 and scientific literature about the material and did
17 not test those materials?

18 MR. PIERCE: Objection to the form
19 of the question. It's ambiguous and
20 essentially, even though it does not
21 use the word "or," contains the
22 elements of a compound question.

23 A. I guess I'll have to have you rephrase it.

24 Q. If a material used in Dow plants during
25 those years that you worked for the company was

1 reported in the medical and scientific literature from
2 a toxicological standpoint, would you still go ahead
3 and test that material for toxicity or would you
4 alternatively just rely on what was in the literature?

5 MR. PIERCE: Continue the
6 objection.

7 A. I don't believe there was any set program.
8 We tried to take advantage of any published
9 information and not to repeat any particular work, if
10 we felt that it was all right, in our judgment.

11 Q. All right, sir. So, given the resources
12 that you had, you had to set priorities, I suppose, on
13 what you were going to do tox. testing on. True?

14 A. Always.

15 Q. But one of the resources that you had
16 available would have been the medical and scientific
17 literature that existed in any given year. True?

18 A. Well, certainly parts of it.

19 Q. How do you mean -- What do you mean "parts
20 of it"?

21 A. Well, I'm sure we didn't have a library that
22 had every journal in the world or article in it.

23 Q. Well, I think you told us that if there was
24 anything that you needed or wanted, your librarian at
25 the Dow - the main plant could always get it for you.

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1 Wasn't that so?

2 A. They made an effort if it was requested,
3 yes.

4 Q. Okay. Well, what I was wondering, though,
5 was that if, in fact, a material was reported in the
6 medical literature to where you had toxicological
7 information available to you on it, then that would
8 have been a material that you wouldn't ordinarily test
9 for toxicity.

10 A. Yes.

11 Q. And it was the case, wasn't it, that Dow
12 didn't do any toxicological testing of asbestos?
13 Isn't that so?

14 MR. PIERCE: Do we have a time
15 frame here? Ever? I mean...

16 MR. BLANKS: Well, I think the
17 implied time frame would be during
18 Dr. Rowe's employment there. So, let
19 me --

20 (By Mr. Blanks)

21 Q. Prior to your retiring, sir, did Dow, to
22 your knowledge, do any toxicity testing of asbestos?

23 A. I don't remember that we did.

24 Q. Have you thought about that, given that
25 we've visited over the course of days and knowing you

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1 were expecting to depose further on the topic?

2 A. The problem, as I understood it, with
3 asbestos was primarily inhalation. And, to my
4 knowledge, we did not do any inhalation work on
5 asbestos.

6 Q. All right. Was it the case, Dr. Rowe, that

7 while you were at Dow that Dow did not do any analysis
8 of thermal insulation products for asbestos content?

9 A. I don't know.

10 Q. Wasn't it a fact that the Dow engineering
11 department or its equivalent did, in fact, write
12 specifications for thermal insulation to be used in
13 Dow plants?

14 A. I don't know.

15 Q. Do you recall being - being asked to do any
16 toxicology testing of any kind of materials that Dow
17 purchased over the years? Would this have been part
18 of the normal procedure?

19 A. I don't remember. It certainly wasn't
20 routine.

21 Q. It was not routine?

22 A. No.

23 Q. Could you briefly explain to me what the
24 routine was, then, in those - the first decade or so
25 that you were doing toxicology work? - the routine in

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1 terms of deciding what would be tested in your labs or
2 sent for testing in outside labs.

3 A. There were a number of factors that would
4 have been considered. One, what the ultimate end of a
5 product was. Was it something that we were going to
6 take to Food and Drug? We would -- It may not have
7 been tested in any way outside in that - because this
8 was a new application. Then we would have certainly
9 been involved. That type of thing.

10 Q. So, during some of these years you were with
11 Dow, the company was in the drug business, the
12 pharmacology business?

13 A. What time frame?

14 Q. I don't know. Perhaps you could tell me.

15 A. I can't remember the dates when Dow engaged
16 first with LePetite and then created Dow
17 Pharmaceutical, but we had little to do with that in
18 the early - early part of it. There was a time when
19 some of the pharmacologists from the Dow
20 Pharmaceutical laboratory in Indianapolis were
21 transferred to Midland as a part of our reorganized
22 laboratory. But otherwise I had nothing to do with
23 the pharmaceutical side.

24 Q. Okay. So, Dow Pharmaceutical was, I'm
25 inferring, a subsidiary of Dow?

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1 A. Yes.

2 Q. And it was based in Indianapolis?

3 A. (Nodding affirmatively)

4 Q. And they had their own laboratory there?

5 A. Yes.

6 Q. And it's just that some of those scientists
7 from that laboratory were later transferred to your
8 lab in Midland?

9 A. For a period of short time. I can't
10 remember just the reason why.

11 Q. But as a general rule, then, your toxicology
12 lab in Midland did not specifically do studies of new

13 drug formulations.

14 A. That is true.

15 Q. Okay. So, the routine for your lab in
16 Midland would have been to investigate new products
17 being formulated by Dow, for one thing?

18 A. Or synthesized or formulated for some
19 particular purpose.

20 Q. Okay. And would it also have included as
21 part of the routine to investigate materials that Dow
22 was purchaseing to use in the making of its products?

23 A. To some extent, anyway.

24 Q. All right. And to what extent did the
25 routine of the toxicology lab in any of these years

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1 involve testing, then, materials that were present in
2 the workplace in the Dow plants other than those in
3 the products you were making or the raw materials you
4 were buying?

5 A. The -- From the standpoint of occupational
6 exposure?

7 Q. Yes, sir.

8 A. This was our prime charge at the very
9 beginning.

10 Q. Was to consider any of the potential -
11 potentially harmful occupational exposures that could
12 occur in the plant at Dow?

13 A. We tried to identify them, yes.

14 Q. All right, sir. You said that Dow had not
15 done any inhalation tests on asbestos at least by the

16 time you left the company.

17 A. I do not recollect any.

18 Q. All right, sir. Would you say that asbestos
19 as it might be encountered in Dow's plants was a
20 potential - potentially harmful occupational exposure
21 that the toxicology department did identify?

22 MR. PIERCE: Objection to the form
23 of the question; assumed facts not in
24 evidence.

25 MR. ALMQUIST: I also object on

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1 grounds it's ambiguous. It doesn't
2 contain enough information for an
3 answer.

4 A. Insofar as asbestos was concerned, again it
5 is my recollection that we - whatever was done in the
6 industrial hygiene area was done as a result of the -
7 whatever was in the literature and the A.C.G.I.H.
8 recommendations.

9 MR. DAVIS: Can you ask the
10 witness to speak up some?

11 MR. ALMQUIST: Doctor --

12 MR. PIERCE: V. K., try to speak a
13 little bit louder, if you can; okay?

14 THE WITNESS: Oh. Sorry.

15 Q. So, you say the industrial hygiene response
16 at Dow to any potential asbestos exposures was based
17 on what was existing in the literature during the
18 particular years that --

19 A. That's my understanding.

20 Q. Okay. And, in fact, there was published
21 literature regarding asbestos toxicity and its hazards
22 from inhalation that did exist in the literature
23 during all the years you worked for Dow, wasn't there?

24 MR. PIERCE: Wait. When you say
25 "all the years," you mean starting in

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1 1937?

2 MR. BLANKS: Yes, sir.

3 A. I'm not familiar with the dates of the
4 publications on asbestos.

5 (By Mr. Blanks)

6 Q. All right, sir. Are you -- You are aware,
7 though, that there are articles in the medical and
8 scientific and industrial hygiene literature going
9 back even to the late Thirties that do address
10 asbestos as an occupational exposure hazard, aren't
11 you?

12 A. That's my understanding.

13 Q. Dr. Rowe, did Dow at any time that you were
14 there rely on manufacturers like Johns-Manville or
15 Owens-Illinois or Owens-Corning Fiberglas for
16 information about the health effects of asbestos
17 inhalation?

18 A. I can't be specific. That was common
19 practice, but that was not my bailiwick.

20 Q. Okay. Well, I don't mean to belabor this
21 point, although Mr. Pierce will probably tell me I

22 certainly must mean to belabor the point.

23 MR. PIERCE: Of course.

24 Q. Let me start over. But -- I mean, I think
25 you've told us that Dow didn't do tox. testing on

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1 asbestos and it didn't do inhalation studies for
2 asbestos dust and there was literature available
3 during those different years that you were doing tox.
4 work that Dow would have relied on in setting up its
5 industrial hygiene program and carrying it on.

6 I'm just wondering if any effort was made in
7 the toxicology department to get information from
8 those companies that were manufacturing and selling
9 asbestos insulation and other asbestos products to
10 Dow.

11 MR. PIERCE: Objection to the
12 characterization of his previous
13 testimony.

14 But go ahead.

15 A. I don't know.

16 Q. Is it the case, you think, that you never
17 asked for any information from an asbestos insulation
18 manufacturer about its products and the asbestos
19 hazard that they might pose to workers?

20 MR. PIERCE: By "you," you mean
21 V. K. Rowe?

22 MR. BLANKS: Yeah.

23 A. I do not remember doing any such thing.

24 However, I would add that that would have been normal

25 practice in the industrial hygiene area for literature

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1 on materials that were being purchased and used in the
2 plant. But I don't have any personal knowledge of
3 that.

4 (By Mr. Blanks)

5 Q. All right, sir. If such information were
6 requested from a manufacturer of asbestos insulation -
7 information about "What do we need to know about the
8 health effects of this product?," is that something
9 that would have been put in a file at Dow in the tox.
10 department or the industrial hygiene department, in
11 your experience?

12 A. I don't know. I would expect so.

13 Q. Were there ever times when you, yourself,
14 requested of a manufacturer information on the
15 toxicity of products that Dow was buying from them?

16 A. I must have, but I don't recollect any
17 specifics.

18 Q. Okay. Do you recollect, sir, that what
19 information you got as a matter of routine you would
20 have put in a file on that material or that irritant
21 or whatever it was?

22 A. Oh, yes.

23 MR. PIERCE: Objection to the
24 form.

25 Q. Dr. Rowe, if Owens-Corning Fiberglas or

1 Owens-Illinois had represented to Dow that their Kaylo
2 insulation was nontoxic, is that something that you
3 would have relied on?

4 A. Not with - without parameters of exposure
5 being delineated.

6 Q. Can you tell us, Dr. Rowe, when Dow began to
7 enforce rules to protect workers potentially exposed
8 to asbestos from breathing asbestos dust and fiber?

9 MR. PIERCE: Objection to the form
10 of the question; assumes facts not in
11 evidence and it's ambiguous.

12 A. I don't know.

13 Q. Do you believe, sir, that during any years
14 Dow had on its premises workers who were potentially
15 exposed to asbestos in their work?

16 A. Would you repeat, please.

17 Q. Yes, sir. I was wondering if you believed
18 that at any time you worked for Dow that there were on
19 Dow premises workers potentially exposed to asbestos
20 on the premises.

21 A. Oh, yes.

22 Q. Do you recall, sir, any steps Dow made
23 between 1970 and 1973 when you were the director of
24 toxicology and industrial hygiene to set out rules to
25 protect workers potentially exposed to asbestos on Dow

1 premises?

2 A. I don't -- I don't remember.

3 Q. Can you recollect any from any prior time?

4 A. No.

5 Q. Was it your belief in the early 1960's,
6 Dr. Rowe, that breathing asbestos dust would not cause
7 disease under any circumstances?

8 MR. PIERCE: In any quantity, any
9 amount? You're not quantitizing
10 this at all. Are you quanti --

11 MR. BLANKS: Well, no. I meant --

12 MR. PIERCE: Any amount?

13 MR. BLANKS: My question was --

14 MR. PIERCE: I think it's very
15 ambiguous as stated.

16 But go ahead. Sorry.

17 (By Mr. Blanks)

18 Q. I was asking - Let's try again - your belief
19 in the early 1960's whether or not breathing asbestos
20 dust in an occupational setting could - could or
21 wouldn't cause disease.

22 MR. PIERCE: Continue the
23 objection.

24 A. That goes back to the fundamental philosophy
25 that there is no such thing as a nontoxic material.

1 It's all a matter of how much and under what
2 conditions. If an exposure is too great, you'll have
3 adverse effects. If it's below what is ordinarily
4 thought to be or considered to be a safe level, the

5 odds are very poor of an adverse effect. All depends
6 on how much and under what conditions.

7 Q. All right, sir. So, with that in mind, was
8 it your belief in the early Sixties, then, that there
9 was some level of asbestos dust exposure that one
10 could have that would cause disease?

11 A. That would cause?

12 Q. Yes, sir.

13 A. My recollection of the literature is that
14 there were documented cases years ago.

15 Q. And "years ago" would take us back at least
16 to the early Sixties?

17 A. I don't know the time frame when these
18 articles were published.

19 Q. We'd just have to look to the articles,
20 themselves, to see the dates for them?

21 A. Yes.

22 Q. But it would have been the case, then, that
23 Dow's biomedical research laboratory staff, including
24 its toxicology department and the other professionals
25 working there, at least would have had many, if not

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1 most or all, of this medical literature available to
2 it. True?

3 MR. PIERCE: Objection to the form
4 of the question. It's unanswerable as
5 asked, requires speculation as to the
6 mind and activities of others.

7 But answer it to the best of your
Page 32

8 ability.

9 A. Well, certainly there were - there was some
10 literature that was available to people at that time.

11 Q. And it would also, as we mentioned before,
12 have been available in the decade of the Fifties and
13 the Forties, as well, documented cases of asbestosis
14 from occupational exposures. True?

15 A. That's my understanding.

16 Q. All right, sir. Dr. Rowe, had you known
17 from the suppliers or the manufacturers of asbestos
18 insulation that Dow used that these manufacturers' own
19 field installers of insulation had developed
20 asbestosis in, say, the Forties or the Fifties, would
21 you have urged Dow to do more to protect people
22 working in its plants from asbestos exposures?

23 MR. PIERCE: Once again, are you
24 going to leave the question that vague
25 with no numbers and no idea of

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1 exposure but just that general
2 question? - because I think it's
3 unanswerable as asked.

4 But try.

5 A. Our efforts in a situation like that would
6 have been to recognize the recommended levels of
7 exposure which were considered by the Government
8 agencies and so forth to be without particular
9 hazard.

10 Q. So, are you saying, then, that if a

11 Government agency said that a particular exposure
12 level was free of hazard that would have been all you
13 needed to know and it would not have been instructive
14 to you to know that people using the products, putting
15 the products in - the insulation in - were, in fact,
16 getting sick?

17 MR. PIERCE: Objection to the
18 form; compound question and ambiguous
19 and unintelligible in parts.

20 A. That's impossible to judge without knowing
21 what concentrations of exposure they received.

22 Q. So, had you been told that, let's say,
23 insulators working for Johns-Manville or some other
24 company were developing asbestosis, you would have
25 wanted to know about the actual exposure levels these

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1 men were encountering in doing their work.

2 A. I don't know that anything other than -- And
3 I don't really know what is in the literature, except
4 the literature and the experience was the basis of my
5 understanding of the acceptable levels as promulgated
6 by the A.C.G.I.H. and U. S. Public Health Service.
7 And we tried and I think, for all practical purposes,
8 we did control our exposures to such a level. That
9 was our -- That was our basic premise. We had
10 guidelines. We tried to follow them to the best of
11 our ability.

12 Q. Do you recall ever doing any testing to see
13 whether these guidelines were, in fact, adequate to

14 protect the workers exposed at or below the guideline
15 levels?

16 MR. PIERCE: Is that for any
17 compound at all, or are we speaking
18 about asbestos?

19 Objection to the question as
20 completely ambiguous.

21 Go ahead.

22 A. Are you speaking of asbestos?

23 Q. Well, I phrase it generally; and then I
24 follow up with a question on asbestos.

25 A. Well, please restate.

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1 Q. Okay. The first question was, was it the
2 case, then, that Dow relied on whatever guidelines
3 were existing at a particular time to decide whether
4 or not to protect workers from exposures. You relied
5 on the guidelines from the A.C.G.I.H.?

6 A. Yes, we did. But we also had one or two
7 occasions where we did not believe that the guidelines
8 were adequate and we revised and made our own.

9 Q. And I take it you made yours stricter than
10 what the A.C.G.I.H. guidelines were.

11 A. That's right.

12 Q. What led Dow to do that? What made you
13 suspicious of the guideline level?

14 MR. PIERCE: Compound question;
15 objection to the form.

16 A. Okay. Please come back with your question

17 again so I can put it...

18 Q. All right, sir. What was it in those couple
19 of instances that caused Dow to be suspicious of the
20 guideline for whatever the material was?

21 A. People were complaining and reporting to the
22 medical department not feeling well. And this caused
23 us to examine the exposures that were being received
24 in their operation - analyzing the operation. And if
25 those exposures when documented resulted in adverse

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1 effects, we would conclude and did conclude in several
2 instances that the exposure levels were
3 inappropriate. And, so, we set about to find out what
4 an appropriate level was.

5 Q. So, if I understand you, the medical
6 department alerted you to some problems or complaints
7 among workers who were being exposed to particular
8 materials. Correct?

9 A. Yes.

10 Q. And then the response to that was for the
11 industrial hygienists to go out and actually measure
12 the exposure levels those workers were encountering.
13 True?

14 A. Yes.

15 Q. Did you find that the exposure levels were
16 at or below the guideline levels for the material?

17 A. I don't remember specific data.

18 Q. Well, I mean as opposed to finding that the
19 exposures were excessive.

20 A. The -- Using the guidelines did not explain
21 what was happening.

22 Q. Okay. So, it was apparent from the medical
23 information you had that the guidelines weren't
24 adequate.

25 A. That's right.

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1 Q. But you surely must have made sure that the
2 exposures were within the guidelines in order to reach
3 the conclusions the guidelines weren't working, right?

4 A. I presume that's - that's an accepted fact.

5 Q. Yeah. It would seem the first thing that
6 you'd do would be to go out there and, let's say, find
7 out what their - what are the exposure levels. And if
8 the exposure levels were above the guideline, you'd
9 say, "Well, that's the problem. Let's get it down to
10 the guidelines," right?

11 MR. PIERCE: Objection to the
12 form; asked and answered several
13 times.

14 A. That's true. You had to study in some cases
15 the individual's work habits, why he was getting
16 excessive exposure, and why other people doing the
17 same job didn't. That's part of industrial hygiene.

18 Q. Yes, sir. Because individuals have both
19 different habits and, also, they vary in their
20 susceptibility to occupational disease, don't they,
21 given the same exposure levels?

22 A. Well, no two individuals are the same.

23 Q. Okay. Do you recall what any of those
24 materials were for which Dow wrote stricter exposure
25 standards for its own plants?

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1 A. As I recollect, the first one was carbon
2 tetrachloride.

3 Q. Yes, sir. Can you recall any of the others?

4 A. I'm not sure about the - the stimulus for
5 the work we did on most of the aliphatic chlorinated
6 hydrocarbons. I don't recollect that that came
7 through the medical department, but it could have.

8 Q. Well, does that mean that you did at Dow
9 tighten up the guidelines or the standards for the
10 aliphatic chlorinated hydrocarbons for some reason or
11 other?

12 A. Yes. I can remember one other -- One
13 specific one was vinyl chloride.

14 Q. How far back in time or what period can you
15 place these actions in where you tightened up the
16 guidelines below what was generally considered
17 acceptable?

18 A. I can't give you the time frame. If you'll
19 look at our publications, they'll tell you.

20 Q. Oh, okay. Very good, sir. You said a few
21 minutes ago that - when I asked you about whether
22 information concerning asbestos disease in insulators
23 working for the manufacturers like Johns-Manville or
24 Armstrong or others would have been helpful to you
25 that you actually did control exposures to the

1 guideline levels at Dow. Correct?

2 MR. PIERCE: Objection to the
3 characterization of previous
4 testimony.

5 A. I -- I can't answer that question
6 positively. I don't know.

7 Q. Well, would you have found useful to you
8 information from asbestos insulation installer
9 companies about the occurrence of disease in their
10 employees? Is that information that would have been
11 useful to you at Dow?

12 A. If it was predicated on with quantitative
13 analyses.

14 Q. Would not the mere fact of reports of
15 asbestosis in insulators have caused you to at least
16 go out and confirm the exposure levels you were facing
17 having in your plants, if any?

18 A. It's my understanding that's what was done.

19 Q. Can you recall when that came to be done and
20 what - approximately when?

21 A. No.

22 Q. Can you recall for us, Dr. Rowe, what it was
23 that was done at Dow in, let's say, the Forties to
24 control exposures to airborne asbestos dust?

25 A. I don't know.

1 Q. Sir?

2 A. I do not know.

3 Q. Would you have any idea what was done to
4 control exposures to airborne asbestos dust in the
5 Fifties?

6 A. No. I don't know.

7 Q. Or in the Sixties?

8 A. I don't know.

9 Q. How about in the Seventies when you were the
10 director of toxicology and industrial hygiene, '70 to
11 '73?

12 A. I don't know.

13 Q. Can you point us to any evidence that the
14 exposures to airborne asbestos dust that did occur in
15 Dow plants were, in fact, below the guideline levels
16 for any particular year prior to your retirement?

17 A. I don't know.

18 Q. Did Dow ever request that there be
19 monitoring for exposures of workers potentially
20 exposed to asbestos during your years with the
21 company?

22 MR. PIERCE: Objection to the
23 form.

24 You're asking not if he requested
25 it but if anybody anyplace at Dow

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1 requested it; is that correct?

2 A. I don't know.

3 Q. Let me start over, then. Did you ever
4 request there be monitoring of workers potentially
5 exposed to asbestos in Dow plants?

6 A. Not to my knowledge.

7 Q. Are you aware, sir, of Dr. Adams or
8 Mr. Hoyle or any of the others working in your group
9 or in the I. H. group requesting that workers
10 potentially exposed to asbestos be monitored for their
11 exposures?

12 A. I know there was monitoring done. And
13 Mr. Hoyle would be the person that would be
14 responsible for that knowledge.

15 Q. Okay. In answers to interrogatories I think
16 the company, Dow, has said that in the Texas plants
17 that monitoring began in 1968. Do you have any
18 knowledge of that?

19 A. No.

20 Q. Do you have any recollection of when
21 monitoring of workers potentially exposed to asbestos
22 would have begun up in the Midland plants?

23 A. I don't recall.

24 Q. Do you recall, sir, if there was ever any
25 effort to try and identify who were the workers

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1 potentially exposed to asbestos in Dow plants?

2 A. I don't know.

3 Q. Could you tell us when your group at Dow
4 learned of the hazardous properties of airborne
5 asbestos and its potential to cause, say, lung cancer?

6 A. I don't remember.

7 MR. PIERCE: Objection to the
8 form.

9 A. I do not remember.

10 Q. Would you recollect, sir, that that was not
11 until the late 1960's that Dow learned of the
12 hazardous properties of airborne asbestos?

13 A. I don't -- I don't know.

14 Q. So, you have no recollection either for
15 yourself or for what was - what was being done in the
16 toxicology or industrial hygiene group and its
17 awareness of the hazards of airborne asbestos?

18 MR. PIERCE: Objection to the
19 compound nature of the question.

20 A. Well, I was certainly aware that there was a
21 hazard due to asbestos. The control of that was the
22 responsibility of the industrial hygiene people. And
23 I knew they were -- I knew they made measurements, but
24 I do not know any of the detail. I don't recall,
25 anyway, if I saw them or not.

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1 Q. Okay. And you can't place that in a time
2 frame for us?

3 A. No.

4 Q. Is it your understanding that the medical
5 and toxicology professionals at Dow learned of the
6 hazardous properties of airborne asbestos prior to
7 articles being published in the medical and scientific
8 literature?

9 A. I have no such knowledge.
10 Q. Would your awareness of the hazardous
11 properties of airborne asbestos have actually come
12 from the published medical and scientific literature
13 as opposed to some independent work that was being
14 done at Dow?
15 A. Any information that we had came from either
16 published literature or word of mouth from someone.
17 Q. But you have no --
18 A. I don't -- I don't recall.
19 Q. All right, sir. Can you tell us when, if
20 ever, the Dow industrial hygiene department banned the
21 purchase of asbestos-containing insulation for use on
22 Dow premises?
23 A. No.
24 Q. How about asbestos-containing gaskets?
25 A. Beg your pardon.

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1 Q. Asbestos gaskets.
2 A. I don't know.
3 Q. What about asbestos cements?
4 A. I don't know.
5 Q. Was there ever a time that your
6 responsibilities with Dow included any dealings with
7 the Texas Dow plants?
8 MR. PIERCE: Objection to the form
9 based on vagueness of the terminology.
10 A. Yes. We had relations with the Texas plant.
11 Q. How far back would that go, from its being

12 constructed?

13 A. I can't give you dates, but a long time
14 ago.

15 Q. Yes, sir.

16 A. After -- Shortly after they were in
17 operation, I know that their - our reports were
18 available to them. If they had questions, they came
19 back to us.

20 Q. I'm thinking you told us that in the
21 beginning the Texas plants didn't have their own
22 toxicology lab or staff or even industrial hygienists
23 and they relied on the Midland group for those
24 services. Would that be correct?

25 MR. PIERCE: Objection to the

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1 form; mischaracterization of the
2 testimony he gave last time.

3 But go ahead.

4 A. Well, in the early days they did not, to my
5 knowledge, have - I know they did not have any
6 toxicology facilities. The -- I don't know when the
7 industrial hygiene work began down there but -- They
8 did have industrial hygiene early on, but I don't know
9 when.

10 Q. And wasn't it the case that somewhere along
11 the way that the Freeport plant actually got its own
12 toxicologist? Do you remember that?

13 A. I don't remember the dates.

14 Q. Do you remember that it happened, though?

15 A. Oh, yes.

16 Q. Okay. So, though we're not clear on the
17 dates - and I appreciate you don't remember them - for
18 some period of time at least the Freeport plant got
19 its industrial hygiene and toxicology services from
20 the Midland Dow employees?

21 MR. PIERCE: Objection to the
22 form. Once again, a
23 mischaracterization. Mischaracterizing
24 the exact same testimony
25 mischaracterized earlier and, also,

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1 compound nature of the question.

2 A. Let's try again.

3 Q. In the beginning years the Freeport plant
4 was supported by Midland for any industrial hygiene
5 consultation and toxicology consultation. True?

6 MR. PIERCE: Continue the
7 objection.

8 A. That's -- That's my recollection.

9 Q. Okay. And then eventually they had their
10 own folks doing I. H. work and tox. work at Freeport?

11 A. Yes. The tox. lab early in the formative
12 stages was designed for primarily just the first
13 stages of evaluation, not any comprehensive studies.

14 Q. Just a Class I --

15 A. Class I. That is correct.

16 Q. Okay. Even after Freeport had its own
17 toxicologists and its own industrial hygienists, did

18 it still have available the services of the Midland
19 tox. lab and industrial hygiene department?

20 A. Yes.

21 Q. Do you recollect, Dr. Rowe, that the
22 industrial hygiene and toxicology staff in Freeport,
23 Texas, was reporting up to the Midland group; or were
24 they autonomous from an organizational standpoint?

25 A. They were -- They reported to the medical

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1 department in the Texas division.

2 Q. Do you have any explanation for why they
3 were organized under the medical department in Texas
4 versus the different organization in Midland?

5 MR. PIERCE: Are you asking that
6 he speculate or does he have knowledge
7 or...

8 MR. BLANKS: Just whatever his
9 understanding was. If you or I were
10 answering, we'd probably be
11 speculating; but Dr. Rowe might be able
12 to tell us.

13 A. The -- This type of work -- The medical
14 director - the first medical director - at the Texas
15 division, as I recollect, had - or had worked in the
16 medical department at Midland and was quite familiar
17 with this type of work. He'd been exposed to it over
18 a period of time. So, when he went down there, he was
19 the only logical person to develop and head up this
20 type of work. There was no other person down there at

21 that time that was in toxicology or -- And industrial
22 hygiene was in the medical department, which is not
23 dissimilar to many, many corporations.

24 (By Mr. Blanks)

25 Q. Yes, sir. I understand. We found it to be

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1 common to be organized under the medical department.

2 Do you recall who this doctor was that first
3 went down there to Freeport?

4 A. As I recollect, it was Dr. Kilian.

5 Q. Do you know his first name?

6 A. Jack.

7 Q. And correct me if I'm wrong; but I'm
8 understanding from you that Dr. Kilian, who began with
9 Dow in Midland at the medical department in the plant,
10 acquired from his dealings with your group some
11 appreciation for toxicology and for industrial hygiene
12 to where he was not, let's say, totally ignorant about
13 those matters and had some appreciation for the
14 potential problems to deal with in the plant.

15 A. Yes.

16 Q. Dr. Rowe, do you believe that it was not
17 until the late 1960's that Dow's doctors knew that
18 workers exposed to sufficient levels of airborne
19 asbestos dust over a long enough period could contract
20 an asbestos-related disease?

21 A. I don't know.

22 Q. You have no belief on that one way or the
23 other?

24 A. I didn't know they had.

25 Q. That they had known?

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1 A. I don't -- I have no knowledge that - or at
2 least I don't recollect any - any cases of asbestosis
3 at - at the Dow plant, that - that I know of.

4 Q. I'm sorry. I didn't mean to say that it was
5 by the late 1960's that Dow had cases of asbestosis or
6 at any time. I don't -- That wasn't part of the
7 question.

8 A. Oh.

9 Q. Let me try again, please, sir. I was asking
10 you if you believe that it was not until the late
11 Sixties that Dow's doctors knew or appreciated that
12 workers exposed to sufficient levels of asbestos dust
13 over a long enough time period could get an
14 asbestos-related disease.

15 MR. PIERCE: I'm going to object
16 to the form of the question. It calls
17 for speculation and knowing the minds
18 and state of knowledge of each
19 physician or other kind of doctor
20 within The Dow Chemical Company.

21 But go ahead and answer.

22 A. I don't know.

23 Q. Do you know of any Dow doctors who gave you
24 any reason to think before the late 1960's that they
25 had an appreciation for that possibility of

1 asbestos-related disease?

2 A. I don't remember.

3 Q. How about Dow industrial hygienists, do you
4 believe that it wasn't until the late 1960's that
5 Dow's industrial hygienists had an awareness that
6 workers exposed to sufficient levels of airborne
7 asbestos dust over a long enough time period could
8 contract an asbestos-related disease?

9 MR. ALMQUIST: Same objection. It
10 calls for speculation as to what
11 someone else knew.

12 A. I don't know.

13 Q. Is there any point in the time when you were
14 with Dow that you can say with any confidence that it
15 was your understanding that the industrial hygiene
16 department appreciated the possibility for
17 asbestos-related disease under certain exposure
18 conditions?

19 A. I know the industrial hygiene people that
20 were involved with monitoring asbestos were aware of
21 the - of the hazards of the material, yes; but I can't
22 put a time frame on it.

23 Q. Okay. And I think you've already told us
24 you can't really put a time frame on when you became
25 aware of this potential for asbestos-related disease

1 in workers sufficiently exposed. True?

2 A. I don't believe I said that, because early -
3 early on there were articles and lectures at the
4 meetings and so forth about asbestos and so forth that
5 I do not have any specific data or time frame that -
6 when I first knew of this. These things occurred over
7 a number of years and, really, I really had no
8 particular interest in asbestos as such because we
9 didn't - hadn't done any work on it, didn't know
10 anything about it.

11 Q. All right, sir.

12 MR. ALMQUIST: Okay. Is this --
13 We've been going for about an hour
14 now. Can we take a break?

15 MR. BLANKS: Sure.

16 Are you ready for a break, sir?

17 THE WITNESS: Thanks.

18 (AT THIS TIME A BRIEF RECESS WAS
19 TAKEN, AND THE PROCEEDINGS THEREAFTER
20 RESUMED AS FOLLOWS:)

21 (By Mr. Blanks)

22 Q. Dr. Rowe, had you learned in 1960 that cases
23 of mesothelioma had been reported in petrochemical
24 plant workers, would you have recommended better
25 industrial hygiene controls for workers potentially

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1 exposed to asbestos in Dow plants, sir?

2 MR. PIERCE: Objection to form;
3 improper hypothetical.

4 But go ahead.

5 A. I don't know.

6 Q. You don't have an opinion about how you
7 would have responded to such information in 1960?

8 A. Well, it would have depended upon the
9 quantitative aspects of the situation.

10 Q. You mean how many cases of mesothelioma were
11 reported in a particular article or what?

12 A. What kind of exposure had occurred to have
13 caused that effect. And then I would certainly be
14 interested in that in comparison with what our
15 industrial hygienists had found in our own plants.

16 Q. So, at the very least, then, if you had
17 learned of such case reports in 1960, would you have
18 felt the need to inquire further about the exposure
19 levels that the - that the victims had reported?

20 MR. PIERCE: Objection to form;
21 asked and answered, essentially
22 argumentative.

23 A. Well, it was my impression that this
24 particular manifestation was known before that -
25 before that time. And, as far as I know, it was

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1 associated with rather severe exposures. But I don't
2 know what the quantitative aspects are.

3 Q. Had you known, Dr. Rowe, in 1950 that
4 insulators in refineries were potentially exposed to
5 asbestos in hazardous amounts, would that information
6 have been useful to you in your work at Dow?

7 A. Not necessarily.

8 Q. Would that be because you were already then
9 aware of the potential for asbestos disease in
10 insulators in 1950 under some levels of exposure?

11 MR. PIERCE: Objection to the
12 form; leading.

13 A. The problem I have with your question is the
14 lack of quantitation. I certainly do not deny the
15 fact that heavy exposures can produce mesothelioma and
16 whatever; but, again, unless I have information
17 relative to the intensity of exposure, it doesn't mean
18 too much when I know excessive exposure is likely to
19 do this - heavy exposure.

20 Q. Okay, sir. If I'm understanding you, then,
21 you would have appreciated in 1950 that intensive or
22 heavy exposures could in some cases cause
23 asbestos-related disease. True?

24 MR. PIERCE: Objection to the
25 vagueness of the question.

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1 A. Well, I think it was fairly well understood
2 that heavy exposure was capable of causing this type
3 disease.

4 Q. Okay. And the significant thing to you,
5 then, would not be the reports of asbestos in
6 connection with a particular disease but rather how
7 much exposure did it take to get there: is that what
8 you're telling me?

9 A. That's -- That's right.

10 Q. Because you keep coming back to
11 quantification as being a significant fact to you.

12 A. To me, it's very important.

13 Q. So, in response to any case report of an
14 asbestos-related disease that might appear in the
15 literature, you would first want to know what were the
16 exposure levels, how long was the man exposed over his
17 work before - before the report would have any
18 significance to you. Is that true?

19 A. That's true.

20 Q. And what was done at Dow during your years
21 in the toxicology department and with the industrial
22 hygiene department to actually investigate the
23 exposure levels that went with these disease reports?

24 MR. PIERCE: Is that exposure
25 levels to anything or exposure levels

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1 to asbestos?

2 MR. BLANKS: Well, we're talking
3 about these case reports of
4 asbestos-related disease. And I -- I
5 mean, I'm understanding Dr. Rowe to say
6 quantification is the critical point.

7 (By Mr. Blanks)

8 Q. So, what steps did you take at Dow to try to
9 find out about the exposure levels that went with
10 these reports of mesothelioma or lung cancer or
11 asbestosis in insulators?

12 A. I don't know.

13 Q. Do you know that any --
14 A. No. I did --
15 Q. -- any investigation was made, sir?
16 A. I did not make any.
17 Q. Are you aware of any that was made by anyone
18 at Dow?
19 A. I just don't know.
20 Q. So, if I may come back to the earlier
21 question, then, would it have been news to you in 1950
22 that insulators working in refineries had a potential
23 for injurious exposure to asbestos?
24 A. Would you please repeat that.
25 Q. Yes, sir. I'm speaking of refineries and

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1 not chemical plants.
2 A. Speaking of what?
3 Q. First of all, I was speaking about
4 refineries as opposed to chemical plants, --
5 A. Oh, okay. Okay.
6 Q. -- so that's clear. But would it have been
7 news to you in 1950 that insulators working in
8 refineries could potentially have disease-causing
9 exposures to asbestos at work?
10 A. I know nothing about the exposures that
11 occurred in refineries; so, I don't know. I tried to
12 say earlier that there is no such thing as a nontoxic
13 material. If you have an excessive exposure, you're
14 apt to have trouble. If you have a so-called safe
15 exposure, the potential for it is very small; but

16 there's always potential.

17 Q. And because there's always potential, it's
18 important to measure the levels of exposure?

19 A. Certainly.

20 Q. And to try and validate whether those
21 exposure levels are safe or, alternatively, have the
22 possibility of causing disease, correct?

23 MR. PIERCE: Objection to the
24 form; vague and compound, confusing.

25 A. I have to keep coming back to the

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1 quantitative aspects and the association of those
2 exposure levels - exposure intensities, duration,
3 concentration, and of the effect. And if you don't
4 have that, it's awfully difficult to know how much
5 significance to place upon a -- You have people
6 working with materials for years and years and no
7 problems, you assume that that's a pretty safe level.
8 On the other hand, if you have people working in a
9 high concentration and they become ill or - in one way
10 or another, you do your best to reduce exposures as
11 far as you reasonably can and certainly to the
12 guidelines that are present knowledge or knowledge of
13 the times suggests.

14 Q. Okay. So, you're saying that the data - the
15 facts - are important to the toxicologist, as well as
16 to the industrial hygienist.

17 A. Certainly.

18 Q. The exposure levels; the durations of

19 exposure; and, as well, the medical effects of
20 exposures.

21 A. Yes.

22 Q. And absent that data, it's not really
23 possible to properly formulate an effective industrial
24 hygiene program, is it?

25 MR. PIERCE: Objection to the

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1 form.

2 A. I -- I guess I don't quite understand your
3 question. Can you try it again?

4 Q. Well, I guess what I was getting at is that
5 as a scientist it's important to you to know, if
6 you're concerned about occupational health, just what
7 the levels of exposure to any particular toxic
8 material are that your workers are facing, correct?

9 A. That's right.

10 Q. And the only way to know that is to go out
11 and take samples and monitor it and gather the data;
12 isn't that true?

13 A. That's one part of it.

14 Q. And another part of occupational health - of
15 an occupational health program is being aware of the
16 duration of the exposures that the men face to the
17 toxic materials. True?

18 A. Yes.

19 Q. And the only way to know that, again, is to
20 go out and gather the data, observe, record the time
21 they spend doing these things in conjunction with the

22 measurements, correct?

23 MR. PIERCE: Objection to form of
24 the question. It's compound and
25 limiting the possible answer.

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1 A. I think the answer is "yes."

2 Q. And the final -- The final part of the data
3 that provides you some confidence in your program is
4 the medical data, correct?

5 A. Very important.

6 Q. And with a disease that has a long latency
7 period, this involves - would require long-term
8 medical surveillance of the workers potentially
9 exposed to the material. True?

10 A. Yes.

11 Q. Dr. Rowe, had you known in 1948 that
12 asbestos was thought to be a probable carcinogen,
13 would you have recommended that it be handled
14 differently at Dow than it was in 1948?

15 MR. PIERCE: Objection to the form
16 for vagueness and, also, improper
17 hypothetical.

18 A. I don't know.

19 Q. Do you think, based on your experience in
20 1948, after 11 years with the company, that
21 information about asbestos as a possible or probable
22 carcinogen would have been useful information to you
23 in the toxicology department?

24 MR. PIERCE: Objection to the
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25 form; vague and compound.

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1 A. Scientific information of this nature was
2 always of interest to us.

3 Q. Dr. Rowe, can you help me in any way to
4 understand the relationships between Dow and its
5 subsidiaries like Dowell Company?

6 A. The Dow - Dowell was a wholly owned
7 subsidiary.

8 Q. And it was involved in what, some
9 oil-related business?

10 A. Oil well treatments, as far as I know.

11 Q. Did your group ever provide toxicology or
12 industrial hygiene services to Dowell?

13 A. Yes.

14 Q. Can you recall any sort of specific
15 instances?

16 A. The -- I can't -- I can't recollect the
17 materials but the -- The materials that we worked with
18 for Dowell, as I recollect, were corrosion
19 inhibitors. They were used in the acid for oil
20 treatment.

21 Q. Did Dowell make any drilling muds any time
22 that you know of?

23 A. Beg your pardon.

24 Q. Did Dowell make or sell any drilling muds?

25 A. I don't know anything about Dowell's

1 business except that they were in the oil business -
2 the oil production business.

3 Q. Okay. How far back in time can you recall,
4 approximately, doing any kind of toxicology work for
5 Dowell? Back into the Forties, perhaps?

6 A. I just don't remember. It would have been
7 early. It wasn't late.

8 Q. Were they based in Tulsa?

9 A. I believe so.

10 Q. Did they have, to your knowledge, any
11 industrial hygienists or toxicologists at any time
12 that you were with the company?

13 A. Yes.

14 Q. Would that have been in the later years of
15 your Dow employment?

16 A. Again I can't put that in a time frame.

17 Q. I suppose you had some dealings with their
18 toxicologists or industrial hygienists somewhere along
19 the way. Would that be so?

20 A. At Dowell?

21 Q. Yes, sir.

22 A. To my knowledge, they did not have any
23 toxicologists. They had a -- They had an industrial
24 hygienist. At least one. I don't know. Maybe more.

25 Q. Do you recall that Dowell also had a medical

1 professional attached to the company, a doctor?

2 A. I don't remember.

3 Q. Were services that your group did for Dowell
4 charged back to Dowell?

5 A. I don't know.

6 Q. What about Dow Corning, was that also a Dow
7 subsidiary?

8 A. No.

9 Q. What was its relation to Dow, if any?

10 A. Dow Corning is a separate corporation owned
11 50 percent by Corning glass and 50 percent by Dow
12 Chemical.

13 Q. Did your -- Excuse me. Let me start again.
14 Did your group do any kind of tox. work or industrial
15 hygiene work for Dow Corning over the years?

16 A. Yes.

17 MR. PIERCE: Objection; asked and
18 answered at the last session.

19 A. Yes.

20 Q. Did they have an industrial hygienist, Dow
21 Corning?

22 MR. PIERCE: Do you have a point
23 in time or just any time?

24 A. It depends. They didn't early in the game,
25 but they did later.

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1 Q. Do you recall who that person was?

2 A. One person who - who was there - Whether or
3 not it was the first one or what, I don't remember -
4 was Larry Silverstein.

5 Q. He had begun his industrial hygiene work at
6 Dow, had he not?

7 A. Yes.

8 Q. And then perhaps transferred over to Dow
9 Corning later?

10 A. Yes.

11 Q. Is Mr. Silverstein a person that worked with
12 you or under you at any time at Dow?

13 A. He was one of our industrial hygienists.

14 Q. Working for Mr. Hoyle?

15 A. Yes.

16 Q. Can you recall, Dr. Rowe, any other Dow
17 subsidiaries or related companies, using that term
18 loosely, for which your group ever did any toxicology
19 work or industrial hygiene work?

20 MR. PIERCE: Objection to the
21 form. It's compound. The use of the
22 term "related company" is vague and
23 ambiguous.

24 But go ahead.

25 A. There were a few instances in which we did

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1 some toxicological work for the pharmaceutical
2 division, only when their toxicology labs were
3 overwhelmed by the amount of the work they were doing.
4 And they just didn't have the capacity and we had the
5 capacity at the time and that was it. But we did not
6 do it on a routine basis, --

7 Q. Yes, sir.

8 A. -- only on special occasions. And, of
9 course, we did work for the various Dow divisions,
10 which is the Texas division and the western division
11 and eastern division, central division, and that sort
12 of thing.

13 Q. All of those being divisions of Dow Chemical
14 Company?

15 A. Yes.

16 Q. Okay. Can you think of any other companies
17 for whom your group ever did any tox. work or
18 industrial hygiene work, sir?

19 A. I don't recall any.

20 Q. Dr. Rowe, do you recall, sir, if anyone,
21 that you know of, ever requested that medical
22 surveillance be conducted at Dow of workers
23 potentially exposed to asbestos?

24 A. I don't know.

25 Q. Do you recall, Dr. Rowe, that it was ever

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1 the case at Dow during your years with the company
2 that medical surveillance of workers potentially
3 exposed to asbestos did take place?

4 A. I have no specific information, but I have
5 to say that the workers were continuously under
6 medical surveillance. And what they did in that
7 particular area I don't know.

8 Q. You're saying that all of the Dow workers
9 were under medical surveillance to some extent?

10 A. To some extent, yes.

11 Q. And was that the case from the beginning of
12 your employment in 1937, that there was a medical
13 surveillance program?

14 A. No. There was not a corporate medical
15 department at that time.

16 Q. Would you remind me again when the corporate
17 medical department came into being, approximately?

18 A. I don't remember.

19 Q. By the Forties, wasn't it?

20 A. Yes.

21 Q. Were you, yourself, under a medical
22 surveillance program from the Forties on?

23 A. I would think so. We had our annual
24 physicals and that sort of thing.

25 Q. So, you actually had a hands-on physical by

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1 the Dow medical department each year?

2 A. In the early days, yes. I don't know how
3 widespread it was, that program; but it was a general
4 program. And that was under the medical department's
5 operation; so, I do not know how it was set up.

6 Q. Do you know, sir, if there were any special
7 medical monitoring programs for any particular trade
8 or employee group at Dow that went beyond just this
9 general medical surveillance for all employees?

10 A. I don't know.

11 Q. Do you recall that any particular group of
12 Dow employees who might just be working with some
13 particular chemicals actually had biological

14 monitoring during any years?

15 A. I remember that we have had biological
16 monitoring but on quite a limited basis. The people
17 working in the chlorinated hydrocarbon area were
18 probably as a group observed as much as anyone or more
19 because of the potential, like, for carbon
20 tetrachloride and liver involvement because we knew
21 the consequences of excessive exposure and you
22 couldn't always be sure until medical surveillance
23 was -- Where we had a spot like that, more attention
24 was paid to it.

25 Q. Okay. When you said "because you couldn't

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1 always be sure," what did you mean? Be sure of what?

2 A. You'd know what exposures always were with
3 individuals.

4 Q. I see. So that even though Dow had an
5 industrial hygiene program to control the exposures of
6 individuals working in the chlorinated hydrocarbon
7 department, it was a concern that some people might
8 have excessive exposures in spite of the controls.

9 A. That's true.

10 Q. And, therefore, the medical monitoring was a
11 good way to - to detect those excesses, if any
12 occurred.

13 MR. PIERCE: Objection to the

14 form --

15 A. Medical --

16 MR. PIERCE: -- of the question.

17 A. -- monitoring in those days was in its
18 infancy primarily because of the lack of analytical
19 facilities or - I shouldn't say "facilities" -
20 capabilities to do analyses that were meaningful.

21 Q. And "in those days," what are we talking
22 about - the Forties, Fifties? When?

23 A. Yes. And beyond. Even today you can't use
24 medical monitoring for - because you don't have the
25 information that's necessary to do it.

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1 Q. I'm sorry. Could you explain? I didn't...

2 A. Well, for instance, if you know with the
3 metabolites and how they're excreted and that sort of
4 thing, you can analyze for them. If you don't know,
5 you can't do it. You don't have enough method
6 available.

7 Q. Okay.

8 A. So, it's a -- It's a -- Personnel and
9 medical monitoring are very useful techniques if the
10 the capability for doing so is available.

11 Q. And they go together, if I'm understanding
12 you, personnel monitoring as well as medical
13 monitoring.

14 MR. PIERCE: Objection to the form
15 of the question; ambiguous and vague.

16 Q. The two complementary --

17 A. They complement each other.

18 Q. As part of an occupational health program in
19 the prevention of occupational disease. True?

20 A. I guess, yes.

21 Q. Okay. Was it Dow's policy in any year you
22 worked there to not protect workers from breathing
23 toxic chemicals or dust?

24 MR. PIERCE: I'm going to object
25 to the form of the question --

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1 A. Please repeat that.

2 Q. Yes, sir. Was it Dow's policy -- In any of
3 the years that you worked there, was it a policy to
4 not protect workers from breathing toxic chemicals or
5 dust in the workplace?

6 MR. PIERCE: The question is
7 leading and is essentially
8 argumentative.

9 A. Again we go back to the quantitative aspects
10 of the industrial hygiene/toxicology pro - medical
11 problem. It's essentially impossible in any operation
12 to prevent all exposure. You try to keep the exposure
13 level to acceptable levels. Certainly if we knew
14 there was an excessive exposure, we would do our best
15 to do something about it.

16 Q. Then was it the policy at Dow in any years
17 you worked there to only provide protection for
18 workers when the exposures were above the guideline
19 levels?

20 MR. PIERCE: Objection to the
21 form. Objection to questions relating
22 to the policy of Dow.

23 A. Well, I don't - I don't believe that was a
24 policy but -- Would you restate your question and...

25 Q. Yes, sir. Focusing back on the quantitative

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1 aspects, as you say, was it the Dow policy in any of
2 your years there to provide protection for workers
3 only where the exposures to toxic dust were in excess
4 of the guideline levels?

5 MR. PIERCE: Continue the
6 objection in respect to Dow policy and
7 some ambiguity within the question.

8 A. If the particular operation was one in which
9 there could be peaks that would not be normally found
10 in industrial hygiene and there was a particular
11 known - particularly acute problem, why, we would wear
12 respiratory protection or whatever, whether it was
13 protective clothing or what was used.

14 Q. So --

15 A. It was just a matter of common sense, I
16 think.

17 Q. Okay. So, protection would be used, then,
18 when exposures were above the guideline levels: is
19 that what you're saying?

20 MR. PIERCE: Asked and answered.

21 A. Either protection would be urged, suggested
22 if changes in procedure or operation could not be
23 effectively instituted.

24 Q. And was it the policy in your years with Dow
25 only to use the industrial hygiene controls in

1 circumstances where the exposure levels were above the
2 guidelines?

3 A. I don't know.

4 MR. PIERCE: Continue the
5 objection to the use of Dow's policy
6 and the ambiguity within that
7 question.

8 A. I guess I don't know.

9 Q. Well, you continue to emphasize the
10 quantitative aspects. And I think that relates back
11 to the guidelines, if I'm understanding you right.
12 And I'm trying to understand at what point when we're
13 talking about levels of exposure that Dow's rules or
14 regulations required that controls be put in place to
15 limit exposures. That's what I'm asking you about.

16 And was it only after you had exceeded the
17 guidelines that industrial hygiene controls were
18 required?

19 MR. PIERCE: I'm going to object
20 to the question based on the premise
21 that there weren't industrial hygiene
22 controls at all times. And it's just
23 an assumption of a fact that's part of
24 the question which is not so.

25 But go ahead and answer it to the

1 best of your ability, sir.

2 A. The policy, as I would - as I recollect it,
3 was that we did not have anybody exposed to
4 concentrations of materials that were presumed to be
5 hazardous to health. So, our control -- The last --
6 The last alternative to a situation which hopefully
7 would be temporary or short-term, was to engineer
8 controls and handling procedures into an operation so
9 that you didn't have that situation.

10 Now, in an emergency situation, short-term
11 where you just didn't have time to get this sort of
12 thing done, we used respiratory protection, whatever
13 protection was required. It was not the routine to
14 work - anybody - with respiratory or other
15 protection. The thrust was to maintain the
16 environmental and occupational exposures to acceptable
17 levels or below - as far below as could be reasonably
18 achieved.

19 Q. Okay. And in cases where the exposures
20 could exceed the guidelines, then you'd use
21 respiratory protection as appropriate or as set out on
22 your safety data sheets?

23 A. If this was appropriate.

24 Q. Okay. Dr. Rowe, was it Dow's policy during
25 your years with the company to deny protection to

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1 workers from particular materials until Dow had
2 evaluated scientifically documented conclusive

3 findings for relevance to the specific premises or
4 situations at Dow?

5 MR. PIERCE: Objection to the form
6 of the question for the following
7 reasons: One, objection to use of the
8 term of "Dow policy"; objection to the
9 compound nature of the question;
10 objection to the ambiguity of terms
11 used, including "conclusive" and
12 others.

13 But go ahead and answer, if you
14 can.

15 A. I don't know the answer to that.

16 Q. As a long-time employee of Dow, an executive
17 with Dow --

18 MR. BLANKS: Objection to the use
19 of the word "executive."

20 MR. PIERCE: Thank you.

21 (By Mr. Blanks)

22 Q. As a long-time Dow employee in the
23 biochemical research department and ultimately as the
24 assistant director and then director of different
25 parts of that organization, you have some familiarity

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1 with Dow's policies regarding occupational health, do
2 you not?

3 A. Yes.

4 Q. Dow did have some policies about
5 occupational health matters, did it not?

6 A. Yes.

7 Q. Could you generally restate for us what the
8 scope of that policy was, as you appreciated it?

9 A. I thought I had just explained that. The
10 policy was that we did not - that we tried to control
11 exposures - exposure levels - to acceptable levels by
12 engineering control and not by personnel protection.
13 Personnel protection was an emergency situation or a
14 very short-life situation pending correction of this,
15 that, or the other thing that was causing the problem.

16 Q. Well, was it the approach of your department
17 at Dow to not make recommendations for improved
18 procedures or for monitoring, things of that sort,
19 until Dow had evaluated the scientifically documented
20 conclusive findings for relevance to the particular
21 situations in the Dow plants?

22 MR. PIERCE: Objection to the
23 form. It's compound. It's wordy and
24 ambiguous, difficult, and
25 unintelligible.

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1 MR. RICE: That means you in
2 general terms (directed to
3 Mr. Blanks).

4 A. I guess I'd like to have you break it up
5 into pieces rather than so much at one time.

6 Q. All right, sir. Once you had scientifically
7 documented conclusive findings about a particular
8 toxic material like, say, asbestos, would you at that

9 point at Dow make recommendations for medical
10 monitoring or industrial hygiene controls?

11 MR. PIERCE: Objection to the
12 form; compound, ambiguous.

13 A. Oh, we would certainly recommend that -
14 recommend that the occupational exposure did not
15 exceed the so-called acceptable levels.

16 Q. Did you ever look beyond the so-called
17 acceptable levels to see if they really were
18 acceptable relative to the experience in your own work
19 force?

20 MR. PIERCE: Objection to the
21 form; completely ambiguous.

22 A. I think our previous discussion of the
23 carbon tetrachloride situation is an example of this.
24 And, as I said, there were perhaps others.

25 I remember vinyl chloride as another example

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1 that - where certain people were having a lot of
2 trouble with exposure to vinyl chloride and - but
3 their exposure levels were quite high and ours -- We
4 had lots of it, and we had had no such problem. And
5 we tried to check our analyses and so forth. And we
6 did some work with vinyl chloride to verify the
7 situation because of the severity of the reported
8 responses.

9 And it was never our policy to do as little
10 as possible to meet a particular standard or
11 acceptable-level standard, however you want to call

12 it. We did the best we could as well as we could.
13 Sometimes it was very difficult and seemingly
14 unnecessary to the extent -- You cannot eliminate
15 exposure. So, somewhere in there there has to be a
16 trade-off.

17 Q. Okay. What is one trading off, Dr. Rowe?

18 A. You have to trade off to some level that's
19 acceptable or better than acceptable and - otherwise,
20 you'll go out out of business. You don't do
21 anything. You can't make materials and handle
22 materials without some escape. So, you're going to
23 have some exposure. That has to be recognized. And,
24 so, if you want to go the ultimate, no exposure, why,
25 you'd probably just say, well, let somebody else do

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1 it.

2 Q. For instance, subcontract out that sort of
3 maintenance work that might involve exposures?

4 MR. PIERCE: Objection to the form
5 of the question.

6 I'm sorry. Could you repeat that
7 question?

8 Q. And one way to have somebody else do it, for
9 example, would be perhaps to subcontract out
10 maintenance work that would involve excessive
11 exposures?

12 MR. PIERCE: Objection to the
13 form. I think that's a complete
14 misinterpretation of what his previous

15 answer was in his previous testimony.
16 A. No.
17 Q. Then I guess I didn't understand you, then.
18 And that would be a way of --
19 A. I'm saying if you're going to manufacture a
20 material and you can't control it and you have to
21 control it to such and such a level, your technology
22 may not be adequate to do that. So, you just don't
23 make it. If somebody else wants to make it, then
24 that's their business.
25 Q. Were there any products that Dow considered

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1 which it decided not to make because of these
2 occupational health concerns?
3 A. Not to my knowledge.
4 Q. But there were some materials you made where
5 you knew that you were going to have some exposures in
6 spite of your control measures; is that true?
7 A. You always have some exposure.
8 Q. And the trade-off was one of either not
9 making it and not having exposures or going ahead and
10 making the product and having exposures in the work
11 force: is that what you meant by "trade-off"?
12 MR. PIERCE: Asked and answered.
13 A. Well, if you can't make a product
14 economically, you better not bother making it. If the
15 sales price is -- There's no point in making it if you
16 can't sell it. And if the expense and cost of - of
17 containment is excessive, it doesn't warrant research,

18 development, or whatever.

19 Q. It does cost some money to control and limit
20 exposures in the workplace, does it not?

21 A. It costs a lot of money. And that level is
22 very - curve is very, very steep - or with the amount
23 of control, costs lots of money.

24 Q. And I suppose in the handling of asbestos
25 insulation in a chemical plant or a refinery you'd

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1 agree that it's also inevitable that you're going to
2 have some exposures to airborne dust in its handling;
3 isn't that true?

4 MR. RICE: Objection; vague.

5 MR. PIERCE: Objection to the
6 form.

7 A. Well, I don't know of anything that we can
8 handle that we don't have some potential for exposure.

9 Q. And that would be true both in the
10 fabricating of it, the installing of it, the removal
11 of it. The potential for exposure exists. True?

12 MR. PIERCE: Objection to the
13 compound nature of the question. And
14 this has been asked and answered
15 several times.

16 A. I don't -- To my knowledge, I don't know how
17 it would be done if it didn't have some.

18 Q. In fact, it's more than just a potential for
19 exposure, isn't it, Dr. Rowe? I mean, it's inevitable
20 that the man actually sawing and handling the asbestos

21 insulation is going to have some exposure to the
22 airborne asbestos dust in the doing of the work, isn't
23 it, sir?

24 MR. PIERCE: Are you asking him to
25 speculate or from his own personal

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1 knowledge and studies?

2 MR. BLANKS: Well, I'm asking
3 Dr. Rowe as the former director of the
4 toxicology and industrial hygiene
5 section of the chemical biological
6 research lab at Dow Chemical Company.

7 MR. PIERCE: Who has testified he
8 had nothing to do with asbestos.

9 But okay. Answer the question.

10 A. To answer your question: If you were doing
11 this and you were doing it in a glove box, you would
12 be pretty close or you could do it probably pretty
13 close to zero exposure. But once you got it out of
14 there, you'd probably have some exposure. But it's
15 just a matter of proportions one way or another.

16 Q. All right, sir. But, actually, in reality
17 in the field, in the plant - in the handling of
18 asbestos insulation in Dow plants - some exposures to
19 the people working with it were inevitable and did, in
20 fact, occur, didn't they?

21 MR. PIERCE: Objection to the
22 form; asked and answered on numerous
23 occasions, redundant, argumentative.

24 A. You'd have to say there's some - you'd
25 expect to have some exposure.

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1 Q. All right, sir. Dr. Rowe, on those several
2 occasions when your toxicology department decided that
3 the guidelines for specific materials were inadequate
4 to protect the workers, were those decisions made at
5 Dow only after you'd had scientifically documented
6 conclusive evidence to go on or did you respond to
7 something else, something short of that?

8 MR. PIERCE: Objection to the
9 form; compound in several ways and use
10 of ambiguous terminology.

11 Go ahead.

12 A. Well, the one example of the carbon
13 tetrachloride situation was one example. Almost the
14 opposite example was the one with vinyl chloride where
15 we had had no problems similar to those which had been
16 reported in the literature.

17 Q. But was your response to these perceived
18 problems delayed until you had conclusive findings?

19 MR. PIERCE: Continue the
20 objection as to the ambiguity.

21 A. I don't -- I don't understand the question
22 now, I guess.

23 Q. I mean, sir, did you decide that you needed
24 further study of the tetra - carbon tetrachloride
25 problem until you'd make a decision to tighten up the

1 Dow standards?

2 A. As I said before, we had evidence that the
3 controls to the acceptable level were not adequate.

4 Q. And, therefore, a response was required and
5 was, in fact, made, wasn't it?

6 A. Yes.

7 Q. To tighten up the standards?

8 A. Yes.

9 MR. PIERCE: Has been asked and
10 answered at least on four different
11 occasions this morning and last time,
12 as well.

13 MR. BLANKS: Do you want to stand
14 up a second, sir?

15 THE WITNESS: I'm okay. For the
16 time being, anyway.

17 MR. BLANKS: Okay. All right.

18 (By Mr. Blanks)

19 Q. Dr. Rowe, with respect to asbestos, what,
20 sir, would you regard as scientifically documented
21 conclusive findings that airborne asbestos could cause
22 disease? What would that be?

23 MR. PIERCE: I'd like to object to
24 the ambiguity of the term "conclusive"
25 and "scientifically documented."

1 But go ahead and answer the
2 question to the best of your ability.

3 A. Well, the occurrence among workers exposed
4 to the material in certain concentrations developed
5 asbestos-type disease.

6 Q. What about suspected carcinogens, how much
7 proof did Dow require about that before it would
8 decide to protect workers in its plants? Can you give
9 us some examples?

10 MR. PIERCE: Objection to the
11 form. It is compound. It is
12 ambiguous. It is vague.

13 A. I guess I'll have to ask you to repeat the
14 question, please.

15 Q. Yes, sir. Thank you. With respect to
16 suspected carcinogens, would it be so that - that --
17 In the Dow plants over the years you worked there,
18 there were some suspected carcinogens being used in
19 the plants, weren't there?

20 A. Yes.

21 Q. Okay. Even some that would be regarded as
22 probable carcinogens. True?

23 A. I'd expect so.

24 Q. Do you think there were any known human
25 carcinogens being used in Dow plants during any of the

1 years you worked there?

2 A. Yes.

3 Q. Okay. Now, as to those suspected or

4 possible or probable carcinogens, I'm wondering, sir,
5 how much proof Dow required before it would decide to
6 protect workers against exposures to them.

7 MR. PIERCE: I'd like to object to
8 the form of the question. It is
9 compound. It is vague. Using the term
10 "suspected carcinogen" or even "proven
11 carcinogen" is overly broad and
12 general. Are you including sunlight?
13 I mean, what are you including in this
14 group?

15 But go ahead and do the best you
16 can.

17 A. I think when you have a suspected
18 carcinogen, you probably do - or a known carcinogen -
19 you do the best you can to keep the exposures at the
20 lowest possible level.

21 Q. I have no quarrel with your answer; but I
22 think you've told me what would be proper, at least at
23 Dow, in dealing with a suspected carcinogen. But my
24 question, sir, was how much proof or scientific
25 evidence did Dow require before it would start to

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1 protect workers in its plants from suspected
2 carcinogens as opposed to what would be the response.

3 MR. PIERCE: Objection to the form
4 of the question. It is ambiguous. It
5 presumes Dow didn't protect its workers
6 at a certain period of time. And it's

7 compound.

8 A. I don't know how to answer your question.

9 Q. Well, let's try it this way, then. Would
10 you say that during all your years at Dow that the
11 company did, in fact, protect workers from exposures
12 to suspected carcinogens?

13 A. Certainly.

14 Q. Sir?

15 A. Certainly.

16 Q. And at what point, then, in the gathering of
17 knowledge about a new suspected carcinogen would the
18 Dow protection program for the workers kick in? How
19 much proof did it take to get protection implemented?

20 A. I don't know.

21 MR. BLANKS: We're out of tape.

22 MR. PIERCE: Okay. So, I guess
23 this is a good time for a lunch break.
24 And we'll take care of that other
25 matter over lunch. Okay?

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1 MR. BLANKS: Yes.

2 MR. PIERCE: What time to you want
3 to...

4 MR. BLANKS: I'll leave it up to
5 Dr. Rowe.

6 MR. PIERCE: All right. How's
7 1:00 o'clock? Is 1:00 o'clock okay?

8 (AT 11:32 A.M. THE DEPOSITION WAS
9 RECESSED FOR LUNCH. AT 1:07 P.M.

10 PROCEEDINGS RESUMED AS FOLLOWS:)
11 MR. BLANKS: So, we're back. Did
12 you finish your sandwich?
13 THE WITNESS: No.
14 MR. HOBSON: Should have brought
15 it to him.
16 MR. BLANKS: He didn't finish his,
17 either.
18 MR. PIERCE: Too big for any one
19 person, huh?
20 MR. BLANKS: Yeah.
21 (By Mr. Blanks)
22 Q. Dr. Rowe, do you remember from around the
23 Forties a gentleman named L. J. Richards at Dow?
24 A. Yes. That name is familiar, but I can't
25 right off the bat place him.

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1 Q. Can you place him maybe in the engineering
2 department as perhaps --
3 A. Okay.
4 Q. -- the chief - chief engineer?
5 A. That -- Okay. That's right. He was in the
6 engineering department.
7 Q. Was this a man that you would have had any
8 dealings with doing your job over the years?
9 A. I don't recollect any.
10 Q. And at Dow, engineering was responsible for
11 what, plant design and specification of materials to
12 be used in the plants?

13 A. I don't know.
14 MR. PIERCE: Objection to the form
15 of the question; compound and leading.
16 A. I don't know the extent of their charge.
17 Q. Could you tell us any of the things you
18 understood that engineering did in the Forties?
19 A. Well, they supervised buildings and -
20 building of roads and buildings and equipment, I
21 guess. I don't know. I didn't have anything to do
22 with them.
23 Q. Okay. I'm not saying that you needed to
24 know but I -- Did they also specify materials to use
25 in the plants?

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1 A. I don't know.
2 Q. And I don't mean product materials or raw
3 materials but things such as insulation, for example.
4 A. I have no idea.
5 Q. Do you have any idea whether Mr. Richards is
6 still living?
7 A. No.
8 Q. When --
9 A. I don't know. I don't know.
10 Q. When was the last time that you could
11 recollect having known of him? Would that have been
12 around your retirement time?
13 A. Your question was -- Excuse me.
14 Q. Could you just tell us the last time you can
15 recollect knowing of Mr. Richards?

16 A. No.
17 Q. We were talking before the lunch break about
18 how Dow dealt with carcinogens or suspected
19 carcinogens in the workplace. And you -- I think you
20 gave us some understanding of what Dow would do about
21 them, but I was exploring with you what level of
22 information was needed before Dow would respond to a
23 suspected or probable carcinogen that they learned of
24 being in the plants. Could you help us with that,
25 sir?

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1 MR. PIERCE: And the question was
2 asked and answered several times; and,
3 so, I object on that basis.
4 A. Well, I don't -- I don't know.
5 Carcinogenicity is just is another manifestation of
6 toxicity. And you deal with it as the end result of
7 that just as though you - just the same as you would
8 with something that caused liver destruction or some
9 other undesirable effect.
10 Q. Is that to say that at Dow during your years
11 that carcinogens were not treated with more care or
12 respect than toxic materials that didn't cause cancer?
13 MR. PIERCE: Objection to the form
14 of the question; compound and
15 ambiguous.
16 A. I don't know that we can say that - what
17 compounds do cause cancer. Again, it's a matter of
18 quantitation. And if -- If the level that causes

19 cancer is low, okay, you'd apply the monitor and
20 control conditions to meet those limits.

21 Q. Well, I was wondering if you treated
22 potential or probable carcinogens differently than,
23 let's say, something that was only a fibrogen.

24 MR. PIERCE: Objection to the
25 form, objection to your

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1 characterization of something as
2 "only."

3 But go ahead.

4 And the ambiguity in the
5 question.

6 A. Well, we would certainly treat them
7 different than something that might cause an aesthetic
8 effect; but we looked at carcinogens and tried to
9 control those just like we would any other
10 toxicological effect. It's an undesirable effect to
11 be avoided, if at all possible.

12 Q. All right, sir. And if it couldn't be
13 avoided - it wasn't possible to avoid it, this
14 effect - what was the Dow response to those
15 situations?

16 A. If it's impossible to avoid it, you cease to
17 use it.

18 Q. Did Dow have some sort of a scheme or method
19 for categorizing potential carcinogens?

20 A. Not that I recollect.

21 Q. Did you, yourself, have any method for

22 describing or ranking the likelihood that a material
23 could cause cancer in humans?

24 A. I don't think so.

25 Q. So, it was the case, then, at Dow that the

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1 toxicology department didn't distinguish between
2 materials that were merely suspected of being
3 carcinogens and those that were regarded as probable
4 carcinogens?

5 MR. PIERCE: Objection to the
6 form. The witness has already answered
7 from his knowledge, and it's just a
8 completely repetitive question.

9 But go ahead.

10 A. Well, the - whether it - whatever the
11 adverse effects of a material are, you do the best you
12 can under the circumstances to either reduce it to
13 acceptable levels or don't use it. Whether it's a
14 carcinogen -- It's just another manifestation of
15 toxicity.

16 Q. Okay. So, learning that asbestos, for
17 example, was believed to be capable of causing lung
18 cancer would not lead to any change in the industrial
19 hygiene program that was already designed to prevent
20 exposures to asbestos that could cause asbestosis:
21 would that be true?

22 MR. PIERCE: Objection to the
23 form. It's leading and ambiguous.

24 A. If you had a material that was a potential

25 to cause any sort of effect and you're close to the

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1 margin, you do your best to monitor it more often
2 and - so as to reduce the possibility or the
3 likelihood of excessive exposure.

4 Q. When you say -- Did you say "close to the
5 margin"?

6 A. Well, if your - if your - if your margin
7 is five and you're running four point nine, that's -
8 that's different than if you're running one against a
9 margin of five, as an example.

10 Q. All right, sir. Well, what would be
11 appropriate to do if, in fact, you were running at a
12 margin of four point nine against a five guideline?
13 What...

14 A. Take whatever measures you could to attempt
15 to reduce exposure.

16 Q. Is four point nine too close for comfort, in
17 your mind, when you have a standard of five or a
18 guideline of five?

19 MR. ALMQUIST: Object to the
20 question as vague.

21 A. Any exposure is too much, as far as I'm
22 concerned; but practicality says that you can't have
23 zero exposure if you're going to handle a material.

24 Q. You've told us earlier, I think, that the
25 threshold limit values and their predecessor, the

1 maximum allowable concentrations, were merely
2 guidelines for exposure levels. True?

3 A. That's true.

4 Q. And that as drawn out by the A.C.G.I.H.,
5 these guidelines were expected to provide a level of
6 exposure at which most but not every worker would be
7 free from a harmful effect or a bad health effect,
8 correct?

9 A. That was the general philosophy.

10 Q. But that would also entail, wouldn't it,
11 that some workers - if you expose enough of them over
12 a long enough period of time, that some workers would,
13 in fact, develop the disease from exposures. True?

14 A. I certainly couldn't say that they would
15 because I don't know.

16 Q. Well, speak - not speaking about any
17 particular workers but - but as to a group of workers,
18 if you exposed enough of them for a long enough period
19 of time at exposure levels, let's say, close to the
20 guideline, would you not expect that some would
21 develop disease from exposures, Dr. Rowe?

22 MR. PIERCE: I'm going to object
23 to the form of the question. It really
24 calls for complete speculation. I
25 mean, if you go on forever, someone is

2 question just has no parameters, no
3 beginning and no end.

4 But see if you can handle it.

5 A. Well, statistical analyses of those kind of
6 things is very difficult. And that's the reason why
7 you say that there's no absolute guarantee. But lung
8 cancer and other diseases occur from - occur
9 naturally. And they may occur from different
10 materials that are rather unknown. So, it's hard
11 to -- You can't make - cast something like that in
12 bronze.

13 Q. How about if we speak in terms of asbestosis
14 instead of asbestos-related cancer, would you agree
15 that exposures of enough people over a long enough
16 period of time near but below the guideline level will
17 predictably result in asbestos - in asbestosis in some
18 of those people?

19 MR. PIERCE: Object to the form.

20 It's ambiguous and vague.

21 A. You can't say that anything is impossible.
22 And it's possible.

23 Q. Well, isn't it actually statistically
24 probable, Dr. Rowe? I mean, wasn't that --

25 A. I would -- I would think that it would be -

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1 statistics would be influenced by the dosage and the
2 period of exposure time and such factors.

3 Q. And wouldn't you expect, based on your
4 experience and your knowledge, that exposures at

5 levels of, say, 4.7 million particles per cubic foot
6 or 4.9 over a long enough period of time would, in
7 fact, lead to asbestosis in some individuals?

8 MR. PIERCE: Objection to the form
9 of the question. It's compound; it's
10 argumentative; it's repetitive; and
11 it's, in certain proportion,
12 unanswerable.

13 MR. PAPPAS: And speculative.

14 THE REPORTER: Excuse me.

15 MR. PAPPAS: And speculative.

16 MR. RICE: I also object to it on
17 the basis it's not referenced by time.

18 A. I don't know.

19 Q. When you were applying the guidelines at
20 Dow, was it your understanding that some people
21 exposed below the guideline would, in all probability,
22 develop the occupational disease that the T.L.V. was
23 designed to protect against even though the majority
24 of the workers might be protected at the guideline
25 level?

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1 MR. PIERCE: I'd like to
2 object to the question as
3 unintelligible as asked.

4 A. I don't like to speculate on - on things
5 like that because anything is possible.

6 Q. Well, I really didn't mean to put you in a
7 posture of speculating; but I'm really asking more

8 about your understanding and your application of the
9 T.L.V. guidelines and other guidelines back in the
10 Forties and the Fifties and Sixties when you were
11 doing toxicology work for Dow and then later as the
12 man in charge of the industrial hygiene section.

13 You understood that the guidelines were
14 intended to protect most of the workers if their
15 exposures were limited - kept below those levels. You
16 agree with that, don't you, sir?

17 MR. PIERCE: I'm going to -- I'm
18 going to object to this question. I
19 think Dr. Rowe has explained already
20 what he meant by that, and this is just
21 going over the same area once again.

22 But go ahead.

23 A. That, I think, was the general philosophy.

24 Q. And at the same time you did not expect that
25 keeping exposures at or just below the guideline level

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1 would, in fact, protect every worker exposed at those
2 levels. True?

3 MR. PIERCE: And I'm going to
4 object to this. Asked and answered
5 more than once.

6 A. The probability of anything happening is
7 always increased with the dosage.

8 Q. So that the higher the dosage was to the
9 guideline, the greater the probability that some
10 person or persons would get the occupational disease.

11 True?

12 MR. PIERCE: Objection to the
13 form. It's vague.

14 And what do you mean
15 "exposure to the guideline"?

16 But go ahead, if you can.

17 Q. As exposures approach the guideline levels,
18 the probability of the occupational disease in some of
19 the workers would increase, wouldn't it?

20 MR. RICE: Object to the
21 speculation.

22 MR. PIERCE: Object to the form.
23 You're asking for speculation. And
24 Dr. Rowe has already given you an
25 answer as to his entire thinking in

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1 respect to exposure levels.

2 But go ahead.

3 A. I don't think that anyone can say that if
4 you increase exposure levels that you are - you have
5 to -- Excuse me. Let me back up. As you increase the
6 intensity of exposure, you're going to increase the
7 probability however small or however it may be before.

8 Q. And would the opposite also be true,
9 Dr. Rowe, that as you decrease the intensity of
10 exposure you would decrease the probability of
11 occupational disease?

12 A. I would think that would naturally follow.

13 Q. And that was, in fact, your experience as a

14 scientist at Dow, wasn't it, that the lower you kept
15 the exposures the less probability you had of
16 occupational disease? The less occupational disease
17 you had, as well. True?

18 MR. PAPPAS: Object --

19 MR. PIERCE: Object to the
20 compound nature of the question.

21 A. I would agree.

22 Q. Which is precisely the reason that you - or
23 that the Dow people, for instance, lowered their
24 standards on the vinyl chlorides and the aliphatic
25 chlorinated hydrocarbons and carbon tetrachloride,

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1 among other things, right?

2 A. Right.

3 Q. Dr. Rowe, do you recall that Dow passed on
4 to the A.C.G.I.H. its experience with these different
5 materials we just mentioned, the ones where Dow
6 actually lowered the guideline below the T.L.V. that
7 the A.C.G.I.H. had proposed?

8 A. Yes, sir.

9 Q. Do you recall, sir, what the response of the
10 American Conference of Governmental Industrial
11 Hygienists was to this important information from Dow?

12 A. Well, the A.C.G.I.H., I think, respected
13 very highly the results that were given them and moved
14 their threshold limit values accordingly.

15 Q. They did, in fact, lower their --

16 A. Oh, yes.

17 Q. -- T.L.V. down to the ones that Dow had set
18 internally?

19 A. Well, I'm not going to say specifically
20 because I don't remember; but I know they were reduced
21 in most of those situations.

22 Q. I see. Is it your view, Dr. Rowe, that the
23 state of knowledge about, let's say, the
24 carcinogenicity of a material like asbestos is one
25 that increased with time and with more studies, say,

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1 from 1935 up to 1965?

2 A. I think that's true of every person - every
3 material I know.

4 Q. Well, I didn't ask you about every material
5 because somebody would have objected it wasn't
6 specific.

7 A. As more knowledge becomes available, it's
8 put into use.

9 Q. All right, sir. Would you say that with
10 more knowledge you - as a scientist, you have an
11 increasing level of confidence or certainty about the
12 suspected carcinogenicity of the particular material?
13 Is that the way it works?

14 A. Well, the more knowledge you have, certainly
15 the better perspective you have for drawing
16 conclusions.

17 Q. Could you give us some feel for that point
18 on the spectrum of increasing knowledge or increasing
19 certainty where at Dow it was felt proper to begin to

20 take steps to protect the workers from exposures to
21 the material?

22 MR. PIERCE: Objection to the form
23 of the question. It's compound, and
24 it's very vague and very difficult to
25 understand.

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1 A. I guess I would ask you if you would repeat,
2 please.

3 Q. Yes, sir. I was just wondering if you could
4 describe to us at what point on that spectrum of
5 increasing knowledge and certainty about the
6 carcinogenicity of asbestos that Dow thought it proper
7 to take steps to protect the workers from exposures to
8 asbestos.

9 MR. PIERCE: I'm going to continue
10 the objection based on the assumption
11 that there was a point in time where
12 they did not protect the workers at Dow
13 and other ambiguities within the
14 question.

15 But go ahead.

16 MR. ALMQUIST: I'm going to object
17 to the question.

18 A. I don't know.

19 Q. Would you know, sir, or could you explain to
20 us relative to this level of increasing knowledge and
21 certainty about carcinogenicity if - where Dow would
22 respond on carcinogens generally? Not asbestos, but

23 anything.

24 MR. PIERCE: I'd like to ask you
25 to clarify that question as to -- What

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1 does that mean, "respond to"? So, I'm
2 going to object to the form of the
3 question as being vague.

4 A. I guess I don't understand it, either.

5 Q. Okay. Well, I'm trying to get a feel for
6 what point you felt like you knew enough to justify
7 telling the people working with this material that was
8 suspected of being a cancer-causing material that you
9 did have those suspicions.

10 A. I don't know. That would be just simply a
11 matter of judgment.

12 Q. Well, what factors went into exercising that
13 judgment during your years at Dow?

14 A. Experience, I guess.

15 Q. Experience with cases of cancer in the work
16 force?

17 A. No. But maybe in some work forces in the
18 literature, whatever was available. You have to
19 evaluate the situation in light of the current state
20 of the art, so to speak.

21 Q. So, at any given time you'd be looking to
22 and relying on the current state of the art; that is,
23 what's been published in the pertinent medical and
24 scientific literature on the subject, correct?

25 A. Yes.

1 Q. Well, would you wait, Dr. Rowe, until there
2 was a unanimous agreement among physicians and
3 toxicologists that a material caused cancer before you
4 would begin to tell your workers that there was
5 concern about it?

6 MR. PIERCE: Objection to form of
7 the question; requires complete
8 speculation, no specifics within.

9 A. I don't believe we would do that for - we'd
10 do that for anything that we felt that the situation
11 was hazardous.

12 Q. That you'd tell the workers?

13 A. That was their policy.

14 Q. Would you do this as soon as you had some
15 information from your own experience or the literature
16 that the material in issue could be a harmful
17 material, one that could cause health effects?

18 MR. PIERCE: Objection to the
19 form; compound.

20 A. Well, we tried to keep our people informed
21 of the present state of knowledge.

22 Q. Did Dow have any special rules for the
23 workers who were handling cancer-causing materials?

24 A. I don't believe so.

25 Q. Did those workers get any kind of special

1 training, those men that were handling cancer-causing
2 materials?

3 A. They may have.

4 Q. Can you recall any instances where that
5 would have been the case?

6 A. Not offhand.

7 Q. Do you recall, Dr. Rowe, that workers
8 handling cancer-causing materials were given any kind
9 of special protection or industrial hygiene controls?

10 MR. PIERCE: I'm going to object
11 again in terms of the vagueness of the
12 question. Once again not dealing with
13 any exposure levels or - and implying
14 within that they did reach a level at
15 which there was some danger.

16 But go ahead and answer it to the
17 best of your ability.

18 A. We gave all the handling precautions that we
19 knew how to give with respect to any material being
20 handled that we thought might pose a significant
21 toxicological problem under the circumstances.
22 Certainly if a material was going to be absorbed
23 through the skin, why, we would caution people about
24 getting it on the skin and getting it off quickly and
25 all the rest of these things. It's just normal

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1 industrial hygiene - and medical, I guess, too -
2 treatment or instructions that - commonly in use.

3 Q. Do you recall sir, what Dow did in the
4 1930's, for example, to safeguard workers handling
5 asbestos as a carcinogen?

6 A. I don't know.

7 MR. ALMQUIST: I'm going to object
8 to that question, as well, because,
9 Mr. Blanks, we've been over that, I
10 think, on many, many occasions through
11 the day and on the dates preceding
12 this.

13 Q. In the 1940's do you recall that Dow caused
14 the people working with or around asbestos to do
15 anything special to handle it as a carcinogen?

16 A. I don't know.

17 Q. How about in the Fifties, sir?

18 A. I don't know.

19 Q. Would you have any knowledge of what Dow was
20 doing in the Sixties to handle asbestos as a
21 carcinogen and protect the workers?

22 A. I don't know.

23 Q. What about the warnings about its
24 carcinogenicity in those periods, do you have any
25 knowledge of that?

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1 A. No.

2 Q. Was it the policy at Dow to wait until there
3 had been a statistically significant number of workers
4 perish from toxic exposure to a material before the
5 men at Dow would be protected from that material?

6 MR. PIERCE: Objection to the form
7 of the question. It's argumentative,
8 it's speechmaking, and it's completely
9 inappropriate.

10 A. No.

11 MR. PIERCE: And has been
12 asked.

13 Q. So, the Dow response would come earlier than
14 the point at which you had a statistically significant
15 number of deaths reported. True?

16 MR. PIERCE: I'm sorry. Could we
17 have that question read back?

18 THE REPORTER: "QUESTION: So, the
19 Dow - the Dow response would come
20 earlier than the point at which you had
21 a statistically significant number of
22 deaths reported. --"

23 MR. PIERCE: I'd like just to --

24 THE REPORTER: Wait.

25 MR. PIERCE: I'm sorry.

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1 THE REPORTER: Go ahead.

2 MR. PIERCE: I'd like to continue
3 the objection to that question in that
4 it's been asked and answered and is
5 vague in portions.

6 Q. Did you have an answer, Dr. Rowe?

7 A. No.

8 Q. Is "no" the answer?

9 A. What? Yes.
10 Q. Okay.
11 A. "No" is my answer.
12 Q. Thank you. Okay. I thought I'd heard that,
13 but I lost the trail there during the lawyer's
14 comments - objection.
15 MR. PIERCE: Wait. Wait one
16 second, please. The delay in the
17 answer, for the record, had nothing to
18 do with this lawyer's comments but your
19 conversation with Mr. Hobson. And
20 just let's make that clear on the
21 record.
22 MR. BLANKS: Are you speculating
23 about my state of mind and my reason
24 for forgetting, Mr. Pierce?
25 MR. PIERCE: I like that.

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1 MR. PAPPAS: There's a lot of
2 speculation about that, Joe.
3 (By Mr. Blanks)
4 Q. As a practicing toxicologist and then later
5 as the chief of industrial hygiene, Dr. Rowe, did you
6 feel like individual case reports of cancer deaths
7 deserved attention?
8 MR. PIERCE: I'd like to object.
9 This has been asked and answered. I
10 think it's -- Exactly that question was
11 asked and answered this morning and
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12 maybe last time.

13 Go ahead.

14 A. Would you restate it, please.

15 Q. Yes, sir. I was wondering whether you would
16 regard case reports - individual case reports - as
17 being information that would - that you would rely on
18 in deciding whether or not to protect workers from
19 exposures to the material that was suspected of
20 causing the death.

21 MR. PIERCE: Continue the
22 objection.

23 MR. PAPPAS: I'm going to object.
24 This question has been asked and
25 answered. Mr. Blanks, I was here this

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1 morning; and I remember this same
2 gentleman saying that it was
3 dose-related and it had to do with
4 exposure and concentrations of
5 exposure. And on that basis I would
6 object.

7 A. Well, certainly case reports are important.
8 It's also important to know the basis for those
9 reports and to learn what the circumstances were
10 that - that may be extraneous to that particular...
11 To state that just a little differently: One needs to
12 know what else was along with a case report because
13 case reports are very brief usually and they do not
14 have data behind them except they report a particular

15 occurrence. And the background for that occurrence
16 needs to be evaluated before they're given
17 credibility.

18 Q. All right, sir. Did you find that case
19 reports would pique your interest when you would read
20 them?

21 A. I guess so.

22 Q. Now, how about articles in peer review
23 journals that reported multiple cases, would those
24 arouse a somewhat higher level of interest when you
25 read them?

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1 A. Yes.

2 Q. Did you think during your work at Dow that
3 an international symposia of recognized experts
4 deserved even further attention?

5 MR. PIERCE: I'd like to object to
6 the ambiguity.

7 But go ahead.

8 A. Depends on those so-called experts.

9 Q. You mean who they were?

10 A. And their reputation.

11 Q. Was it your view while you were at Dow that
12 national presentations by Government scientists
13 discussing, say, environmental cancers deserved your
14 attention as a toxicologist?

15 A. Yes.

16 Q. How about reports from individual doctors or
17 toxicologists whom you knew to be competent and

18 regarded well, would that deserve your attention in
19 your work at Dow?

20 A. Any reports deserve attention.

21 Q. Just how much attention depending on who was
22 the author? Was that the way it was?

23 A. And the data behind them.

24 Q. Okay. Would you regard reports from trade
25 association, medical, and industrial hygiene

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1 committees made up of your peers or contemporaries
2 worthy of attention when they were reporting on
3 occupational health problems?

4 A. Yes.

5 MR. PIERCE: Objection to the
6 form; compound.

7 Q. Can you give us any understanding of the
8 reports or series of reports from which Dow finally
9 did learn that asbestos was a carcinogen, Dr. Rowe?

10 MR. PIERCE: Objection to the form

11 There's an assumption within there.

12 It's facts not in evidence.

13 But go ahead.

14 A. No.

15 Q. Do you think that Dow never did learn that
16 asbestos was a human carcinogen, Dr. Rowe?

17 A. Would you please repeat that.

18 Q. Well, yes, sir. Mr. Pierce, one of Dow's
19 lawyers, objected that there was an assumption --

20 MR. PIERCE: No. Excuse me,

21 Mr. Blanks. I am V. K. Rowe's
22 attorney.
23 MR. BLANKS: Oh, I'm sorry. I
24 thought you had enrolled in this case
25 as co-counsel for Dow Chemical Company.

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1 MR. ALMQUIST: He's here as
2 counsel for V. K. Rowe.
3 MR. BLANKS: Whatever you say.
4 MR. RICE: Kind of like you and
5 Herschel.
6 MR. HOBSON: We don't represent
7 Mr. Rowe.
8 (By Mr. Blanks)
9 Q. There was an objection to some assumed fact,
10 and I suppose it was that Dow finally did learn that
11 asbestos was a carcinogen.
12 Do you think that Dow did finally become
13 aware of that before you left the company?
14 A. Well, I don't know that I can speak for the
15 company.
16 Q. Well, how about your group within the
17 company?
18 A. Well, personally my opinion is that - that
19 asbestos in sufficient dosage is a carcinogen.
20 Q. Can you give us any notion for what reports
21 it was or articles or experiences that led you to that
22 conviction, sir?
23 A. I don't recollect.

24 Q. Could you help us to understand, Dr. Rowe,
25 what would be the best information available about the

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1 known and suspected health hazards of asbestos dust,
2 say, in the late Thirties?

3 A. No.

4 Q. Could you just describe it --

5 A. I don't know.

6 Q. -- generally for us?

7 A. I don't know.

8 Q. What would they be during the Forties? Now,
9 I'm not asking you to cite specific articles but just
10 the sources for the best information available.

11 MR. PIERCE: With the
12 understanding that Dr. Rowe has already
13 testified that asbestos is not his
14 field of interest or expertise?

15 MR. BLANKS: Well, yeah.

16 (By Mr. Blanks)

17 Q. I'm really not attempting to quiz you on
18 every article that was ever published. That wouldn't
19 be fair under the circumstances. But my question was:
20 Generally speaking, what would you say would be the
21 best information available - the best sources for it -
22 about the known and suspected health hazards of
23 asbestos during those different decades when you
24 worked for Dow?

25 A. Well, I never followed the literature on

1 asbestos; and I really can't tell you.

2 Q. All right, sir.

3 A. I have heard, --

4 Q. Excuse me.

5 A. -- but I don't know.

6 Q. What have you heard?

7 A. Well, you see reports with certain names on
8 them; and, so, "Okay. Well, that's that."

9 Q. As to the materials you did follow, what
10 were the sources for the best information available on
11 those materials, generally speaking?

12 A. Well, this depends on the type of material
13 because some laboratories seemed to concentrate on
14 certain categories of chemicals, substances that they
15 were concerned with and whereas others had little
16 information or a little experience with others. So,
17 you had to select and choose the information on the
18 basis of the particular group that was doing the
19 work.

20 Q. So, for example, Dr. Smyth at the Mellon
21 Institute might have had a specialized area of
22 interest. And if you were dealing with that kind of
23 material, you might consider him to be a good source
24 of information, I suppose.

25 A. Yes.

1 Q. Or on the other hand, for dust inhalation
2 topics and lung fibrosis, Saranac Laboratories in New
3 York would have been a highly regarded source of
4 information in the Thirties and Forties and Fifties?

5 A. I think so.

6 Q. Well, during all the years that you worked
7 at Dow, would sources for the best information
8 available about known and suspected health hazards of
9 a material like asbestos include the industrial
10 hygiene and medical literature in the journals?

11 A. I'm not sure I understood your question.
12 Whether there was a double negative in that or not, I
13 don't know.

14 Q. Okay. Let me try again.

15 A. Okay.

16 Q. We're speaking again generally about the
17 sources for the best information available about known
18 and suspected health hazards of a material like
19 asbestos.

20 Would you say for that period of the
21 Thirties, Forties, Fifties, even on into the Sixties,
22 that those sources would include the industrial
23 hygiene and medical literature published in the
24 journals?

25 A. Yes.

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1 Q. Would it include things like the proceedings
2 of the National Safety Council dealing with - with
3 such materials?

4 MR. PIERCE: I'm going to object
5 because I don't think it's clear that
6 the National Safety Council had
7 literature going back into the
8 Thirties. It's not anything I was
9 aware of, so -- It may be; but I think
10 without going through the time periods
11 there may be a problem in answering
12 that question. And I'm just trying to
13 avoid that problem.

14 A. It really doesn't matter too much what
15 organization you speak to. It depends on the people
16 who are doing the speaking. And the National Safety
17 Council was very strong in terms of mechanical
18 safety. And I don't think -- I did not ever consider
19 them to be strong in the area of organic toxicology.

20 Q. All right, sir. How about in the area of
21 mineral dust hazards such as silicosis or asbestosis
22 and such as that?

23 A. I don't know.

24 MR. PIERCE: I'm going to object
25 to the form of the question, if there

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1 is a proper question before us.

2 A. I don't know.

3 Q. Okay. You would regard people like Philip
4 Drinker and Ted Hatch and Leroy Gardner as persons
5 with knowledge to impart even back in the Thirties and
6 Forties about asbestosis and silicosis, wouldn't you,

7 sir?

8 MR. PIERCE: All three or any one
9 of them?

10 I object to the form of the
11 question as compound.

12 A. I think I would respect all - the opinions
13 of all of those particular individuals.

14 Q. Okay. And if they'd been speaking and
15 presenting papers at the National Safety Council
16 Congresses even back in the Thirties, that would at
17 least be a source of good information about known and
18 suspected health hazards. Would you agree?

19 A. It would certainly be information that one
20 would have to - to respect unless there were some
21 mitigating circumstances that would tend to depreciate
22 it.

23 Q. Would you also agree that during this time
24 period of the late Thirties and the Forties, Fifties
25 that the industrial hygiene foundation would have been

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1 a source for some of the best information available
2 about the known and suspected health hazards of
3 asbestos dust and fiber?

4 A. Yes.

5 Q. Including through their publication the
6 industrial hygiene foundation digest. True?

7 A. Yes.

8 Q. Would you include the United States Public
9 Health Service and its publications on occupational

10 diseases to be one of the sources for some of the best
11 information available during those decades, as well?

12 A. The U. S. Public Health Service did good
13 work, generally. They had a few bad ones, but I can't
14 tell you what they were.

15 Q. Okay. Would you regard textbooks by
16 physicians and toxicologists and industrial hygienists
17 to also be a source for the best information available
18 about the known and suspected health hazards of
19 asbestos during your decades of work with Dow?

20 MR. PIERCE: Objection to the
21 form; overly broad and general.

22 A. Yes. I'd consider them sources of
23 information.

24 Q. Would you consider the American Public
25 Health Association proceedings to be yet another good

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1 source for some of the best information available on
2 these health hazards we're discussing?

3 A. I think U. S. Public Health Service was
4 generally quite reputable.

5 Q. I'm sorry. I meant to ask you about the
6 American Public Health Association and their
7 proceedings.

8 A. I'm not too many familiar with the
9 proceedings.

10 Q. Okay. Or their publications?

11 A. There was a journal of the U.S. Public
12 Health Service. I don't remember the exact title.

13 Q. Okay. How about your insurance companies
14 that had industrial hygiene departments and medical
15 departments, such as Metropolitan or Travelers or
16 Liberty Mutual or Aetna or any others, would that have
17 been a source of information for the known and
18 suspected health hazards of asbestos dust and fiber in
19 the Thirties or the Forties or the Fifties, Dr. Rowe?

20 MR. PIERCE: Unfortunately I must
21 object because it assumes facts not in
22 evidence.

23 But go ahead.

24 MR. RICE: Also assumes that he
25 had such knowledge. Calls for

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1 speculation.

2 A. I was not familiar with the insurance
3 company work in this area. I knew some good insurance
4 people, but I don't know just exactly what their best
5 work was.

6 Q. Would you regard Government bulletins and
7 reports on occupational disease to be good sources,
8 ones that would include some of the best information
9 available about the known and suspected health hazards
10 of asbestos during your years working for Dow?

11 A. That was -- What journal was that?

12 Q. I'm just speaking of Government bulletins
13 and reports generally that would deal with
14 occupational disease hazards such as asbestos.

15 A. I don't know whether I would or not. All

16 depends on who was involved in that particular
17 article.

18 Q. If -- If the author were a person like
19 Anthony Lanza from Metropolitan, would you give
20 credence to his work?

21 A. I didn't know Lanza very well.

22 Q. Did you know of his reputation?

23 A. My personal contacts, as I said, were very
24 limited. I know he had a good reputation, but I have
25 no way of judging it.

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1 Q. Okay. Well, did you, like, withhold
2 judgment until you could actually become acquainted
3 personally with the authors of the different
4 scientific articles and medical articles that you
5 would encounter in your profession and before you'd
6 give credence to their work?

7 A. I don't know. It seemed that that was the
8 case and very frequently.

9 Q. Dr. Rowe, do you recall ever finding in Dow
10 files any kind of information or publications from
11 Metropolitan Life Insurance Company concerning
12 occupational disease and occupational health hazards?

13 A. I don't recollect.

14 Q. You recollect that Metropolitan, at least
15 for some period of time, provided insurance coverage
16 in the form of disability coverage for Dow employees?

17 A. I don't know.

18 Q. Would you regard persons like Alice Hamilton

19 as a credible source of information on occupational
20 diseases?

21 A. Yes.

22 Q. How about Dr. Harriet Hardy, would you
23 regard Dr. Hardy well, also?

24 A. She had a good reputation.

25 Q. Is that a "yes"?

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1 A. Qualified.

2 Q. All right, sir. Was it the practice at Dow
3 during any of the years you worked there to monitor
4 for any of the materials that showed up on the
5 A.C.G.I.H. T.L.V. list that were used or present in
6 the plants?

7 MR. PIERCE: Asked and answered.

8 But go ahead.

9 A. Again I'd ask -- Please repeat.

10 Q. Would your industrial hygienists at Dow
11 automatically monitor for any of the materials or for
12 all of the materials on the A.C.G.I.H. threshold limit
13 value list that were known to be present in the Dow
14 plants?

15 A. I don't know.

16 Q. You don't know?

17 A. I don't know. "All" is a very inclusive
18 word.

19 Q. Well, most?

20 A. So, I don't know.

21 Q. Was it the rule that if the material was

22 listed on the A.C.G.I.H. table that the hygienists
23 were expected to monitor for it if it was present in
24 the Dow plant?

25 A. That was the usual case, yes.

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1 Q. And that was the case going back to the - to
2 the beginning of the A.C.G.I.H. standards in the late
3 Forties, as you recall?

4 A. Probably not.

5 Q. Do you think the extent of the monitoring
6 increased after that time?

7 A. Well, we simply did not have the capacity to
8 do that. We did not even have an industrial
9 hygienist.

10 Q. Until --

11 A. Until '48.

12 Q. '48? About the same time that the T.L.V.'s
13 were published by the A.C.G.I.H., isn't it?

14 A. I don't remember when they were first
15 published.

16 Q. Dr. Rowe, can you tell us who, if anybody,
17 from Dow attended the New York Academy of Science
18 presentations on asbestos disease hazards in 1964?

19 A. I don't remember.

20 Q. Do you recall that anyone went to this --

21 A. I don't recall.

22 Q. Do you recall learning of this symposium,
23 yourself, at some point, the one at Mount Sinai in
24 connection with Dr. Selikoff and his doctors?

25 A. I don't recall.

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1 Q. Did you ever meet Dr. Irving Selikoff?

2 A. Yes.

3 Q. When was that, sir?

4 A. I don't remember.

5 Q. Was it after the mid-Sixties?

6 A. I don't know. I don't remember the --

7 Q. Can you recall any of the circumstances
8 surrounding this meeting?

9 A. Yes.

10 Q. Could you recount those for us, sir?

11 A. We -- I met with Dr. Selikoff with respect
12 to a major problem with dioxins and Agent Orange,
13 2,4,5-T.

14 Q. Would this not likely, then, have been in
15 maybe the late Seventies, early Eighties?

16 A. No.

17 Q. Earlier than that?

18 A. Oh, yes. It was at the time when this was -
19 I don't even remember what the dates were - that had
20 to do with the Agent Orange problem. And Selikoff was
21 very interested in it. And we, as a laboratory,
22 visited Dr. Selikoff and made - presented him with all
23 the toxicological data we had on these compounds in
24 his conference room, I guess, at his laboratory.

25 Q. Did any work by Selikoff or his doctors

1 follow from that meeting?

2 A. I don't recollect.

3 Q. What was the purpose of Dow going to meet
4 with - Dow scientists meeting with Dr. Selikoff in
5 connection with Agent Orange?

6 A. As I recollect, Dr. Selikoff asked us if we
7 would share the information we had with him. Seems as
8 though they were doing some work, themselves, and
9 didn't wish to - wished to have the benefit of what we
10 already had learned.

11 Q. I see. Can you recall any other occasions
12 when Dr. Selikoff called on Dow for information or
13 provided any --

14 A. I don't recall.

15 Q. -- any information to Dow?

16 A. I don't recall.

17 Q. Do you think that you or your colleagues in
18 your department at Dow learned anything about asbestos
19 health hazards from the studies of Dr. Selikoff's
20 doctors that were reported in 1964?

21 A. I don't know.

22 Q. Or later?

23 A. I don't know.

24 Q. Wasn't it largely due to the - the report in
25 1964 at Mount Sinai and the subsequent studies that

2 its Texas plants in 1968, Dr. Rowe?

3 A. I --

4 MR. PIERCE: Object to the form;
5 leading. And it's asked and answered.

6 A. I don't know.

7 Q. Can you give us any understanding why in
8 1968 Dow did begin monitoring for asbestos exposures
9 in the Texas plants?

10 A. I don't know.

11 MR. PIERCE: Objection to the
12 form. It assumes matters not in
13 evidence.

14 A. I don't know.

15 Q. Was Dow a maker of Agent Orange or any of
16 its components?

17 A. Yes.

18 Q. Was it your belief at the time that Agent
19 Orange was a safe material?

20 A. Yes.

21 Q. Still your belief?

22 A. Yes.

23 Q. In...

24 MR. ALMQUIST: We've been going
25 for another hour here. Are you getting

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1 ready to switch gears?

2 MR. BLANKS: Oh, okay. Sure.

3 MR. PIERCE: Let's take a

4 short...

5 THE WITNESS: It's time to
6 stretch.

7 MR. PIERCE: How's your pain
8 (directed to the witness)?

9 (AT THIS TIME A BRIEF RECESS WAS
10 TAKEN, AND THE PROCEEDINGS THEREAFTER
11 RESUMED AS FOLLOWS:)

12 (By Mr. Blanks)

13 Q. Dr. Rowe, you said a few minutes ago that
14 you regarded Agent Orange as a safety material. I
15 wonder if you believe that asbestos insulation, as it
16 was used at Dow plants in the Forties through the
17 Sixties, was a safe material.

18 A. As far as I know.

19 Q. You said --

20 A. Depends on how it's used and the dosage.

21 Q. I sort of spoke over you there. You said it
22 depends on how it's used and the dosage?

23 A. That's right.

24 Q. Okay. So, in some uses and in some dosages
25 it wouldn't be a safe material?

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1 A. If you have excessive doses, there's nothing
2 that's safe.

3 Q. Well, do you believe, sir, that, as it was
4 used at Dow in the Forties through the Sixties, that
5 asbestos insulation was, in fact, a safe material as
6 used?

7 A. As far as I know.

8 Q. Now, you said back in one of your talks in
9 1974 that "safe" implies absolute safety or no risk.

10 Do you still use the word "safe" that way?

11 MR. PIERCE: Objection to the
12 form.

13 If you're reading from something,
14 please let us know what it is.

15 A. Well, the only safe exposure is no exposure.

16 Q. In some of your speech notes, Dr. Rowe, you
17 refer to Dr. Selikoff of Mount Sinai as "one of our
18 adversaries." Could you explain what you would have
19 meant by that?

20 A. Well, Dr. Selikoff was one of those persons
21 who believed that any exposure was likely to produce -
22 with respect to asbestos, as far as I know, that any
23 exposure was something really serious. And I don't
24 believe that that is true.

25 Q. Would you say that an exposure sufficient to

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1 cause mesothelioma in a worker would be something
2 really serious?

3 A. Would be what?

4 Q. Something really serious.

5 MR. PIERCE: Objection to the
6 form; argumentative.

7 A. Certainly that's a serious response.

8 Q. And do you think that at any time you were
9 at Dow that Dow knew - knew what, really, were
10 asbestos exposures that were not serious?

11 MR. PIERCE: I object to the
12 form. It's confusing.
13 MR. BLANKS: You're right. It was
14 a bad question. Thank you.
15 (By Mr. Blanks)
16 Q. Would you say, Dr. Rowe, that there was a
17 time when you were with Dow that Dow did know to a
18 certainty what amount of asbestos exposure would not
19 be something really serious?
20 A. To the best of my knowledge, exposures
21 controlled to recommended levels were considered to be
22 acceptable.
23 Q. Yes, sir. But the question was did Dow know
24 what levels of exposure would not, in fact, cause any
25 kind of occupational disease.

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1 MR. PIERCE: Asked and answered.
2 A. I don't know.
3 Q. Do you think that you knew before you left
4 Dow what level of asbestos exposure was certain not to
5 cause disease in any person exposed to it at work?
6 A. I don't know except to say that I - that I
7 don't believe that I have ever seen information which
8 indicated or proved that exposures which were below
9 the accepted level had caused asbestos-type disease.
10 Q. Dr. Rowe, would you expect that one would
11 have cases of asbestosis in workers who had been using
12 asbestos in a safe way, as you've used the term?
13 A. I would -- I guess I'll have you ask that

14 again.

15 Q. Would you expect that you would have cases
16 of asbestosis in workers who had used the material in
17 a way - in a safe way, as you've used the term?

18 A. I have no reason to believe that they would.

19 Q. And, therefore, if you did find cases of
20 asbestosis in workers who had been exposed in a safe
21 way, as you say, that really wouldn't have been a safe
22 use. It would have been unsafe, wouldn't it?

23 MR. PIERCE: Objection to the form
24 of the question. It implies that the
25 only place anyone could have an

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1 asbestos exposure was from an
2 occupational setting and that the
3 individual involved could not have had
4 exposure at other places.

5 But given that objection and the
6 ambiguous nature of the question, go
7 ahead.

8 MR. PAPPAS: Objection;
9 argumentative.

10 A. My -- My own opinion is that - that, again,
11 it's exposure intensity that is a controlling factor.
12 And I know of nothing, as I said before, where
13 documented exposures could show that the exposure had
14 never exceeded those levels.

15 Q. So, if you found cases of asbestosis in Dow
16 workers, would that lead you to the conclusion that,

17 in fact, their exposures had been excessive?
18 MR. PIERCE: Objection to the form
19 for the same --
20 A. No. Well...
21 MR. PIERCE: -- reasons as given
22 earlier.
23 MR. PAPPAS: Also, speculation.
24 Q. Sir?
25 A. If we knew for sure all the rest of the

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1 exposures that could possibly have occurred. I don't
2 know the history of the people. I'd have to know
3 that.
4 Q. Like if they'd had some hobby that would
5 cause them to have high asbestos exposures? Is that
6 what you're thinking of?
7 A. I don't know where it might be.
8 Q. In your experience, would the occupational
9 exposures of a worker to asbestos almost always be the
10 most intense and those of the longest duration that
11 you'd find in a person?
12 A. I had no way of knowing.
13 Q. Did you suspect during any of the years that
14 you were with Dow that there were significant
15 nonoccupational exposures to asbestos that people
16 working in your plants could have had?
17 A. I don't know.
18 Q. Did you all give preplacement examinations
19 at Dow to look for indications of occupational disease

20 before you'd put somebody on the payroll?

21 A. Again, that's in a time frame. And I can't
22 identify that. I don't believe that was the case in
23 the early days. It was, I think, quite universal with
24 the latter days. I don't know what that means,
25 either. But the last few years that I was around it

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1 was...

2 Q. Do you recollect that it was part of the
3 routine in the periodic medical exams during any of
4 the years that the doctor would ask - would ask the
5 employee about his exposures at work or what the
6 employee thought his exposures were to toxic
7 materials?

8 A. I don't know.

9 Q. Did the medical department ever consult with
10 you in toxicology or with your industrial hygienists,
11 that you know of, about what kind of toxic exposures
12 workers could be facing so the doctors would know what
13 kind of disease signs or symptoms to be on the lookout
14 for?

15 A. Did I interpret -- Did the doctors talk to
16 us?

17 Q. Yes, sir.

18 A. Yes.

19 Q. And did they talk to you about "What kind of
20 occupational diseases should we be aware of or on the
21 lookout for?"

22 MR. PIERCE: Objection to the
Page 124

23 form; leading.

24 A. Well, I'm sure that was the case; but we
25 developed information that we shared first with the

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1 medical department on materials that were unknown to
2 anybody else or they were compositions which were new
3 where there was no evidence, that we knew of - I mean
4 no toxicological evidence - anywhere.

5 Q. Yes, sir.

6 A. So, the medical department relied on us to
7 tell them what to expect from, more or less,
8 short-term exposures. And that's as far as we could
9 possibly go.

10 Q. Okay. And for those more mundane materials
11 that had been around for a while such as asbestos or
12 silica, you expected the medical department was just
13 relying on their medical training and the medical
14 literature for --

15 A. That was my under --

16 MR. PIERCE: Objection to the
17 form; compound, ambiguous.

18 A. That was my understanding.

19 Q. Okay. I think in the same talk where you
20 used Dr. Selikoff as an example of one of your
21 adversaries, you referred to him as "an artist of
22 innuendo."

23 A. I beg your pardon.

24 Q. "An artist of innuendo." It sounds like a
25 Spiro Agnew-ism, I know, but...

1 MR. PIERCE: I like it. However,
2 I'm going to object since we have no
3 way of checking the accuracy of that
4 quotation.

5 But in the context of the question
6 go ahead and answer.

7 Q. Could you elaborate on that, sir?

8 A. I don't know what I was referring to at the
9 moment when I said that.

10 Q. This -- This comes from what was marked as
11 Exhibit 6 to your deposition, sir, around page 63
12 through 65. Let me hand you those.

13 MR. BLANKS: Is there more? Did
14 this fall out of it?

15 (By Mr. Blanks)

16 Q. Let me hand you these three (tendering
17 documents). Do you recognize that as your
18 handwriting, Dr. Rowe?

19 A. (Reviewing document) It sure looks like it.

20 Q. It may be missing a page there. This one
21 got stamped sideways. 66, I think, follows 65. And
22 67 -- Is 65 the first page there?

23 MR. PIERCE: No. Sixty -- It runs
24 63 to 66 now.

25 MR. BLANKS: Okay.

1 MR. PIERCE: Where are you --

2 MR. BLANKS: We're at the point
3 where Dr. Rowe -- I think he said he
4 recognized that as his handwriting.

5 MR. PIERCE: All right.

6 (By Mr. Blanks)

7 Q. And these would appear to be your notes for
8 a talk you gave somewhere in your career? Yes, sir?

9 A. (Reviewing document)

10 MR. BLANKS: Take that off
11 (referring to yellow tab on document).

12 MR. PIERCE: Well, I think now my
13 objection to the quotation is all the
14 more pertinent since on page 65
15 Selikoff is certainly indicated as an
16 artist of innuendo but rather as an
17 example of people who go public and not
18 worry about the correct - correctness
19 or the probability of their
20 statements.

21 So, yeah, I think that was
22 appropriate, indeed, as an objection.

23 MR. BLANKS: You think that was an
24 appropriate objection? What was the
25 objection? Bet you can't even remember

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1 it now.

2 MR. PIERCE: That we did not see
Page 127

3 the quote.

4 MR. BLANKS: Ah. Well, now we've
5 remedied that.

6 MR. PIERCE: And now your quote
7 was incorrect.

8 (By Mr. Blanks)

9 Q. My God, did you not say "artist of
10 innuendo," Dr. Rowe? You didn't say "may bob of
11 negative-ism," did you?

12 MR. PIERCE: I said that --

13 A. Well, I explained it -- Exactly what I meant
14 is explained right there.

15 Q. Well, our colloquy aside, would you - now
16 that you have the paper in front of you, would you
17 tell us -- This is a copy of notes you made for a talk
18 you gave somewhere. Would that be correct?

19 A. It's my handwriting.

20 Q. All right, sir. And could you explain to us
21 what you meant when you used Dr. Selikoff as an
22 example of an artist of innuendo?

23 MR. ALMQUIST: I'm going to object
24 to the characterization since I'm not
25 sure that's what the document says.

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1 A. Statements such as "may" and -- Pretty soon
2 these sort of things get repeated and they get into
3 the press. And by the time they've got there, they're
4 quoted as fact. And often they're not really
5 supported by factual data (tendering document).

6 Q. And when you said "may," you mean like a
7 statement that asbestos may cause cancer was the type
8 of --

9 A. Does it say asbestos?

10 Q. No, it doesn't. But --

11 A. Okay.

12 Q. -- it wasn't clear when you said a statement
13 such as "may" was an example of innuendo.

14 A. This is -- I'm speaking generally.

15 Q. Your -- Your quote here says "They are
16 articles" -- I'm sorry. Let me start over. You say,
17 "They are artists of innuendo -- Such and such may
18 cause cancer."

19 A. Uh-huh.

20 Q. That's what you meant as an innuendo that
21 could be misleading?

22 A. It was an example of using "may." "This may
23 cause cancer." May cause almost anything that's -
24 that's disagreeable to sway public opinion.

25 Q. Do you think, Dr. Rowe, that it's - that

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1 it's misleading to - for a researcher to say that a
2 material being investigated may cause cancer while
3 he's still gathering data?

4 A. I guess I don't understand your question.

5 Q. Well, I guess -- At what point is it not
6 misleading to say that asbestos may cause cancer?
7 That's what I'm trying to --

8 A. I didn't say that asbestos may cause

9 cancer. I was speaking in -- Dr. Selikoff has spoken
10 on many things other than sil - than asbestos.

11 MR. PIERCE: And, also, are you
12 questions related to the scientific
13 literature, to the use of newspaper and
14 public access as, I believe, is implied
15 in the exhibit? I believe it's
16 Exhibit 6. I mean, I think you have to
17 really limit it to what the talk is
18 about for us to understand where you're
19 going, Mr. Blanks.

20 Q. I think you said here, quoting you,
21 "Contrarywise our adversaries use every opportunity to
22 go public and they worry not about the" -
23 "correctness," perhaps - "or the probability of their
24 statements as we do. Example, Selikoff." And then
25 you go on to say they're artists of innuendo.

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1 This general statement with Dr. Selikoff as
2 an example, is that one that you say doesn't relate to
3 his work on asbestos and asbestos as a cause of
4 cancer?

5 A. I didn't say that.

6 Q. Do you think it does relate to his work on
7 cancer as first came to light in the early Sixties?

8 A. I don't have any question about that -
9 that - the asbestos situation. When he said "may,"
10 well, I wouldn't argue with that; but there are other
11 things that he has spoken to -- And other people have,

12 too. Not only Dr. Selikoff but others have frequently
13 used something that is in prepublication stage and
14 quote it in the press for some purpose to their
15 benefit. And we have seen many examples of this, not
16 only with Dr. Selikoff but with others, some of whom I
17 don't know who they were. They just came out as
18 edicts that this is bad, but there's not the data
19 behind it. Anybody -- I could -- I could postulate
20 that - most anything you want to mention that it may
21 be carcinogenic. And give me five years and I might
22 be able to prove it.

23 MR. PIERCE: And, Mr. Blanks, if I
24 could just bring to your attention --
25 When you read the sentence "Such and

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1 such may cause cancer," you did not
2 read the entire sentence which is
3 completed when it says "when in fact
4 the data weigh heavily in the other
5 direction."

6 Q. What's --

7 MR. PIERCE: That's page 65.

8 Q. Could you tell us, Dr. Rowe, what is the
9 example you give there in that next-to-the-last
10 paragraph? I can't read it.

11 A. Are you referring to the paragraph starting
12 with "They are" or what?

13 Q. No, sir. The one right below it where it
14 says "Example."

15 A. It says "Elsea." And I'm trying to remember
16 what that was. I don't remember. I don't remember
17 what that refers to.

18 Q. I couldn't - couldn't connect it with
19 anything. Would you look at the next page of that,
20 that first full paragraph where you start out "As you
21 can probably tell from the thrust of my remarks," and
22 then go on "I am concerned about our ability to
23 communicate our science effectively to others than
24 the friendly scientific community." Do you see that,
25 sir?

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1 A. Yes.

2 Q. Who did you regard as "the friendly
3 scientific community"?

4 A. Those scientists who are primarily concerned
5 with dealing with facts and not fancy.

6 Q. All right, sir. You include yourself and
7 your colleagues at Dow in that group who deals with
8 facts and not --

9 A. I do.

10 Q. -- fancy? In connection with the
11 Mount Sinai studies on asbestos as a cause of disease
12 and cancer, would you view the Mount Sinai physicians
13 and their epidemiologists as scientists who deal in
14 facts and not fancy?

15 A. When the data is there to support it.

16 Q. Is it your view that the data was there to
17 support their conclusions in 1964 and in their

18 subsequent reports?

19 MR. PIERCE: In respect to what,
20 Mr. Blanks?

21 MR. BLANKS: The conclusions that
22 they set out about asbestos as a cause
23 of lung cancer and other matters.

24 A. I think I have mentioned several times I do
25 not have a problem with the asbestos situation.

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1 (By Mr. Blanks)

2 Q. All right, sir. So, as far as --

3 A. Insofar as I am aware - And I'm certainly no
4 expert in asbestos - my impression is that asbestos in
5 appropriate dosages and types of exposure can cause
6 cancer. I don't argue this one bit.

7 Q. Okay. So, you don't view the Selikoff and
8 Mount Sinai work from the Sixties as being bad
9 science, then?

10 MR. PIERCE: Meaning -- The "work
11 from the Sixties" meaning the asbestos
12 and mesothelioma work, not any
13 Selikoff work; is that correct,
14 Mr. Blanks?

15 MR. BLANKS: Yeah.

16 A. I'm referring to that. Yes.

17 (By Mr. Blanks)

18 Q. Yes.

19 A. I agree with that.

20 Q. You wouldn't say that's bad science, would

21 you?

22 A. No. No. I didn't say that.

23 Q. Okay. Well, I just want to make that
24 clear.

25 MR. PIERCE: And we've certainly

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1 made it clear often enough.

2 MR. BLANKS: Anything worth doing
3 is worth overdoing, Mr. Pierce.

4 (By Mr. Blanks)

5 Q. Would you agree, then, Dr. Rowe, that if the
6 best information available by 1965 said that asbestos
7 was a cause of lung cancer that --

8 A. I wouldn't argue that point.

9 Q. Okay. Would you agree, then, that cancer
10 should have been reported by Dow as an asbestos health
11 hazard --

12 A. I don't know.

13 Q. -- by 1965?

14 MR. PIERCE: I'm going to object
15 to the ambiguity.

16 A. Again I have to relate it to the intensity
17 of exposure.

18 Q. Yes, sir?

19 A. Well, that's my answer.

20 Q. Well, I mean, how in providing information
21 to your colleagues or your employees would you relate
22 that fact of asbestos-causing cancer to exposure? How
23 would you tell that to a worker?

24 A. Well, you would specify the levels of
25 exposure that the supposed authorities or experts

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1 would indicate would be safe. If you have a -- If you
2 have -- If you don't take care of yourself and so
3 forth and you get into a cloud of this stuff all the
4 time -- If that's the case, that's bad news.

5 Q. Well, in terms of relaying this information
6 to people working in your plants, though, I mean was
7 it the approach to just say "Keep your exposures below
8 this level, and you will be okay"?

9 A. I don't know exactly what was said in the
10 plants. I wasn't there.

11 Q. Well, if, as you said, the view was by 1965
12 that asbestos could cause lung cancer, how then would
13 you relay that to a worker? I mean, would you say,
14 "Asbestos can cause cancer. That's one of the health
15 hazards"?

16 MR. PIERCE: I'd like to object to
17 the form. It calls for speculation.

18 He's told you he has no firsthand
19 knowledge of what was said.

20 But go ahead.

21 A. I don't know that it wasn't said. I'm
22 surprised if it wasn't.

23 Q. Can you tell me a little bit about the
24 history of the documents that Dow used to describe
25 material health hazards? Are those things that

1 preceded the Material Safety Data Sheets? Do you know
2 what I'm talking about?

3 A. (No response)

4 Q. Didn't you have a form to report health
5 hazard information on about specific materials?

6 A. Yes.

7 Q. And what did you call that form? Was it
8 something called "Data Sheet of Properties, Health
9 Hazards, and Precautions for Safe Handling of
10 Materials"? Does that ring a bell?

11 A. That rings a bell.

12 Q. Do you recognize the form (tendering
13 document to Mr. Pierce)?

14 MR. PIERCE: Thanks (reviews and
15 tenders document to the witness)

16 A. (Reviewing document) Yes.

17 Q. How far back in time, approximately, do
18 these forms or something equivalent to it at Dow,
19 Dr. Rowe?

20 A. I don't know. It would have been after
21 Mr. Hoyle begun operations. And I can't tell you
22 the -- I just don't know.

23 Q. So, probably after '48?

24 A. I'm sure it was after '48.

25 Q. Were these prepared just as a matter of

1 routine as the toxicology department and the
2 industrial hygiene department began to explore
3 materials and a bank of them created - a library of
4 them built up?

5 A. I really don't know what you're -- Rephrase
6 it, would you, please?

7 Q. I'm wondering, Dr. Rowe, whether these kind
8 of forms were done on an ad hoc basis when a question
9 would arise, when a problem might be reported or
10 suspected.

11 A. No.

12 Q. Or were they done as part of a routine of
13 trying to set up a safety data sheet for every
14 potential toxic material in the plant that took place
15 over time?

16 A. Well, they were routine after a certain
17 point; but I can't tell you just when that point was.

18 Q. Okay. But they weren't one-shot deals --

19 A. Oh, no.

20 Q. -- in response to a - some fellow reporting
21 a problem with a skin ailment or what have you? Okay.

22 MR. BLANKS: Could I have that
23 back now (indicating document)?

24 MR. PIERCE: Sure.

25 MR. BLANKS: I'll have to hand it

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1 back to you in a second.

2 (By Mr. Blanks)

3 Q. Would it be surprising to you that in 1965

4 in a biochemical research laboratory report regarding
5 exposures to fine dust encountered by workers cutting
6 various types of pipe material that in discussing
7 asbestos and its health hazards that no mention
8 whatever would be made of asbestos as a carcinogen or
9 even a suspected carcinogen, Dr. Rowe?

10 A. I don't know whether the particular person
11 that prepared that was aware of it or not. I don't
12 know.

13 Q. Would you expect that Mr. Hoyle, had he
14 checked that report, would have been aware of
15 asbestos' propensity to cause cancer in 1965?

16 MR. PIERCE: Are you looking at a
17 particular document? And, if so, bring
18 it to our attention.

19 MR. BLANKS: We're looking at
20 Hoyle Exhibit 7.

21 MR. ALMQUIST: I don't have the
22 quote. If you've got it -- I don't
23 have a copy of that.

24 And I'm also going to object to
25 the question because it asks him to

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1 speculate as to what Mr. Hoyle
2 would have known in 1965.

3 MR. BLANKS: Well, certainly, I
4 wouldn't expect somebody in the
5 toxicology department to have any
6 notion of what Mr. Hoyle would know

7 about asbestos and cancer in 1965.

8 MR. ALMQUIST: Object to the
9 side-bar comment.

10 (By Mr. Blanks)

11 Q. The question, sir, was: Would you have
12 expected Mr. Hoyle, given his experience and training,
13 by 1965 to have know that cancer was one of the health
14 hazards associated with asbestos dust exposure?

15 MR. ALMQUIST: Same objection.

16 A. I would have expected it, but I don't know.

17 Q. If he had known about it, wouldn't you have
18 expected that he would mention asbestos caused cancer
19 as one of the health hazards of asbestos exposure and
20 to have put it in a report - due to asbestos exposure?

21 MR. PIERCE: A report relating to
22 what?

23 MR. BLANKS: A report relating to
24 exposures to workers cutting various
25 types of pipe covering material,

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1 including asbestos.

2 A. Well, I'd like to read the whole report, if
3 I could, because I don't remember it at all.

4 (By Mr. Blanks)

5 Q. All right, sir. I'm happy to make that
6 available to you. I just wonder if in discussing
7 asbestos health hazards you would have expected
8 Mr. Hoyle, at least by 1965, to mention cancer as one
9 of the potential health hazards.

10 A. I don't know what he was discussing.
11 MR. PIERCE: That -- What's the
12 date of that report?
13 MR. BLANKS: This is a July 21st,
14 1965, report by Mr. E. J. Schneider,
15 checked by H. R. Hoyle.
16 (By Mr. Blanks)
17 Q. Do you recall Mr. Schneider?
18 A. He was an industrial hygienist.
19 Q. I take it that Mr. Hoyle would have been
20 reporting to Dr. Adams in 1965.
21 A. Yes.
22 Q. And not to you.
23 A. I don't -- I don't recollect that that -- I
24 think that's the case. He didn't report to me, I
25 don't believe, until it was in the - '70 or

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1 thereabouts.
2 Q. All right, sir. I'm happy to pass this over
3 to you (tendering document).
4 A. (Reviewing document)
5 Q. Okay. Do you have anything you want to add
6 to what you covered a few minutes ago about that
7 report, Dr. Rowe?
8 A. Well, it would seem to me that it was a
9 pretty decent report. The word "cancer" is not
10 mentioned but "asbestosis." And that was -- I didn't
11 know when the definitive nature of the carcinogenesis
12 appeared; but asbestosis was the same bag of worms as

13 far as that's concerned. But I think that's a very
14 good report.

15 Q. All right, sir.

16 A. It analyzes the situation and tells them
17 what they should be doing differently.

18 Q. When you say "asbestosis is the same bag of
19 worms as cancer," --

20 A. It's a serious -- It's a serious
21 incapacitating disease in the end. We certainly don't
22 want asbestosis.

23 Q. So, the goal would have been to prevent
24 asbestosis. And if you'd done that, perhaps you would
25 have prevented any cancers that may have gone with

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1 it. True?

2 A. That would be my offhand opinion without
3 being an expert in the area.

4 Q. Okay. And if you had, in fact, been using
5 industrial hygiene controls and medical controls to -
6 sufficient to prevent any cases of asbestosis, you
7 would certainly have increased the probability of
8 preventing cases of asbestos-related cancer in that
9 same work force, correct?

10 A. I think that's a fair statement.

11 Q. But you don't have any explanation for us
12 why in 1965 the authors of this Dow report done for
13 Dow Corning failed to mention that asbestos was a
14 suspected or probable carcinogen --

15 A. I don't know.

16 Q. -- in discussing the health hazards of
17 asbestos?

18 A. I don't know.

19 Q. As to this type of form that we looked at a
20 little earlier, the one that reported on the health
21 hazards of different materials, were those health
22 hazard forms, if I can use that term, kept on file at
23 Dow for the different departments to have access to?

24 A. To my knowledge, yes.

25 Q. Would you have had a collection of those

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1 available in your department?

2 A. I'm sure we would.

3 Q. And updates, if any were made, would come to
4 you to replace the obsolete edition or version of --

5 A. They wouldn't come to me but they would --
6 Routinely, unless something got screwed up, they would
7 be in the - in the file.

8 Q. Okay. Do you -- I got the impression that
9 some of these - And you have one in front of you; so,
10 that may as well do as an example - were prepared
11 around the time of the inquiry that is mentioned on
12 the form. Can you help me to understand that?

13 A. I don't know. These things...

14 MR. PIERCE: I'm sorry. I'd like
15 to pose an objection. Both documents
16 speak for themselves. They're both
17 dated. And whether they're close in
18 time or not is something that certainly

19 you're quite as capable of finding as
20 Dr. Rowe is.

21 MR. BLANKS: Well, if the
22 documents spoke for themselves, I guess
23 we wouldn't have to speak with one
24 another. But I just --

25 MR. PIERCE: Well, if a document

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1 is labeled 1958, another one 1965, I
2 think that's pretty clear. Now, what
3 you mean by "close in time," I don't
4 know.

5 MR. BLANKS: Let me borrow the
6 exhibits back.

7 MR. PIERCE: (Tendering documents)

8 (By Mr. Blanks)

9 Q. Dr. Rowe, what I'm wondering is this, sir.
10 And this Exhibit No. 2 is a sufficient example for the
11 question.

12 MR. PIERCE: Is this Exhibit 2
13 from the Hoyle deposition or
14 from Dr. Rowe's deposition?

15 MR. BLANKS: From Mr. Hoyle's
16 deposition.

17 (By Mr. Blanks)

18 Q. There is a report with the same format as
19 the one you looked at on the asbestos matter regarding
20 pipe covers that - in this case the result of a
21 range-finding tox. test on a floor tile formulation -

22 that is done by Ken Olson in April 21st of 1958. And
23 attached to it was the Data Sheet of Properties,
24 Health Hazards, and Precautions for Safe Handling of
25 Materials, discussing the components of the floor tile

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1 formulation. And it's dated various dates beginning
2 in mid-March, going through April 7th of '58, just the
3 weeks preceding Mr. Olson's report. And, so, I was --
4 That's why I was asking you, sir, whether or not these
5 safe handling of material sheets that mention health
6 hazards were from time to time prepared to go along
7 with an investigation that was done by industrial
8 hygiene as opposed to being part of a library of such
9 data sheets.

10 A. The -- I can't give you the dates. I don't
11 know. But there were -- There was a time when the
12 value of those was appreciated and we prepared -- The
13 industrial hygienist would take the toxicology reports
14 and prepare that particular form, which was their
15 form, and that would become a part of that report that
16 was distributed.

17 Q. Okay.

18 A. And those sheets then -- There may have been
19 separate ones that would be sent to the particular
20 areas or plant superintendents that - that were
21 involved.

22 Q. Okay. And from time to time such sheets
23 might be sent to customers, as well?

24 A. I don't remember whether those were -- I

25 don't remember -- I don't remember.

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1 Q. Dr. Rowe, in one of your rough drafts for a
2 speech of - perhaps given in the late Seventies, you
3 mention - you mentioned some things I'd like to ask
4 you about.

5 MR. BLANKS: It's Rowe
6 Exhibit 7 that we're referring to,
7 Mr. Almquist.

8 (By Mr. Blanks)

9 Q. And it has a title on it, sir, of
10 "Environmental Health," to put it in a little bit of
11 context. But one thing you mention there was -- You
12 said by 1946 that bimonthly conferences were being
13 held between medical, toxicology, industrial hygiene,
14 and safety. Do you recall that that was so?

15 MR. PIERCE: Could you give us a
16 page on that, please?

17 Four? Okay.

18 A. Again, I can't testify to the dates; but
19 that was - that was common practice. We did that
20 quite often. Maybe we might have missed a meeting or
21 two, but it was - generally that was the routine.

22 Q. Okay. Forgive me if we've touched on this
23 in prior visits. I don't recall that we did. But
24 this - this talk says that these conferences between
25 the departments - medical, toxicology, industrial

1 hygiene, and safety - have continued to the present
2 date. And we surmise that present date in this paper
3 to be somewhere around '76 or after.

4 But would that be your recollection that for
5 that 30-year period - that these kind of bimonthly
6 meetings were taking place?

7 A. As far as I know, they were; but I probably
8 was not involved in those in the later years.

9 Q. Why would that be, sir?

10 A. Because I had a different position.

11 Q. "The later years" meaning just the last few
12 years you were at Dow, from '79 --

13 A. Yes.

14 Q. -- back into '73, that last six years or so?

15 A. Yeah. In that time frame.

16 Q. That would have been the period when you
17 became a director of toxicological affairs and related
18 jobs?

19 A. Yes.

20 Q. Okay. Were notes made, Dr. Rowe, of these
21 bimonthly conferences between the medical, the
22 toxicological, the industrial hygiene, and the safety
23 staffs at Dow?

24 A. I don't remember. I don't think so.

25 Q. Was this called a committee or just didn't

1 have any -- Did it have any title?

2 A. We called it the biochem/safety/medical
3 meetings.

4 Q. Okay. Sounds like a descriptive title.

5 Could you share with us sort of the format
6 of these? Were they informal just get-togethers and
7 round-table discussions or were there agendas for
8 these meetings or both?

9 A. They were definitely informal. We -- We met
10 and had lunch at the expense of the medical
11 department.

12 Q. Even better.

13 A. And the agenda was -- Sometimes there were
14 specific items that somebody wanted to discuss, but
15 generally what they amounted to was a place where the
16 medical department might have seen someone and
17 wondered if what was wrong with them could possibly be
18 related to this or that or so on.

19 The industrial hygiene or safety department
20 might come in with a - something that they didn't like
21 the looks of out in the plant and ask medical if they
22 had had any particular problems. Action could be
23 instituted by any of the people there.

24 In other words, if the medical department
25 had seen someone who had a rash, industrial hygienists

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1 would probably be detailed to investigate and see what
2 it was, if it was occupationally caused, or maybe talk
3 to the man and find out what he had been doing at
4 home.

5 Might work the other way. Might be that the
6 safety department had seen something. The safety
7 department was primarily concerned with fire and the
8 mechanical hazards, but they were in the plant and
9 often observed things that they didn't think were
10 right. And they might have wanted industrial
11 hygienists to check on it.

12 Toxicology was there to pass on any new
13 information on materials that perhaps had been -
14 they'd been requested to look at in previous meetings
15 or otherwise. Particularly anything remarkable, would
16 be called.

17 Secondly, if there were materials that
18 suddenly appeared that we didn't have any information
19 on - the medical department didn't have - they would
20 ask us if we would get a sample and run it through the
21 screen to see if there was anything unusual about it.
22 So, it was a communication - informal communication,
23 gathering of people.

24 Now, the physicians, whoever was there,
25 except who was duty - was on duty on the floor during

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1 the noon hour would probably be attending. Sometimes
2 even the nurses, safety department representative -
3 not necessarily the same person each time - and the
4 same for toxicology and industrial hygiene.

5 MR. PIERCE: Joe, if you're not
6 going to finish very shortly, perhaps
7 this is an appropriate time. We can
8 pick it up tomorrow. I think we've had

9 a couple hours now, unless you think
10 you're going to finish early.
11 MR. BLANKS: Well, I'm finished
12 with this little talk here but --
13 MR. BREWTON: You have seven
14 minutes.
15 MR. BLANKS: Oh. Seven minutes?
16 Let's run out the tape.
17 MR. PIERCE: Okay.
18 (By Mr. Blanks)
19 Q. All right, sir. And I guess you found these
20 biochemical/safety/medical meetings to be a good
21 opportunity to exchange ideas and to share new
22 information that you may have read about in the
23 literature or encountered at meetings and so on.
24 A. That's right.
25 Q. Could you tell us just briefly about the

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1 retrieval system that was created in 1954 to document
2 chemical exposures' causes and consequences?
3 MR. PIERCE: Objection to the
4 form; leading. It assumes facts not in
5 evidence. And you're reading from a
6 document that we don't have access to.
7 MR. BLANKS: Page 5.
8 MR. HOBSON: Page 5.
9 MR. BLANKS: Page 5.
10 MR. PIERCE: Of what?
11 MR. HOBSON: The same thing.

12 MR. PIERCE: Oh.
13 MR. BLANKS: I try to lead
14 you from page to page, and still you
15 complain.
16 MR. PIERCE: Well, thank you for
17 bringing this to our attention.
18 MR. HOBSON: First full
19 paragraph.
20 A. Is this supposed to have to do with the
21 question?
22 (By Mr. Blanks)
23 Q. Yes, sir. Well, I don't know. Mr. Pierce
24 always likes to read these things. I figured you'd
25 know from your recollection.

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1 A. Well, I -- The name didn't ring a bell
2 quickly; so, I'm trying to figure out what it was we
3 were talking about.
4 Q. I was just wondering what you remember about
5 the beginnings which, according to this paper, were
6 1954 of a retrieval system to document exposures'
7 causes and consequences.
8 A. Well, I'm blank.
9 Q. This refers to acute chemical exposures.
10 So, perhaps it was just limited to that.
11 A. I don't remember.
12 Q. Okay. Do you remember anything like this
13 that may have evolved into the computer-based system
14 that was being used in the late Seventies, or could

15 you tell us anything about the computer data base of
16 your last decade there that had health hazard
17 information in it?

18 A. The computer laboratory had set up a - the
19 program. And I do not remember... I don't remember
20 what the source of information was that they had. And
21 it just -- I don't remember. That's all there is to
22 it.

23 Q. Okay.

24 A. We had a computer system that was gathering
25 data, but that's as far as I can say.

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1 Q. Do you recall around 1967 that biostatistics
2 and epidemiology were included and made a part of the
3 Dow environmental health program?

4 A. We incorporated that, yes. I don't know the
5 dates.

6 Q. Hired an epidemiologist, did you?

7 A. Yes.

8 Q. Were there epidemiology studies, then, done
9 of Dow employees, looking for occupational disease?

10 A. Yes.

11 Q. These were done, like, in-house by the Dow
12 epidemiologist, as you remember?

13 A. Yes.

14 Q. Can you recall, sir, if there before then
15 had been any studies done by outside folks that would
16 have included Dow workers in the epidemiology study?

17 A. I don't remember... I just don't remember

18 any. Any time the epidemiological work -- If there
19 was any done before the time we got the
20 epidemiologist, it would have been through the medical
21 department.

22 Q. Could you tell us anything, sir, about the
23 corporate ecology council that this paper says was
24 created by the board of directors in '67?

25 A. That was a group of people whose charge it

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1 was to - basically to study the possible ecological
2 effects of disposal of materials, containers, and that
3 type of problem that you find in normal distribution
4 systems and to look at new - new materials to see what
5 effect they might have on probably some of the simple
6 systems in the environment.

7 Q. How about the Dow environmental testing
8 advisory board, what role did that have?

9 A. That was another similar group that - with
10 various disciplines in it to plan and - studies that
11 people thought would be appropriate to conduct.

12 Q. Did you have anything to do with either the
13 environmental testing advisory board or the corporate
14 ecology council?

15 MR. PIERCE: Objection to the
16 form; compound. And "having anything
17 to do with" is rather vague and
18 ambiguous.

19 But go ahead.

20 A. Was it -- The question was did I have a part

21 to do?

22 Q. Yes, sir.

23 A. I was -- I was a member of the - of the
24 board.

25 Q. Of the advisory board?

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1 A. Both of them, I think.

2 Q. I'm sorry. Both?

3 A. Both, yes.

4 Q. I see. Okay.

5 MR. BLANKS: We're out of time.

6 Okay. Thanks for the extra --

7 MR. PIERCE: Nine o'clock?

8 MR. BLANKS: -- couple of minutes.

9 9:00 a.m.

10 MR. PIERCE: See you tomorrow.

11 MR. BLANKS: Thank you, Dr. Rowe.

12 Have a good evening, sir.

13 (AT 3:19 P.M., ON MAY 11, 1993,

14 THE DEPOSITION WAS RECESSED. AT

15 9:50 A.M., ON MAY 12, 1993, THE

16 DEPOSITION RESUMED AS FOLLOWS:)

17

18 RESUMPTION OF EXAMINATION BY MR. BLANKS:

19 Q. Good morning again, Dr. Rowe.

20 A. Good morning.

21 Q. I understand you went through your records

22 and found some more papers for us which came this

23 morning. I appreciate your taking the time to make

24 that effort and apologize for the substantial
25 inconvenience it must have caused you.

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1 A. Okay.

2 Q. We'll get to those documents later on and
3 see if we can deal with them then; but I appreciate
4 your trouble, sir.

5 I think when we quit yesterday we were
6 talking about epidemiology studies that the medical
7 department may have done and then the fact that Dow
8 had hired a biostatistician and epidemiologist
9 somewhere around '67 or so, as your notes seem to
10 show.

11 Do you recollect, sir, any particular
12 epidemiology studies that were done before you left
13 Dow that would have touched on cancer cases in the Dow
14 work force?

15 A. I'm not familiar with them.

16 Q. Okay. Would those studies have been kept in
17 the medical department or the tox - the biomedical
18 research department?

19 MR. PIERCE: Objection to the
20 form. He indicated he had no knowledge
21 of such studies.

22 A. It might be in either.

23 Q. Do you recall that these type studies would
24 have come to you as a person in a position of
25 responsibility after '67?

1 A. No. I didn't - didn't have anything to do
2 with the epidemiology people.

3 Q. Okay. Dr. Rowe, during that time when you
4 were administratively in charge of industrial
5 hygiene - or earlier, if it's the case - if a Dow
6 industrial hygienist or a Dow safety man had seen
7 visible dust in the workplace in connection with
8 insulation work, for example, what would you have
9 expected your industrial hygienist to do?

10 MR. PIERCE: Objection to the
11 form. It's compound. It mentions two
12 kinds and then asks only about one.

13 Confusing. Ambiguous.

14 Go ahead.

15 A. I would have expected them to investigate
16 the situation and determine whether or not there was a
17 reasonable expectation of a hazardous situation.

18 Q. If the people responsible for health and
19 safety in the Dow plant had seen a turnaround or a
20 shutdown being done where there was dust being
21 generated from asbestos around trades just besides the
22 insulator's, what would you have expected them to do?

23 A. I don't know.

24 Q. Would you not have expected them to
25 investigate the exposure levels for the people working

1 in or near that dust cloud that we've postulated?

2 A. I think my answer to your other question
3 covered your -- I don't know any more. I just said I
4 would have expected them to investigate and that...

5 Q. All right, sir. What if your people at Dow
6 responsible for health and safety on the job had seen
7 men handling asbestos insulation and working without
8 respiratory protection, what would the response be
9 that you'd expect to that situation?

10 MR. ALMQUIST: I object to the
11 vagueness of the question. It doesn't
12 have a time period associated with it.

13 A. I would expect them to suggest remedial
14 action.

15 Q. What would you have expected had your health
16 and safety people at Dow seen men working with
17 asbestos insulation and not using wet methods?

18 MR. PIERCE: Do we have a time
19 frame?

20 MR. BLANKS: In any time frame.

21 A. I would expect them to correct the situation
22 as they saw it - as they determined it - whatever it
23 to be.

24 (By Mr. Blanks)

25 Q. Have you, yourself, ever observed a

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1 turnaround or shutdown in a Dow plant?

2 A. Observed?

3 Q. Well, been there to see any part of that

4 sort of maintenance operation, --

5 A. No.

6 Q. -- a major shutdown. Am I using a term that
7 was familiar to you about a shutdown or a turnaround?

8 A. I'm interpreting it to mean closing the
9 plant.

10 Q. Closing the... You mean like closing the
11 plant for good or...

12 A. Whatever.

13 MR. PIERCE: Why don't you define
14 your term, and then you won't have to
15 go through this.

16 Q. Well, what term was used at Dow to describe
17 the periodic major maintenance work on a unit in a
18 plant where you'd shut down the unit and come in and
19 do extensive preventive maintenance and routine
20 maintenance --

21 A. I don't know what they called it.

22 Q. -- on a periodic basis?

23 A. I don't know what they called it. I don't
24 know that there was a specific name for it. If
25 someone were going to do that, they would have

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1 described what they were going to do.

2 Q. Do you know that such things were done from
3 time to time on Dow units?

4 MR. PIERCE: Objection to the
5 form; vague, confusing.

6 A. Yes.

7 Q. Okay. Well, that was the type of
8 maintenance operation I was describing when I used the
9 word "turnaround" or "shutdown."

10 A. Oh, I see.

11 Q. So, with that understanding, did you ever
12 observe that kind of maintenance operation going on at
13 a Dow plant?

14 A. I never did.

15 Q. All right, sir. Did you ever personally
16 observe asbestos insulation being handled in any Dow
17 facility whether in a shop or in the field or in a
18 warehouse?

19 A. No.

20 Q. Would it also be true, Dr. Rowe, that
21 personally you've never seen a measured
22 5-million-particle-per-cubic-foot asbestos dust
23 concentration in air?

24 A. I don't recall ever.

25 Q. Okay. Sir, did you use asbestos in your

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1 laboratories for any purposes?

2 A. I believe we have.

3 Q. Would that have been in things like Gooch
4 filters and --

5 A. As a -- As a filter bed in different types
6 of filters where you're filtering corrosive
7 materials. And asbestos was a common bed that you
8 prepared, yourself.

9 Q. Okay. Would you start with a dry asbestos

10 material and then prepare some sort of a slurry to
11 make the filter? Is that how it was done?

12 A. I don't remember how we did it.

13 Q. Okay. Could you describe for us the kind of
14 precautions that you recall using in the Dow
15 toxicology labs when dealing with materials of
16 suspected or unknown toxicity?

17 MR. PIERCE: Could we have a time
18 frame?

19 MR. BLANKS: Well, I think that we
20 could cover this over the many years
21 that Dr. Rowe did it.

22 A. You mean generally handle - how we handled
23 materials or what? I don't quite understand your...
24 (By Mr. Blanks)

25 Q. All right, sir. Let me make a little

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1 preface to make it clear. I gather from what you've
2 told us that some of the important work done in your
3 toxicology lab was directed at determining the
4 toxicity of materials that were going to be used at
5 Dow - materials that you at least thought might pose
6 some health hazard to either your own workers or your
7 customers. So, I'm wondering, then, in handling
8 these, let's say, suspect materials what kind of
9 protective measures over the years you and your
10 scientists and technicians would have used in the
11 handling of the suspect materials in the lab.

12 MR. PIERCE: Objection to the

13 form. Objection to characterization of
14 his earlier testimony and to vague
15 terminology, ambiguities within.

16 A. Well, we handled many, many compounds about
17 which there was no knowledge of toxicology type or
18 physiological effects. That was our job to determine
19 what those properties would be. So, when an unknown
20 material was submitted to the laboratory for
21 evaluation, regardless of what we thought, we handled
22 the material so that we did not have exposure or if
23 there was it was trivial. That was our job, to find
24 out what was the significance of various types of
25 exposure. And, to my knowledge, we've handled some

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1 extremely toxic materials. Extremely toxic. We have
2 never in our laboratory had a lost-time injury due to
3 any of our laboratory people working with totally
4 unknown materials.

5 Q. Do you know, sir, whether any of your
6 laboratory people developed any occupational disease
7 as a result of exposures to the materials you examined
8 in the lab?

9 A. Not to my knowledge.

10 Q. Could you give us some specifics by way of
11 example, Dr. Rowe, over the different decades that you
12 were in toxicology of the sort of precautionary
13 measures or protective equipment or means that you
14 used to prevent these possible exposures to the
15 materials you were examining in the lab?

16 MR. PIERCE: Objection to the
17 form; compound question.
18 And this -- Just for
19 clarification: Is this for his entire
20 time at Dow?
21 MR. BLANKS: Well, I think I said
22 over the years.
23 MR. PIERCE: Okay.
24 MR. BLANKS: You know, I ask these
25 compound questions so that we can kill

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1 two or three birds with one stone.
2 Dr. Rowe hadn't let one slip by yet
3 but...
4 (By Mr. Blanks)
5 Q. I'd just like for the jury to understand the
6 precautionary measures that you used during the
7 different decades to protect your lab workers from any
8 exposure to the materials that you were testing for
9 toxicity.
10 MR. BLANKS: You're just making me
11 better (directed to Mr. Pierce).
12 A. With respect to possible eye contact, our
13 people all were required to wear eye protection. With
14 respect to skin contact, we trained our people not to
15 have skin contact.
16 Now, you can, again, expect that accidents
17 will happen and you'll have a spill or something of
18 this nature. If you do, the first instruction is "Get

19 to the sink and wash now. Don't wait." If it was a
20 material that was volatile and there was a potential
21 for inhalation, we conducted the work in a hood so as
22 to minimize or prevent - at least minimize the
23 possibility of inhalation.

24 Q. And a hood would be like an exhaust hood?

25 A. Just like a laboratory - any laboratory

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1 hood.

2 Q. Not having been in a lab in many years and,
3 perhaps, jurors not knowing what you mean by the term,
4 could you just elaborate a little bit on what the hood
5 does and accomplishes?

6 A. Well, a hood is a ventilation system in
7 which - with an open door - enclosed all the way
8 around except for the door. And sometimes you'd use -
9 leave - even leave the door down and look what you're
10 doing and - through the glass. But there's airflow
11 passing through all the time so that the flow is away
12 from the person.

13 Q. Okay. And then any of the vapors that come
14 off of the volatile material are exhausted up through
15 the system --

16 A. Yes.

17 Q. -- safely? Okay. All right, sir. Could
18 you continue with your --

19 A. That was the essence of our procedures. You
20 have to look at the possible types of exposure when
21 you're handling a material and take precautions to

22 avoid or minimize it.

23 Q. And if you were working with something where
24 dust could be an inhalation hazard, I suppose you'd
25 also be using the exhaust ventilation system with the

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1 hood.

2 A. That was -- Anything like that would be
3 handled in a hood.

4 Q. Would you allow people to eat in the
5 laboratory?

6 A. No. We did not.

7 Q. And why would that be? Why would you not
8 want that, sir?

9 A. You never know what contamination might have
10 occurred.

11 Q. Something could get on the food and --

12 A. It was just a precautionary measure.

13 Q. Okay. Intended to keep people from
14 ingesting any of the possible toxic materials that
15 might have been in the lab, right?

16 A. Yes.

17 MR. PIERCE: Objection to the
18 form.

19 A. Or if you would happen to have your hands
20 contaminated and you didn't know it, it could
21 contaminate your food.

22 Q. All right, sir. What about protection
23 from - other protection from ingesting any toxic
24 material? That would be another way to get it into

25 the body, I suppose. What would you do for that?

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1 A. Well, with respect to industrial chemicals,
2 ingestion is a very rare type of exposure.

3 Q. Okay. Did the people working in the lab
4 wear any kind of special protective clothing or gloves
5 or that sort of thing?

6 A. We did not unless there was something very
7 special because as you -- If you handle an unknown
8 material, you do not know necessarily or you don't
9 know, period, whether it might deteriorate a
10 protective piece of equipment and thereby cause an
11 exposure that people didn't realize that they had.
12 Protective equipment is only for emergency purposes or
13 for very special applications.

14 Q. But your laboratory technicians would at
15 least be wearing some sort of lab coat, wouldn't they?

16 A. We'd wear a lab coat, yes.

17 Q. Okay. And I guess those lab clothes were
18 laundered at the plant and not taken home --

19 A. That's right.

20 Q. -- to clean. Okay. Did you have any kind
21 of respiratory protective equipment that you'd use in
22 the lab when working with these toxic materials or
23 suspected toxic materials?

24 A. I don't recollect using respiratory
25 protection in our lab.

1 Q. You mentioned having had no lost-time
2 injuries in your lab force or staff over the years.
3 What did you mean by "lost-time injury"?

4 A. An injury that prevents someone from coming
5 to work.

6 Q. Okay. I suppose over the years you would
7 have had some injuries and exposures that occurred
8 that didn't require people to take off time from work,
9 though.

10 A. I think we had one or two.

11 Q. So, over all those years you were able to
12 limit the exposures - the unintended exposures - to
13 just one or two?

14 MR. PIERCE: Objection to the
15 form. He did not speak about
16 unintended exposures.

17 Q. Well, would you say the exposures were
18 intended, Dr. Rowe, the one or two? Is that what you
19 meant?

20 A. I'm sorry. I can't hear you.

21 Q. Well, you said you had one or two --

22 MR. PIERCE: It did not deal with
23 exposures.

24 Q. You said you had one or two exposures over
25 the years where people didn't have to take off time

1 from work.

2 MR. PIERCE: Objection to the
3 form, to the mischaracterization of the
4 earlier testimony.

5 (By Mr. Blanks)

6 Q. Did I misstate what you told us?

7 A. No. I don't think -- I was just trying
8 to -- The only one that was ever serious was a - was a
9 person who was handling a bottle and there was -- It
10 was contaminated around the neck, and he got his
11 fingers in it. And before he got burnt, he had sore
12 fingers.

13 Q. Yes, sir. Okay. And my --

14 A. We had that happen a couple - two or three
15 times but very rarely.

16 Q. So, over a, roughly, 30-year period when you
17 were working with or supervising the laboratory, the
18 toxicology lab at Dow, handling a large number of
19 materials of even extreme toxicity, you were able to
20 control the exposures to these materials to just a few
21 incidents? Is that the case?

22 A. I -- That -- Fair representation.

23 Q. Okay. And what do you attribute that very
24 good rate of exposure or controlling exposures to,
25 Dr. Rowe? How do you account for that outstanding

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1 record of protecting the people working in the lab?

2 A. I'd have to think it was the training that
3 we gave our people and our surveillance of it.

4 Q. And their use of the proper procedures as

5 they were taught to do, correct?

6 A. I guess that would be the answer.

7 Q. Okay. Do you know, sir, approximately how
8 many cases of occupational diseases at Dow that you
9 ever learned of?

10 A. I don't know.

11 Q. Do you recall, Dr. Rowe, that you ever
12 became aware of any cases of occupational disease -
13 diseases among Dow workers?

14 A. Yes.

15 Q. Would that have been in the Sixties or
16 later?

17 A. I don't know the time frame.

18 Q. What kind of occupational diseases did you
19 learn of?

20 A. The only ones I recall were dermatological
21 problems.

22 Q. Would reports of these come to you from the
23 medical department, sir?

24 A. Well, I don't know whether they came
25 initially from the medical department or whether

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1 somebody was in trouble called up to see what - what
2 was going on, if we knew anything about it.

3 Q. Okay.

4 A. It could have come from any place.

5 Q. Was it the routine or the policy at Dow to
6 inform the industrial hygiene department about
7 instances of occupational disease in the workers or

8 former employees?

9 MR. PIERCE: At any time during
10 Dr. Rowe's career?

11 MR. BLANKS: Any time.

12 A. I'm not aware of any fixed policy, but I
13 would expect it to have been general practice.

14 (By Mr. Blanks)

15 Q. Would you agree that that is an important
16 thing for industrial hygienists to know of, whether or
17 not there have been occupational diseases develop in
18 the work force?

19 A. Well, certainly.

20 Q. Hasn't Dow recognized since the - since the
21 Forties at least that people working in heavy dust
22 concentrations should wear respiratory protection,
23 Dr. Rowe?

24 A. Would you restate that.

25 Q. Yes, sir. I asked you, has not Dow

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1 recognized since the early Forties at least that
2 workers working in heavy dust concentrations should
3 wear respiratory protection?

4 MR. PIERCE: I'd like to object to
5 the form of the question based on the
6 ambiguity of the term "heavy" and not
7 knowing what you consider heavy.

8 A. Well, the use of respiratory protection, as
9 a general practice, was for purposes of emergency
10 situations or those which were temporarily awaiting

11 engineering change or if something was going to be
12 done once or something of this nature where it would
13 not be practical to spend weeks designing something if
14 it were going to be a one short time potential
15 exposure. Otherwise, basically it was as an emergency
16 situation when we used protection.

17 Q. Okay. And a situation that was a long-term
18 or repeat condition that generated heavy dust such
19 that respirators would be mandatory would be a
20 situation that called out for engineering controls or
21 at least the consideration of them to reduce that dust
22 level down, wouldn't it?

23 A. Well, I just tried to say that if this was a
24 long-term effect or problem, our policy generally, as
25 far as I know, was not to use protective devices.

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1 Q. But to solve the problem --

2 A. Solve the problem.

3 Q. Okay. But my original question, Dr. Rowe,
4 was: Don't you agree that even back in the early
5 1940's that Dow recognized that people working where
6 there are heavy fumes or dust should be required to
7 wear respirators to protect them?

8 MR. PIERCE: Asked and answered.

9 A. I don't know.

10 Q. Do you know if there ever came to be a time
11 when Dow recognized that need?

12 A. I don't know.

13 Q. Certainly you would agree that that would be

14 appropriate if one were working where there was heavy
15 fumes or dust that you should wear respiratory
16 protection.

17 MR. PIERCE: I think Dr. Rowe has
18 explained his position on this in great
19 detail.

20 But go ahead.

21 A. I would say it would determine - it would be
22 more likely to be influenced by the nature of the
23 dust.

24 Q. What does -- As a toxicologist, sir, what
25 does "heavy dust" mean to you?

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1 A. I don't know the term.

2 Q. All right. Would the term describing -
3 "heavy fumes or dust" mean anything to you?

4 A. I don't know the term.

5 Q. Makes no sense?

6 A. I don't know.

7 Q. Well, I --

8 A. I don't know what a heavy dust is.

9 Q. Okay. It's just too vague to tell you
10 anything as a toxicologist or a scientist what's being
11 described: is that what you're saying?

12 A. I've never used the term. I don't know what
13 people, if they wrote it, would mean --

14 Q. Okay.

15 A. -- unless they described it in much more
16 detail.

17 Q. All right, sir. During the 1940's could you
18 tell us who at Dow where you worked had authority to
19 decide whether or not there should be testing for
20 toxic dust in the work environment?

21 A. I don't know.

22 Q. How about in the Fifties, do you know who
23 would have had authority to make that decision?

24 A. Well, if an industrial hygienist observed
25 this, he would - he could, well, make that suggestion.

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1 Q. All right, sir. And that would certainly
2 have been true for the industrial hygienist even in
3 the 1960's, that he would have had the authority to go
4 out and do monitoring, if he cared to, for asbestos
5 dust or silica dust or any other kind of dust?

6 A. He would be expected to initiate appropriate
7 action, I think.

8 Q. Does that mean that the industrial hygienist
9 also, say, in the Fifties would have had the authority
10 to require that workers potentially exposed to a
11 pneumoconiosis-causing dust should be
12 protected - should be given respirators, for example?

13 MR. PIERCE: Are we going to have
14 a level here of exposure or just the
15 vague term "exposure"?

16 I object to the form for
17 vagueness.

18 A. I guess I'd like to have you repeat the
19 question, please.

20 Q. Yes, sir. I was wondering if your
21 industrial hygienist, beginning in 1948 when you first
22 had one, would have had the authority to require that
23 workers potentially exposed to
24 pneumoconiosis-producing dust be given respiratory
25 protection.

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1 MR. PIERCE: Continue the
2 objection.

3 A. No.

4 Q. Who would have had that authority?

5 A. The plant manager.

6 Q. Okay. Would the industrial hygienist have
7 had the authority to require that workers potentially
8 exposed to pneumoconiosis-producing dust be given
9 training about the hazards posed by such dust in the
10 1950's?

11 A. No.

12 Q. Would that have been the plant manager's
13 authority --

14 A. Yes.

15 Q. -- again? And who would have had the
16 authority, Dr. Rowe, to require that workers
17 potentially exposed to pneumoconiosis-producing dust
18 like asbestos or silica be put under a medical
19 surveillance or medical monitoring program in the
20 1950's?

21 MR. PIERCE: Objection to the
22 form; compound question.

23 A. Medical department.

24 Q. Okay. Now, would that be the corporate
25 medical department or the medical department at the

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1 plant level who would have had that authority?

2 A. Either one, I believe.

3 Q. Dr. Rowe, when you were working as a
4 toxicologist, could you do testing on any material
5 that you wanted to investigate; or did someone above
6 you in management have to approve the testing program?

7 MR. PIERCE: Objection to the
8 form; compound question.

9 A. That would depend upon the magnitude of the
10 program.

11 Q. You mean how much it might likely cost to
12 do?

13 A. And whether or not the facilities could be -
14 should be used for that rather than something else.

15 Q. Who would make those kind of decisions? I
16 mean, where did the responsibility lie?

17 A. It was more or less a joint responsibility.

18 Q. Between the toxicologist and the management?

19 A. Or the person responsible for that
20 particular product or manufacturing process or what...

21 Q. Does that mean, sir, that the group in Dow
22 that had the process in which the material was being
23 used or produced would have to approve the cost of
24 doing the toxicology testing on the material before
25 you could undertake it?

1 A. The answer is really "yes and no."
2 Q. Okay. Could you explain?
3 A. If it were -- If we felt that it was some
4 particular situation that we wished to explore, we had
5 a budget at our discretion that we could use and do
6 that. If it were a major project such as a potential
7 foods additive or major product, the product
8 department was responsible for budgeting that work.
9 And those things would be worked out in joint
10 conversation and put into effect, and that would be
11 undertaken at the time. And at times if there were --
12 It would be dependent upon the capacity of the
13 laboratory to handle it. If it was tied up and it
14 couldn't do it, there'd be another way to do it.
15 Q. Okay. And another way to do it might be to
16 contract it out to an outside lab --
17 A. That's true.
18 Q. Can you recall, sir, being refused authority
19 or a budget to investigate some materials that you
20 toxicologists felt ought to be checked out?
21 A. The very first one that I had anything to do
22 with was a study of methyl bromide.
23 Q. Was that one where you were denied authority
24 or funding to proceed?
25 A. No. It was in the early days when - before

1 we had as big a laboratory as we had and we had - were
2 developing the capacity to do inhalation work. And
3 that was a material that we chose to study.

4 Q. Can you think of any that you proposed to
5 study where you were told, "No, you can't do that,"
6 or, "No, we're not" - "we don't want to pay for that"?

7 A. That was a very rare occasion, if ever. If
8 we felt that there was a serious need where we had no
9 individual authority, we could take our case to higher
10 authority and get authorization to proceed. But I
11 don't know of anything -- I can't think of anything
12 where we were told that we couldn't do it.

13 Q. But you did have access to higher levels of
14 management if you scientists thought that there was a
15 potential problem that ought to be investigated: is
16 that the case?

17 A. That's right.

18 Q. Was that always the case at Dow during your
19 years --

20 A. Always the case.

21 Q. So, there's no question, then, Dr. Rowe,
22 that, as far as the toxicology department was
23 concerned, if there was a serious matter to be
24 investigated you always had or could get the resources
25 to do the investigation or have it done?

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1 A. I do not recall any that that - other
2 than -- I do not recall any situations where that was

3 not possible to do.

4 Q. Okay. Do you believe, Dr. Rowe, that a man
5 has to have a massive severe long-term exposure to
6 asbestos in order to get an asbestos-related disease?

7 A. I don't know.

8 Q. Did you ever have an opinion or an
9 understanding about that?

10 A. I -- I have opinions, but I don't know.

11 Q. What would be your opinion about that?

12 MR. PIERCE: I'd like to just
13 interject at this time, so that we all
14 recall, that the witness is here as a
15 fact witness. He is not here in an
16 expert capacity. He is not here to
17 give opinion testimony.

18 I'm not going to prevent that from
19 happening, but I'd like you just to
20 take note of that so - and to try to
21 move away from areas outside of his
22 purpose here.

23 Q. Well, let me --

24 MR. PIERCE: Go ahead.

25 Q. Let me make that easier. Could you tell us,

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1 sir, what your opinion was about the severity and
2 duration of exposure to asbestos required to cause
3 asbestosis during any of the years you worked for Dow?

4 A. Are you asking again for my opinion?

5 Q. Yes, sir.

6 A. I do not know whether it always takes a long
7 duration exposure or whether a few massive or a single
8 massive exposure to do this. It depends upon the
9 ability of the lungs to clear material. It depends
10 upon a lot of environmental situation -- I do not
11 know. I'm not an expert in toxicology of asbestos.

12 Q. All right, sir. I understand you say you do
13 not know. I was wondering, though, what was your
14 opinion on that during any of the years that you were
15 working for Dow either as a toxicologist or as the man
16 in charge of industrial hygiene.

17 MR. PIERCE: I'd like to once
18 again interpose an objection and remind
19 you that you went over this at quite
20 some length and Dr. Rowe mentioned
21 several times yesterday that that is
22 not a field in which he feels
23 comfortable or has an expertise in.

24 But go ahead.

25 MR. ALMQUIST: And I want to

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1 impose another objection that that
2 question was just asked and answered by
3 the doctor when he said he didn't know.

4 Q. If you have an opinion, sir, or had an
5 opinion back during that time frame, that's what I'd
6 like you to express.

7 A. My opinion with respect to things of that
8 nature was that if they were maintained within

9 Government regulations or Government recommendations
10 that that was an adequate precautionary measure.

11 Q. Okay. Have you changed your view about that
12 over the last 15 years since you've left Dow?

13 A. I have changed my opinion perhaps sometimes
14 on things that I know something about; otherwise, I do
15 not argue the issue.

16 Q. Was that -- Was that a "yes" or a "no"?

17 MR. PIERCE: It was an answer to
18 your question.

19 A. I don't know. I don't know that I can
20 answer your question "yes" or "no."

21 Q. Do you know, Dr. Rowe, that Dow employees
22 have in fact - some of them have developed asbestosis?

23 A. I don't know that.

24 Q. Had you ever been -- Have you ever heard
25 that from anyone at Dow?

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1 A. No. I don't believe I have.

2 Q. Was there someone at Dow, sir, that was more
3 knowledgeable than you on mineral dusts such as
4 asbestos or silica during the years you worked there?

5 A. I don't know.

6 Q. Do you think there was anyone at Dow during
7 the years you worked there who was knowledgeable about
8 the health hazards of mineral dust like silica or
9 asbestos?

10 A. Well, I think we're all somewhat familiar
11 with it from the stand -- But we did not do any

12 research ourselves on this with respect to
13 occupational disease. We -- Through the medical
14 department, my understanding was that they were
15 surveying the people by - with medical procedures.
16 And outside of that, I do not know.

17 Q. Okay. You can't direct us to any person
18 from your - that you worked with at Dow who you
19 believe is still living whom you regarded as having
20 more knowledge about asbestos or silica health hazards
21 than you?

22 A. Well, I - I have said before Harold Hoyle
23 was the person most knowledgeable, that I know of.

24 Q. All right, sir. Can you tell us, Dr. Rowe,
25 about what kind of warnings Dow gave its own workers

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1 potentially exposed to asbestos about the health
2 hazards of asbestos during the Forties?

3 A. I don't know.

4 MR. PIERCE: I'm going to object
5 to the form of the question. It
6 assumes facts not in evidence.

7 A. I don't -- I don't -- I don't recall. I
8 don't -- I don't know.

9 Q. Would that -- Would you recall for what was
10 done to warn these workers during the Fifties?

11 A. No.

12 Q. Or the Sixties?

13 A. No.

14 Q. How about the Seventies?

15 A. No.

16 Q. How about workers potentially exposed to
17 free silica in the air?

18 MR. PIERCE: Objection to the form
19 of the question, if that is a question.

20 MR. BLANKS: Well, there was a
21 comma there; and I was in mid clause.

22 MR. PIERCE: I'm sorry to
23 interrupt you at a comma.

24 (By Mr. Blanks)

25 Q. Do you know, sir, if Dow gave any warnings

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1 to workers potentially exposed to free silica --

2 MR. PIERCE: Objection.

3 Q. -- at their plants?

4 A. I do not know, personally.

5 Q. Okay.

6 A. I would assume that that was the case, but I
7 do not know.

8 Q. You would expect that that would have been
9 done in the Forties?

10 A. Yes.

11 Q. Would you expect that warnings would have
12 been given to workers potentially exposed to asbestos
13 about its health hazards in the Forties?

14 MR. PIERCE: Objection.

15 A. I would expect so.

16 Just a minute. In the Forties?

17 Q. Yes, sir.

18 A. I'm not sure.
19 Q. How about in the Fifties?
20 A. I don't know.
21 Q. Did the folks working in your laboratories
22 who handled asbestos get any kind of warnings about
23 its health hazards?
24 A. Not to my knowledge.
25 Q. As you don't know about any warnings given

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1 to Dow employees potentially exposed to asbestos or
2 silica, I wonder - you probably wouldn't know about
3 any warnings that might have been given to
4 contractors.
5 A. I do -- I have no knowledge.
6 Q. Okay. Did you, yourself, ever recommend,
7 Dr. Rowe, that warnings and training be given to
8 workers potentially exposed to asbestos at Dow?
9 A. I don't recall any.
10 Q. How about exposures - possible exposures -
11 to free silica, did you ever recommend that warnings
12 be given about that possibility?
13 A. Not that I recall.
14 Q. Did Dow tell workers at its plants during
15 any years, Dr. Rowe, that exposures below the
16 guidelines were safe?
17 A. I don't -- I can't answer that. I don't
18 know.
19 Q. Do you know who, if anyone, ever recommended
20 that all of the asbestos insulation in the Dow plant

21 should be removed?

22 MR. PIERCE: Objection to the
23 form; assumes facts not in evidence.

24 A. I don't know.

25 Q. Do you know whether any effort was begun

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1 while you were at Dow to, in fact, remove all the
2 asbestos-containing insulation?

3 A. I didn't -- I do not know.

4 Q. Dr. Rowe, do you think that it would be
5 appropriate to tell workers being exposed below the
6 guideline levels that it was safe for them to work in
7 airborne dust at those concentrations?

8 MR. PIERCE: I'm going to object
9 on ambiguity.

10 But go ahead.

11 A. I -- I don't know how much was told in that
12 respect. My feeling was that if the exposure levels
13 were within so-called acceptable levels, the issue was
14 not pursued.

15 Q. But do you think that it would have been
16 appropriate or proper to tell people working at below
17 or near and below the guideline levels that they were,
18 in fact, safe from any risk of disease?

19 MR. PIERCE: Objection to the form
20 of the question. It's compound and
21 also asked and answered.

22 A. I think it's always desirable to...

23 MR. BLANKS: I see Mr. Pierce has
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24 yanked the microphone out and...
25 THE WITNESS: Something came

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1 loose. I don't know how it's supposed
2 to go on there.
3 MR. PIERCE: If there is a record,
4 for the record, certainly Mr. Pierce
5 didn't do it.
6 THE WITNESS: Thank you.
7 MR. BLANKS: Supposing counsel
8 must have done it from over here.
9 (By Mr. Blanks)
10 Q. Sorry, Dr. Rowe. You were saying that
11 you...
12 A. Excuse me.
13 Q. You were in the middle of an answer when you
14 discovered the microphone dangling.
15 MR. PIERCE: Perhaps for
16 everyone's -- Could we reread the
17 question?
18 THE WITNESS: Maybe so.
19 THE REPORTER: "QUESTION: But do
20 you think that it would have been
21 appropriate or proper to tell people
22 working at below or near and below the
23 guideline levels that they were, in
24 fact, safe from any risk of disease?"
25 And then there was an objection.

1 "MR. PIERCE: "Objection to the
2 form of the question. It's compound
3 and also asked and answered.

4 "ANSWER: I think it's always
5 desirable to..."

6 And then...

7 MR. PIERCE: And then the
8 microphone.

9 THE REPORTER: Right.

10 A. I think it's always desirable to inform
11 people of potential hazards. In the earlier years I
12 did not think that was necessarily done as thoroughly
13 as it has in the last maybe 20 years.

14 (By Mr. Blanks)

15 Q. Okay. Do you recall, Dr. Rowe, whether or
16 not contractors from time to time would do work in
17 your laboratory areas?

18 A. I had nothing to do with contractors. I
19 don't know what they were doing.

20 Q. Well, did you ever see non-Dow employees
21 doing maintenance work or remodeling work or any kind
22 of building work in your laboratories?

23 A. Not that I recall.

24 Q. So, if any of that work was done, it would
25 have been done by Dow employees?

1 A. I don't know. I say I don't know. There
2 may have contractors that I didn't know they were
3 contractors.

4 Q. Well, let me ask you this: If people from
5 outside the lab came in to do some work, whether it
6 was to modify some plumbing or paint the ceilings or
7 what have you, did they get any kind of warning or
8 instructions from folks in the lab about potential
9 hazards in the lab - in the lab environment?

10 A. I can't think of any particular situation
11 where anything like that would have been required.

12 Q. You mean if somebody were coming in to do
13 some repair work or some construction work, all of the
14 laboratory materials and the toxic materials would be
15 put away and out of the way safe where there wouldn't
16 be any possibility of exposure?

17 A. We certainly wouldn't leave them out where
18 they were likely to be encountered.

19 Q. Okay. Do you recall, sir, from any of your
20 biochemical medical safety meetings whether there were
21 discussions about the health hazards of asbestos or
22 silica or benzene that might be encountered in Dow
23 premises?

24 MR. PIERCE: At any time?

25 MR. BLANKS: Any time.

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1 A. Well, you mentioned a number of compounds.
2 And I'm sure that many compounds were discussed, but I
3 don't remember which ones.

4 (By Mr. Blanks)

5 Q. Would you remember asbestos being a topic?

6 A. I do not remember discussing asbestos.

7 Q. How about free silica dust?

8 A. I don't remember silica dust.

9 Q. What about benzene?

10 A. Yes.

11 Q. What time frame would that have been in?

12 A. I don't remember.

13 Q. Would you agree, Dr. Rowe, that when a -
14 when you have a pneumoconiosis-producing dust in the
15 air in a worker's breathing zone that he will, in
16 fact, inhale some of that dust so long as he
17 breathes?

18 MS. KETAI: Objection.

19 THE REPORTER: Excuse me.

20 MS. KETAI: Objection; calls for
21 speculation, misstating facts not in
22 evidence.

23 A. I guess one would have to assume that if
24 it's in the air that he's breathing he would have
25 some.

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1 Q. And wouldn't you agree that the longer the
2 man works in an asbestos or silica dust environment
3 then the more dust or fibers he would breathe in?

4 MR. PIERCE: Objection to the
5 form. Some of the terminology used is
6 vague and ambiguous.

7 MR. BLANKS: Like "environment"?
8 MR. PIERCE: You want me to phrase
9 the question for you? That's not my
10 purpose here. But you should -- Well,
11 I'm sure you're quite adequate and
12 capable of phrasing a question
13 properly.
14 MR. BLANKS: Object to the
15 compliments.
16 (By Mr. Blanks)
17 Q. Let's try again. Yes, sir. Dr. Rowe,
18 wouldn't you agree that the longer a man works in a -
19 in an environment where there is airborne asbestos or
20 silica in his breathing zone, then the more of that
21 particulate he is actually going to breathe into his
22 lungs?
23 MR. PIERCE: I am going to
24 continue the objection. I think that
25 question is unintelligible as asked.

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1 It makes assumptions such as that there
2 is any place in which there are no such
3 fibers and suggests by implication that
4 we're dealing with certain level when
5 no levels are mentioned within the
6 question, making the question almost
7 impossible to answer.

8 But go ahead.

9 A. Well, certainly the - a more prolonged

10 exposure to a given condition is - would be expected
11 to produce a greater accumulation, providing that the
12 level is higher than the clearance potential of the
13 respiratory tract, if you're talking about dust. And
14 I don't know just where that comes, but the
15 respiratory tract does have a capability - capacity to
16 clear itself of foreign bodies.

17 (By Mr. Blanks)

18 Q. To some extent.

19 A. That's the best answer I could give you.

20 Q. And, likewise, the higher the concentration
21 in the air of the respirable asbestos or silica, then
22 the more fiber or dust the man would be breathing in,
23 correct?

24 A. Well, I'd suspect that that would depend
25 somewhat on particle size; but generally that's a

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1 safe - we'd have to - we'd have to assume that that
2 was correct.

3 Q. And wouldn't you agree that even today it's
4 not known exactly how much asbestos fiber a man can
5 inhale and still be a hundred percent free of risk for
6 an asbestos-related disease?

7 A. I don't know.

8 Q. Certainly when you were with Dow, you didn't
9 know just how much asbestos fiber one could breathe
10 and be a hundred percent free of the risk of an
11 asbestos --

12 A. I don't know.

13 Q. -- related disease, did you, sir?

14 A. I don't know.

15 Q. You don't know whether you knew when you
16 were at Dow?

17 MR. PIERCE: I think we've spent
18 enough time --

19 A. I don't -- I don't --

20 MR. PIERCE: Excuse me. Let me
21 just interpose this objection. This
22 has been asked and answered, plus you
23 have investigated both today and
24 yesterday the state of knowledge in
25 respect to asbestos of this particular

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1 witness.

2 But go ahead.

3 A. I guess I'd have to ask you to repeat.

4 Q. I think I asked you isn't it true that when
5 you were with Dow you did not know then nor did Dow
6 know exactly how much asbestos fiber a man could
7 breathe and inhale and still remain a hundred percent
8 free of the risk of getting an occupational disease
9 from it.

10 MR. PIERCE: I'd like to now add
11 to the objection to what Dow did or
12 did not know.

13 But go ahead and answer the
14 question.

15 A. I don't know.

16 Q. Isn't it true, Dr. Rowe, that during the
17 late Thirties, the Forties, the Fifties, the Sixties,
18 even into the Seventies while you were at Dow that Dow
19 had no scientifically documented conclusive findings
20 that exposures at any guideline level to asbestos dust
21 would be a hundred percent safe and free of risk of
22 disease? Did it?

23 MR. PIERCE: I'm going to object
24 to the form. You're asking this
25 witness as to what Dow knew rather than

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1 what he, V. K. Rowe, knew.

2 A. I don't know.

3 Q. That is to say you know of no such
4 scientifically documented conclusive evidence that
5 exposures at any guideline level would be a hundred
6 percent safe?

7 A. I don't know.

8 Q. Would that also be true as regards silica
9 exposures at any threshold limit value or guideline
10 level?

11 A. I don't know.

12 MR. PIERCE: Might what also be
13 true?

14 Q. That you don't know of any scientifically
15 documented conclusive evidence that exposures at the
16 guideline levels to silica are a hundred percent free
17 of the risk of occupational disease.

18 A. I don't.

19 MR. ALMQUIST: We've been going
20 about an hour.

21 MR. BLANKS: Okay.

22 MR. ALMQUIST: Let's take a
23 short...

24 (AT THIS TIME A BRIEF RECESS WAS
25 TAKEN, AND THE PROCEEDINGS THEREAFTER

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1 RESUMED AS FOLLOWS:)

2 (By Mr. Blanks)

3 Q. Dr. Rowe, in your work at Dow can you tell
4 us how many cases there were that you did have
5 scientifically documented conclusive findings that
6 exposures at a T.L.V. or guideline level were
7 100 percent safe?

8 MR. PIERCE: I'm going to object
9 to the ambiguity in that question
10 and to the premise that you could
11 somehow cull a negative into the
12 terms of nondisease.

13 But go ahead and answer it to the
14 best of your ability.

15 A. I don't think you ever have a situation that
16 is a hundred percent safe.

17 Q. So, is that to say, then, that for the
18 chemicals and materials that people worked with at Dow
19 that could cause disease that, as far as you were
20 concerned, you could never know that you were a
21 hundred percent free of risk in handling those

22 materials?

23 MR. PIERCE: I'm going to object

24 to the question as being ambiguous.

25 You mean only materials at Dow or

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1 materials - all chemical materials or

2 what?

3 I find the question ambiguous, but

4 go ahead and answer it.

5 MR. ALMQUIST: It's also overly

6 broad.

7 A. I'll answer the question this way: In no

8 circumstance - no circumstance - are you a hundred

9 percent safe. You're not a hundred percent safe

10 sitting here.

11 Q. So, in no circumstance of handling an

12 industrial material is the worker a hundred percent

13 safe, in your experience?

14 MR. PIERCE: Asked and answered.

15 A. Philosophically there is no such thing as

16 absolute safety.

17 Q. Okay. Were there any materials that were

18 used at Dow premises over the years for which you had

19 scientifically documented conclusive findings that a

20 particular exposure level would cause disease?

21 A. Would you please restate that.

22 Q. Yes, sir. We've gone to the opposite

23 extreme here. Can you recall any materials that were

24 used at Dow during the years you were there for which

25 you had scientifically documented conclusive findings

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1 that a particular exposure level to that material
2 would cause occupational disease?

3 A. Yes. I think so.

4 Q. What would some of those be?

5 A. I don't recall, but certainly dermatitis was
6 one of the situations that is an occupational
7 disease. Some people are more susceptible to
8 irritation than others. We've had situations where
9 we've had dermatitis. We've had people ill from
10 exposures. As I mentioned earlier, carbon
11 tetrachloride. We had people that were ill.

12 Q. So, those would be situations where you
13 actually had the scientifically documented conclusive
14 findings that a particular exposure level would result
15 in disease?

16 MR. PIERCE: I'd like to object to
17 the form. The question has been asked
18 and answered.

19 MR. ALMQUIST: And I also object
20 to the form because it doesn't specify
21 whether you're talking about it caused
22 disease in a specific individual or
23 every individual exposed at that
24 level.

25 A. I have trouble with your word "disease." I

1 would say "ill effects," "adverse effects."

2 Q. Would you call, let's say, asbestos-related
3 lung cancer just an adverse effect of exposure to
4 asbestos?

5 A. I would call it "an adverse effect."

6 Q. Some adverse effects can be fatal, can't
7 they?

8 A. You'll have to describe an adverse - what's
9 the character of the adverse effect. But any adverse
10 effect is an effect. It may be severe. It may be
11 mild. It may be transitory.

12 Q. Or terminal.

13 MR. PIERCE: You want to let

14 Dr. Rowe answer his question, please?

15 A. I guess it's the connotation of words that
16 bothers me.

17 Q. All right, sir. Isn't it a little bit
18 euphemistic to speak of a terminal disease as being
19 merely an adverse effect?

20 MR. PIERCE: Objection to the
21 form; argumentative.

22 A. Not if it's characterized.

23 Q. Characterized how?

24 A. Well, you define it as an adverse effect.

25 Well, then how adverse is it?

1 Q. I see. Okay. Part of your job as a

2 toxicologist was to recommend to management what to do
3 about materials' health hazards. Isn't that true?

4 A. Yes.

5 Q. Did you believe, Dr. Rowe, as a toxicologist
6 that you had to wait for scientifically documented
7 conclusive findings before you should make a
8 recommendation to management?

9 A. I don't know that we ever did that.

10 Q. What would be a sufficient level of
11 information or confidence to cause you to make
12 recommendations to management about health effects or
13 precautions to be used with materials at Dow?

14 A. We made recommendations to management all
15 the time on the basis of our toxicological
16 investigations.

17 Q. Sometimes you'd do it on the basis of
18 preliminary Class I-type investigation.

19 A. Certainly.

20 Q. Sometimes those studies would be followed by
21 more intensive investigations?

22 A. That's right.

23 Q. But it wasn't the practice to wait until you
24 had absolutely conclusive evidence about the harmful
25 effects of a material before you would pass that on to

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1 the management or people in the plants, was it?

2 A. Of course not.

3 Q. Do you think that would be improper from a
4 scientific standpoint to delay conveying information

5 about hazards until you had conclusive proof?

6 MR. PIERCE: Object to the form;
7 ambiguous and vague.

8 A. I didn't say that we waited till we had
9 conclusive proof. I said if we had information that
10 suggested an adverse effect might develop with new
11 materials and our toxicological studies indicated that
12 we should control exposures to such level or if we
13 didn't have quantitative data to the best of our - our
14 best guess.

15 Q. I didn't mean to imply that you did await
16 conclusive proof. I was meaning -- I'm sorry. I
17 apologize. I was meaning to ask you whether you think
18 it's reasonable from a scientific standpoint to wait
19 for conclusive proof about health hazards before
20 conveying the information you do have that could help
21 to protect your company, your employees, people
22 working in your plants. That was the question. Would
23 it be proper to delay --

24 MR. PIERCE: I'd like to continue
25 the objection. Especially terminology

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1 used like "proper," scientifically,"
2 and "conclusive proof" are ambiguous
3 in terms and very difficult or
4 impossible to answer, making the
5 question unintelligible to answer.

6 But go ahead, please, sir.

7 A. Our whole purpose in our - in our work was

8 to prevent occupational disease from occurring.

9 Q. Yes, sir?

10 MR. PIERCE: Is there a question?

11 Is "Yes, sir" a question?

12 A. Isn't that the answer to your question? We
13 did not wait until somebody was laying flat out on the
14 slab before we did anything.

15 Q. Okay. And you don't do the best job of
16 preventing the occupational diseases by waiting until
17 you have scientifically documented conclusive findings
18 before you react, do you, sir?

19 MR. PIERCE: I'd like to object
20 again to the continuing use of
21 "scientifically "conclusive" or
22 whatever findings they are since
23 they're not amenable to
24 interpretation.

25 A. Well, that would -- I would have to

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1 interpret your statement there as indicating that -
2 that we did not practice preventive measures and alert
3 medical people and others as to the hazards as best we
4 could judge them. We certainly didn't expose people
5 and then go back to the animal lab to find out except
6 in rare systems or situations where something
7 unexpected happened. And then we would go back to the
8 laboratory and try to find out why and how come. But
9 our charge was to prevent occupational health hazards.

10 Q. And you would best accomplish that charge by

11 responding to perceived hazards as soon as you had
12 some information to work with as opposed to waiting
13 until you had conclusive findings? That's the
14 question, Dr. Rowe.

15 MR. PIERCE: Object to the form.
16 Completely vague and ambiguous unless
17 you spell out what you mean by "some
18 findings."

19 A. I guess -- May I ask, what do you mean by
20 "conclusive findings"?

21 Q. Well, I suppose something that would be
22 scientifically documented as to which you, as a
23 scientist, would find it to be conclusive.

24 A. Well, that's looking at things after the
25 fact. We're talking about preempting these things in

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1 a preventive mode.

2 Q. That was your approach?

3 A. Yes.

4 Q. That was, you still believe, the proper
5 approach?

6 A. Yes.

7 Q. Prevent the problems before you get to the
8 point where you have many documented conclusive cases
9 of occupational disease that prove there was a
10 problem. Would you agree with that?

11 A. With our best judgment, we tried to achieve
12 that end.

13 Q. All right, sir. You said in our discussions

14 yesterday that people you refer to as "friendly
15 scientists" work with facts, not fantasy. Do you
16 remember that?

17 A. Yes.

18 Q. How many facts did Dow need before it felt
19 compelled to warn people working in its plants about
20 their risk to occupational health hazards like
21 asbestos or silica?

22 MR. PIERCE: Objection to the
23 form; ambiguous and vague and asks for
24 Dr. Rowe to present the thinking of
25 The Dow Chemical Company.

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1 A. Well, certainly you have to have some facts
2 before you can predict.

3 Q. All right, sir. Would you agree that
4 somebody seeking to prevent occupational disease in a
5 workplace ought to do some investigation to obtain
6 facts about suspect materials used in the plant the
7 way that you did in the tox. lab and in your other
8 work?

9 A. I don't know any other way to approach it.

10 Q. Okay. And obtaining those facts that will
11 allow you to predict hazards would include, as we
12 discussed yesterday, going to the published literature
13 for the - to obtain the experience of others as
14 reported in professional journals, correct?

15 A. To look at the literature, if there's any -
16 if it's available.

17 Q. And that if you failed to go and investigate
18 the literature, knowing that you had a suspected
19 material in your plant where people could be or were
20 being exposed to it would not be a responsible
21 approach, would it, sir?

22 MR. PIERCE: Objection to the
23 form. That's too vague.

24 In any instance under any
25 circumstance?

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1 A. I don't -- I don't think anyone can be
2 totally informed about the literature. Particularly
3 in the days past, literature was hard to find and was
4 not accessible like it is today.

5 Q. There weren't computer data bases to go to
6 and such as that?

7 A. We didn't have data bases to go to --

8 Q. Okay.

9 A. -- and computerized information centers and
10 so forth.

11 Q. You would have gone to the -- probably to the
12 trade journals, your professional journals, for your
13 own professional associations and the medical
14 associations, --

15 MR. PIERCE: Objection to the
16 form; leading.

17 Q. -- would you not?

18 A. Those were our usual sources of literature
19 information.

20 Q. Industrial hygiene association journals.
21 The different sources we discussed yesterday. Would
22 you agree?

23 A. Yes.

24 Q. And such things as the Chemical Abstracts,
25 which I suppose you used from time to time.

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1 A. From time to time.

2 Q. Okay. So, do you think, Dr. Rowe, that even
3 in the 1940's it would have been reasonable for a
4 company that had a toxic material or suspected toxic
5 material in its plants and that - one that workers
6 were being exposed to, to ignore the published
7 literature and to not make any effort to investigate
8 the health hazards that might have been reported in
9 the literature?

10 MR. PIERCE: I'm forced to object
11 to that question as being highly
12 ambiguous, nonspecific as to facts and
13 circumstances, making it very, very
14 difficult, if impossible, to answer.

15 Do your best.

16 A. I did not know that literature was ignored.

17 Q. Well, now, Dr. Rowe, just because I asked
18 you something doesn't mean I'm implying that you did
19 it or Dow did it. I'm just asking you what your view
20 was from that time period as to whether it would be
21 reasonable to ignore the literature. I'm not saying
22 that you did it. I'm not meaning to suggest you did

23 it.

24 A. No. It's -- It's -- It's reasonable to use
25 the literature that you can find and limited, perhaps,

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1 on your capacity and your ability to do so. But
2 certainly don't ignore facts.

3 Q. Dr. Rowe, do you recall making any kind of
4 presentations at any time to the board of directors of
5 Dow on a health- or safety-related matter?

6 A. Yes.

7 Q. What would be -- What would be the
8 occasion? What was it?

9 A. I don't know. Don't remember.

10 Q. Were there several?

11 A. Yes.

12 Q. Does this mean you were, like, periodically
13 invited to talk to them and bring them up to date on
14 current topics or --

15 MR. PIERCE: Object -- Objection
16 to the form; leading.

17 MR. BLANKS: Leading? I get to
18 lead. You're the one that doesn't get
19 to lead.

20 A. It was not -- It was not on a periodic or
21 scheduled basis except on - at various times certain
22 of the board were interested in what we were doing as
23 part of their job, I suppose, to know what's going on.

24 Q. All right, sir. So, you had access to the
25 board and were from time to times invited there to

1 speak to them about things of interest to them and to
2 you?

3 A. Yes.

4 MR. PIERCE: I'd like to object to
5 mischaracterization of certain parts of
6 his answer.

7 Go ahead. He already answered it;
8 so, let's go forward.

9 Q. Do you know, sir, of any destruction at Dow
10 of industrial hygiene records?

11 A. I'm sorry. I didn't hear it, I guess.

12 Q. Yes, sir. I wonder if you were aware of any
13 destruction of industrial hygiene records that was
14 done at Dow before you left the company.

15 A. Not to my knowledge. I don't know anything
16 about anything like that. I've never heard of it.

17 Q. Have you heard of any -- Okay. You've never
18 heard of any destructions even since you left Dow --

19 A. No.

20 Q. -- of such records? Okay. How about
21 toxicological records, reports, and such?

22 MR. PIERCE: Objection to the form
23 of the question, --

24 A. Not to my knowledge.

25 MR. PIERCE: -- if that is a

1 question.

2 A. Not to my knowledge.

3 Q. Do you know, Dr. Rowe, whether Dow had a
4 document retention or document destruction program
5 that called for getting rid of documents of a certain
6 age?

7 MR. PIERCE: Objection to the form
8 of the question. It's compound. I
9 think it's editorializing. And it's
10 leading.

11 And if there is a program you
12 wish to ask him about, why don't you
13 just identify it. Go ahead.

14 Q. Do you know, Dr. Rowe, whether Dow adopted a
15 policy to purge its files of old records of any sort
16 to destroy documents from the past while you were
17 there with the company?

18 A. As I recollect, there was a - a program - I
19 can't tell you what time or what - but to clear
20 records of old - or clear the records section,
21 whatever that was, of, I presume, irrelevant
22 material.

23 Q. Did this program affect the departments for
24 which you were responsible or in which you worked?

25 A. I don't -- I'm not aware of it. I don't

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1 know.

2 Q. Did you understand that medical or health

3 and safety records were not included in this program
4 of destroying old records?

5 A. I'm not aware -- I'm not aware. As far as I
6 know, they were not.

7 Q. I see.

8 A. Not destroyed, I mean. Nothing -- Health
9 records, I always thought, were - were there at least
10 for the life of the person.

11 Q. And what about the - all the data gathered
12 by the toxicology lab at Dow, did you understand that
13 that was protected from the document destruction
14 program?

15 A. I --

16 MR. PIERCE: Objection to the
17 form. Objection to the use of the term
18 "document destruction program."

19 MR. ALMQUIST: And I want to join
20 in that objection. There is a
21 characteriza -- Argumentative
22 characterization of the program.

23 Q. You did understand that the --

24 A. Not that I know of.

25 Q. -- program called for the destruction of old

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1 documents, didn't you, Dr. Rowe?

2 MR. PIERCE: I think he has
3 already given you his answer.

4 A. I -- This was out of my area of
5 responsibility. And I don't know what the -- They

6 certainly were not in my files or any lab files, that
7 I know of.

8 Q. Okay. So, the "document police" never came
9 to your lab or offices and said, "Hey, Dr. Rowe, get
10 with the program. You haven't been purging your
11 files," anything like that?

12 MR. PIERCE: Come on, now,
13 Mr. Blanks. Even for you "document
14 police" is a bit much. And, also, he
15 has indicated to you that his documents
16 are retained. So, what else do you
17 need? You're asking for his personal
18 knowledge of his documents. He's
19 telling you about them.

20 Q. How about your department's documents?

21 A. Not to my knowledge.

22 Q. Did you have an opinion while you were still
23 with Dow about the propriety of discarding and
24 destroying old records from the scientists, tox. lab,
25 that sort of thing?

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1 MR. PIERCE: Objection to the
2 form. I think he's indicated to you
3 that his records were not removed or
4 destroyed.

5 A. I had no part of destroying any records.

6 Q. If the program had called for the
7 destruction of the toxicological lab records, is that
8 something that you would have been philosophically

9 opposed to, then, Dr. Rowe?

10 A. I would have objected.

11 Q. All right, sir. Do you know, sir, whether
12 copies of any of the toxicological records at Dow were
13 sent from time to time to the Dow legal department?

14 A. I'm sure reports went to the legal
15 department. I don't know whether all did or not
16 but -- They probably did not, but certainly some did.

17 Q. Okay. Can you recollect any of the sort of
18 situations that would have called for tox. lab records
19 to go to the legal department? What would have been
20 the condition that would have made that happen?

21 MR. PIERCE: I'm going to object
22 to the form of the question because, as
23 worded, it requires speculation.

24 A. There was -- I certainly can't remember all
25 possible situations, but certainly the -- There was a

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1 unit involved in registration of materials with the
2 Government which was in the legal department. And
3 they certainly had all of our reports. If there was a
4 particular issue that the legal department wanted or
5 was interested, they had access to it.

6 Q. Would that also have been true of industrial
7 hygiene documents during the years that you were
8 responsible for industrial hygiene?

9 A. As far as I know.

10 Q. Do you know, sir, whether records from
11 industrial hygiene section were destroyed under the

12 document program at Dow that we've talked about?

13 A. Not to my knowledge.

14 Q. Is that -- Is that something that you would
15 have been philosophically opposed to, as well, the
16 destruction of the old industrial hygiene records and
17 files?

18 A. Yes.

19 Q. Why is that, Dr. Rowe? Why would you be
20 opposed to that?

21 A. I think they would probably contain a lot of
22 history.

23 Q. And what conceivable importance would that
24 be to a scientist, Dr. Rowe?

25 A. It would be the only way, that I know of,

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1 that you could document what the situation was.

2 Q. In the past?

3 A. In the particular plant, certainly. I don't
4 know that -- If they were destroyed, I don't know
5 that.

6 Q. Yes, sir.

7 A. If they were, I don't know it. I don't know
8 that they were.

9 Q. And if they were --

10 A. I doubt if they were but that's...

11 Q. Okay. Have you, yourself, been working on a
12 history of your work or the Dow toxicology program?

13 A. Not for years.

14 Q. You plan to get back to the project?

15 A. I don't -- I don't know whether I will or
16 not.

17 Q. When the OSHA regulations came into effect
18 around 1970, what did Dow do then, that you recall, to
19 change its rules for working with asbestos insulation
20 in its plants?

21 A. I don't know.

22 Q. Do you recall that there were any changes
23 during that time, '70 to '73, in the asbestos handling
24 program?

25 A. I don't recall.

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1 Q. Do you recall that your department or the
2 people that were reporting to you made any proposals
3 that would have come before you to improve the methods
4 for handling asbestos materials in Dow plants?

5 A. I don't remember.

6 Q. Do you recall, Dr. Rowe, whether there were
7 any changes that took place in the toxicology lab in
8 conjunction with the OSHA regulations of the early
9 Seventies as to handling asbestos in the lab?

10 A. No. I don't remember.

11 Q. Were you still working in the lab at all in
12 1970 through '73?

13 A. Very little.

14 Q. Do you know whether Dow ever ceased the use
15 of asbestos in the Gooch crucible filters?

16 A. No, I don't know.

17 Q. They were still using it the last time you

18 wore in the lab, I suppose.

19 A. Don't know.

20 Q. Don't remember?

21 A. No.

22 Q. Did not the -- Didn't the health and safety
23 professionals that worked at Dowell Company share with
24 you the occupational health information that they
25 developed and had at hand?

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1 A. I don't recall. I just don't -- I don't
2 remember.

3 Q. You told us how you had done over the years
4 your toxicology work or industrial hygiene work for
5 subsidiaries like Dowell and including Dowell, I
6 think, yesterday, correct?

7 A. We did a certain amount of - of
8 toxicological work, as we discussed yesterday, I
9 believe; but as far as industrial hygiene, I don't --
10 I just don't recall what the situation was there.

11 Q. Was the case, though, that you did have open
12 communications with the health and safety people
13 working for Dowell between your tox. lab in Midland
14 and their folks in Tulsa or wherever they were? I
15 mean there was a...

16 A. Well, there must be must have. There would
17 be no reason why there wasn't. But I don't recall
18 the - any particular arrangements.

19 Q. But the practice was that there was a free
20 exchange of information between the health and safety

21 professionals in Midland and Tulsa?

22 A. It would depend upon your description of
23 "information exchange," because our reports would not
24 go to Dowell unless they were concerned with materials
25 that Dowell was interested in or asked about.

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1 Q. Okay. But they had access to you - to your
2 department for consultations, I suppose.

3 A. Yes.

4 Q. And they didn't withhold information that
5 they had from the Midland toxicologists or medical
6 departments, to your knowledge, did they?

7 A. I don't know.

8 Q. You wouldn't have expected them to, would
9 you?

10 A. I wouldn't expect them to, but I don't know.

11 Q. I mean, surely the Dowell company operated
12 under the same general philosophy about providing safe
13 workplaces as Dow Chemical did, didn't it?

14 MR. PIERCE: He's given you his
15 answer that he doesn't know. Of
16 course, he can not know what's in the
17 mind of anyone at Dowell.

18 A. I'm not -- I really don't remember what
19 the - even how that operation was conducted down
20 there.

21 Q. Okay. When was it, Dr. Rowe, approximately,
22 that Dow adopted the policy to inform each and every
23 person who would be in a block area of all the known

24 hazards?

25 A. I don't know.

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1 Q. Do you know, sir, whether that ever became
2 the Dow policy?

3 A. No, I don't know.

4 Q. Well, certainly it was the policy in your
5 lab, wasn't it, to inform everybody that would be in
6 there of all the known hazards that they might
7 encounter there?

8 A. I'm confused, I guess, by where the -- I
9 don't understand what your - what you're talking
10 about, I guess. We passed our information to people
11 that asked for it or that we thought it was important
12 that they know about it. And there was no problem on
13 that, as far as I know; but I guess I don't understand
14 your question.

15 Q. Okay. Let me try again, and maybe we can
16 get together because I know you're trying to be
17 helpful.

18 Do you know, Dr. Rowe, whether it was ever
19 the practice at Dow to inform each and every worker
20 who would be in a block area in the plant of all the
21 known hazards that they could encounter there?

22 A. Now, what do you mean by "block area"?

23 Q. I use that term the same way Dow may have
24 used it. It's a Dow term.

25 A. I don't know what it means. That's why

1 I'm --
2 Q. Okay.
3 A. -- I'm -- I can't answer you.
4 Q. In a particular unit area. Would that make
5 it easier?
6 A. Well, in a particular plant, yes.
7 Q. When we speak of a plant, are we talking
8 about a subpart of the big Midland facility; or do you
9 just - do you speak of the Midland plant as
10 encompassing everything?
11 A. Well, various operations were scattered
12 different places in the - in the Midland area. Now,
13 we're talking about Midland.
14 Q. Yes, sir.
15 A. That's a big area. And there were plants
16 that were dealing with, for instance, the chlorinated
17 hydrocarbons. And there might be one over here and
18 there might be one over there making a different
19 material, but they would probably be under the same
20 supervision.
21 Q. But would we speak of each grouping of
22 machinery as a plant? That's what I was trying to get
23 a handle on.
24 A. Yes. A manufacturing unit, for instance,
25 that was making carbon tetrachloride.

1 Q. Okay.

2 A. Or a separate unit that was making vinyl
3 chloride or something similar. Now, those two
4 probably didn't go together. But there were groupings
5 of operations, and they were under - usually under a
6 single manager.

7 Q. Well, then, let's speak in terms of a
8 manufacturing unit, if that makes it more precise. Do
9 you know, sir, when, approximately - what decade,
10 even - it became the practice at Dow to inform each
11 and every person who would be in a unit area of the -
12 all the known hazards there?

13 A. I can't -- I don't know when that was. That
14 was pretty much under Mr. Hoyle's operation. And I
15 know he was one who was very interested in perfecting
16 that distribution of information.

17 Q. So that if Mr. Hoyle were the one who began
18 that practice, it would have obviously begun after his
19 employment began around '48 or so.

20 A. I would expect it would be his - him or his
21 people.

22 Q. Okay. And would it also have been the
23 procedure or the policy to inform the people who would
24 be in a particular manufacturing unit of the
25 appropriate protective equipment required for that

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1 area?

2 MR. PIERCE: Are you asking

3 Dr. Rowe if he knows, his specific

4 knowledge on this; or are you asking
5 him to speculate as to what might have
6 been?

7 MR. BLANKS: Well, --

8 MR. PIERCE: I don't think the
9 question is clear as to really what you
10 want on that.

11 (By Mr. Blanks)

12 Q. Are you confused, Dr. Rowe? I find that
13 Dr. Pierce's objections always confuse me.

14 MR. PIERCE: Not as much as your
15 questions confuse us.

16 A. Well, would you try again?

17 Q. Yes, sir. I wonder if, as part of the
18 policy of informing each and every person who would be
19 in a manufacturing unit area of all the known hazards
20 there, whether Dow also would have informed these
21 folks of the appropriate protective equipment required
22 for that area that they'd be going into.

23 A. I would think they would if there was
24 protective equipment required. And that was not our
25 general policy to operate with protective equipment.

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1 That was not supposed to be except on emergencies or
2 very short-term efforts.

3 Q. All right, sir. Do you know, Dr. Rowe, of
4 any times when Dow began to monitor for asbestos dust
5 in connection with brake shoe repair work?

6 A. I don't recollect.

7 Q. Do you recall, sir, ever receiving at the
8 toxicology lab or the industrial hygiene department
9 any information from the automobile manufacturers that
10 asbestos was - in brake shoes was a hazardous
11 material?

12 A. I do not recall receiving any information
13 from manufacturers.

14 Q. Would the same be true for the manufacturers
15 of brake shoe parts, brake - disk pads in brake shoes,
16 as well as the auto manufacturers?

17 A. I don't recall.

18 Q. Don't recall getting any information from
19 them, either?

20 A. I beg your pardon.

21 Q. Recall receiving no information from the
22 brake parts manufacturers, either?

23 A. I don't recall that. It seems to me that
24 there was a publication somewhere along the line
25 discussing that, but I don't - I don't know where it

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1 is.

2 Q. You're recollecting a publication you had at
3 Dow that discussed the asbestos brake shoe --

4 A. No.

5 Q. -- hazard? Is that what --

6 A. Something in the literature.

7 Q. Oh, okay. All right, sir. Was it always
8 during your years with the company Dow's policy to
9 tell its customers of all the known and suspected

10 health hazards of Dow products?

11 A. As far as I know, at the - very early in the
12 game - early years - I do not believe that was the way
13 they practiced.

14 Q. Shortly after you arrived --

15 A. But later on, after the Material Safety Data
16 Sheets and everything started to come out, I believe
17 it was - the information was supposed to have passed
18 on, but that would have been through salespeople.

19 Q. Would that have been as early as the 1940's?

20 A. No.

21 Q. Fifties?

22 A. I don't know.

23 Q. Weren't you, in your tox. lab, developing
24 information about the products that Dow made as early
25 as the - even the late 1930's?

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1 A. Yes.

2 Q. You just don't know whether or not Dow was
3 providing that information to the customers for those
4 products that early?

5 A. That I don't know.

6 Q. Surely you'd agree that that's a reasonable
7 thing to do, is to tell your customers about the known
8 and suspected hazards that could be encountered in the
9 use of a material, wouldn't you?

10 MR. PIERCE: Are you asking this
11 of the witness as an expert on required
12 warnings, as a citizen in his

13 community, as a toxicologist? I don't
14 understand the basis of asking that
15 kind of general question to this
16 witness.

17 Q. Do you understand that the reasonableness of
18 telling the users of products about the health hazards
19 that they entail would be different for a toxicologist
20 as opposed to a manufacturer as opposed to some
21 ignorant customer, Dr. Rowe?

22 A. Well, the literature that would be - that
23 would go along with it, including labels, were
24 supposedly to inform people that - of hazards. And
25 there were certain - certain governmental regulation

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1 that prescribed - stated this sort of information that
2 had to be presented in the label which was, I presume,
3 on every package that - of a material.

4 The biggest problem was sometimes the labels
5 were pretty small if the package was small. And an
6 effort then was made to - I don't know how
7 consistently - to pass on information that was
8 available.

9 Q. And certainly if Dow had information that
10 went beyond what the minimum Government standard was
11 for a label - I mean that dealt with the toxicity of a
12 material to the user - it would convey that, wouldn't
13 it?

14 MR. PIERCE: Once again, I would
15 like to object. Dr. Rowe has not

16 indicated he is an expert on labeling.
17 Portions of this question require legal
18 conclusions from this witness which he
19 is not in a position to make. But he
20 certainly can answer it, to the best of
21 his ability, as a general person in the
22 community.

23 A. There was a section that I mentioned earlier
24 that was in - in the legal department that was
25 responsible for meeting Government regulations with

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1 respect to labeling.

2 Q. As a scientist concerned with facts working
3 in the area of toxicology, an area that deals with the
4 ability of materials to cause disease and death and
5 adverse effects, as you say, certainly you never
6 condoned, did you, withholding information about
7 poisonous materials or potentially poison material
8 just because there was a label required that the
9 Government wanted, would you?

10 MR. PIERCE: Object to the form of
11 the question. It's ambiguous.

12 Withholding what materials,
13 molecular weights? I mean, it's so
14 ambiguous that it's impossible to
15 answer accurately.

16 MR. ALMQUIST: And I'm going to
17 further object to it because it is
18 nonspecific with respect to whom the

19 material was being sold, whether we're
20 talking about sale to a sophisticated
21 merchant user or we're talking about
22 consumers. That type of question
23 without more information is incapable
24 of being answered.

25 A. Well, I certainly didn't object to passing

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1 information along and - if it was useful for the
2 prevention of adverse effects at the other end of the
3 pipeline, so to speak. That was not my job to pass
4 that information along, and I don't know how well it
5 was done.

6 Q. Certainly you believed that it should be
7 passed along during the years that you worked at Dow,
8 didn't you, sir?

9 MR. PIERCE: Objection to the form
10 of the question and the ambiguity of
11 the term "it."

12 Q. That information -- Didn't you believe when
13 you worked for Dow that that information that you
14 developed should be passed along to the customers?

15 MR. PIERCE: I continue the
16 objection for ambiguity and vagueness.

17 A. Oh, I had every reason to believe that it
18 did.

19 Q. Don't you think, Dr. Rowe, that a
20 manufacturer of a product that's known or suspected of
21 being able to cause cancer or crippling, disabling

22 diseases has an obligation to investigate what can
23 reasonably be known about the health effects of the
24 material --

25 MR. PIERCE: Objection.

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1 Q. -- before it puts it on the market?

2 MR. PIERCE: Objection to the form
3 of the question. It's asking about
4 obligations, requiring legal
5 conclusions on the part of this
6 witness.

7 Go ahead.

8 A. Well, I would categorize it in a more
9 general way and just say that if there was a
10 particular hazard, irrespective of what the material
11 is, that that information should be passed along.

12 Q. Indeed, then, you'd agree that - as a
13 scientist, that a company would have a moral
14 obligation to investigate those hazards and pass it
15 on, wouldn't you, sir?

16 MR. PIERCE: I'm going to object
17 to the form of the question. He's not
18 here to answer about moral obligations,
19 which, also, requires essentially legal
20 conclusions. He's here as a fact
21 witness. Why don't you ask him the
22 fact questions that he's here to
23 answer.

24 Q. Sir?

25 A. I don't think anyone can say that

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1 information shouldn't be passed on.

2 Q. And even back in the Thirties, didn't you
3 believe, Dr. Rowe, that it was the right thing to do
4 for Dow to try to learn what it could reasonably know
5 about the potential health hazards of the materials it
6 was using and selling?

7 A. Well, that was the reason why our laboratory
8 was developed, to generate that sort of information.

9 Q. And didn't you believe then, sir, that this
10 was the right thing for any company to do that made
11 materials that could have harmful health effects in
12 their ordinary use?

13 MR. PIERCE: When you say, "this
14 the right thing to do," does that
15 mean -- I'm sorry. Do you mean share
16 information? Do you mean test it,
17 themselves? Do you mean send it out?
18 It's a completely ambiguous question.

19 A. I can only speak for my own feelings, which
20 I've already expressed.

21 Q. So, was it the case, then, that during the
22 Thirties and the Forties, the Fifties and the Sixties
23 you really didn't expect the suppliers of toxic
24 materials to Dow to have made any kind of
25 investigation about the health hazards that it could -

1 that they could pass on to Dow?

2 MR. ALMQUIST: Object as being an
3 argumentative question.

4 A. There were -- There were some companies that
5 had facilities and used them to develop information.
6 And our purchasing people were - in the later years,
7 anyway -- I don't like to say "required," but it was
8 part of the program to inquire of the seller what
9 information they had with respect to a particular
10 substance. Many -- Many very small companies did not
11 have that -- They had no information; so, they
12 couldn't pass it on.

13 Q. And they would have had no information
14 because they hadn't developed any, I suppose.

15 A. Or there wasn't any in the literature or
16 anything of that nature.

17 Q. Yet when Dow faced a situation like that
18 where it didn't have the information or found none in
19 the literature, Dow would actually make an
20 investigation through its toxicology lab, wouldn't it?

21 A. Well, we tried to do that.

22 MR. STANGER: Could we ask the
23 witness to speak up, please?

24 Q. Dr. Rowe, could you share with us how in
25 your job at Dow you would go about attempting to

1 influence decision makers in Government?

2 MR. PIERCE: I'd like to object to
3 the form of the question.
4 Could you be more specific?
5 MR. BLANKS: Well, about what,
6 "Government"?
7 MR. PIERCE: Yes.
8 MR. BLANKS: "Decision"?
9 MR. PIERCE: What Government?
10 What influence?
11 Well, go ahead --
12 MR. BLANKS: "Influence"?
13 Go ahead and answer, to the
14 best of your ability, with the
15 vagueness. Go ahead.
16 (By Mr. Blanks)
17 Q. Now, wait a minute. I'm not
18 suggesting --
19 A. I didn't get your question.
20 Q. All right. We'll try again. And not
21 meaning to imply any illegal influence of the sorts
22 we --
23 MR. PIERCE: Oh, we never would
24 have seen that in your --
25 Q. -- see in Government from time to time.

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1 How did you in your job at Dow go about
2 influencing decision makers in Government?
3 A. We would do our best to gather the facts and
4 present them to them on a scientific basis, along with

5 our interpretation of those results, and discuss it
6 with the appropriate people.

7 Q. And these efforts were from time to time
8 directed at influencing proposed changes in
9 regulations about the chemicals you were using at Dow?

10 MR. PIERCE: Why not -- Instead of
11 leading that way, why don't you ask him
12 what he did; and then he could tell
13 you.

14 MR. BLANKS: Well, then I wouldn't
15 get your objections.

16 MR. PIERCE: Okay. So, now you
17 have it.

18 Objection to the form.

19 A. I would think that that would have been
20 within the scope of Government relations.

21 (By Mr. Blanks)

22 Q. Could you explain to us, Dr. Rowe, what sort
23 of topics or areas that you did attempt to influence
24 Government decision makers as part of your Government
25 relations activities?

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1 MR. PIERCE: When you say
2 "influence," you mean educate, bring
3 information to them? I mean, what is -
4 what are you really asking this
5 witness?

6 Okay. Try to answer it, Dr. Rowe.

7 A. Well, when we developed information that was

8 pertinent to the A.C.G.I.H. threshold limit committee,
9 we presented it to them and made our suggestions.
10 When we went to the Food and Drug Administration, we
11 presented our data and our proposals to acquaint them
12 and give them the best information and opinions that
13 we had or that were available with respect to
14 regulations that were to come out on a particular
15 material or whatever. This was very broad in scope.
16 Q. All right. Did any of your work in
17 Government relations deal with any proposed OSHA
18 regulations or changes in the standards - in OSHA
19 standards?

20 MR. PIERCE: I'd like to object to
21 the form of the question. The way you
22 phrased it, "his work in Government
23 relations," suggests he was in the
24 Government relations department, which
25 I don't believe was part of Dr. Rowe's

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1 background.
2 But given that objection, go ahead
3 and answer.
4 MR. BLANKS: Well, it was the term
5 he used earlier, you know.
6 A. Relations with OSHA?
7 Q. Yes, sir.
8 A. Yes. I had - I had relations with OSHA. I
9 can't remember all the materials that we discussed
10 with them.

11 (By Mr. Blanks)

12 Q. Were your relations with OSHA directed
13 toward influencing changes in the regulations that
14 OSHA wrote or proposed to write?

15 A. I -- I don't know about the "change,"
16 but "help develop appropriate regulations" might be a
17 better description.

18 Q. Were there any particular materials you
19 recall, Dr. Rowe, in which you attempted to influence
20 the development of proposed regulations with OSHA?

21 A. I don't -- I can't remember specifics.

22 Q. Okay.

23 A. Are you talking about developing regulations
24 or criticizing them or what?

25 Q. Well, I suppose all of the above because I

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1 really don't know what your activities were and was
2 just hoping you'd explain those to us.

3 You never went to OSHA and suggested that
4 regulations be written about any particular material
5 or workplace condition, did you?

6 A. I'm not -- I'm not certain that we didn't
7 make suggestions to OSHA as to things that might or
8 that should occur or did occur. I served on the OSHA
9 carcinogen advisory committee. And we presented data
10 on a number of materials that we were handling and
11 using.

12 Q. Did you find that to be a productive effort,
13 Dr. Rowe?

14 A. In some respects.

15 Q. And what were those?

16 A. Well, that was a very - very interesting
17 committee. There were many factors. "Many factions"
18 I should say. And there was considerable disagreement
19 between the various groups, as one might expect.

20 Q. What did you learn from that experience
21 about the purpose of some of Dow's adversaries that
22 you encountered on that committee?

23 A. Of what?

24 Q. About the goals and purposes of Dow's
25 adversaries that you encountered on that advisory

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1 commission or advisory committee.

2 A. Well, the principal - the principal
3 difference in philosophy, I think, between different
4 groups was the belief that reflected the Delaney
5 clause in the Food and Drug Act which indicates that
6 if a material produces a cancer in any animal at any
7 dose, it therefore deserves a zero tolerance. And I
8 don't believe that that's scientifically sound at all.

9 THE REPORTER: Excuse me. I need
10 to change my paper.

11 MR. BREWTON: You've got another
12 minute and a half (directed to
13 Mr. Blanks).

14 MR. BLANKS: He's out of tape,
15 you're out of paper.

16 MR. PIERCE: Okay. Let's take a

17 lunch break.
18 1:15? Is that all right?
19 MR. BLANKS: Sure, guys.
20 (AT 12:07 P.M. THE DEPOSITION WAS
21 RECESSED FOR LUNCH. AT 1:33 P.M. THE
22 PROCEEDINGS RESUMED AS FOLLOWS:)
23 (By Mr. Blanks)
24 Q. Dr. Rowe, from our first couple of days
25 visiting together, you'll recall that you brought with

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1 you a number of documents from your personal files in
2 response to the subpoena duces tecum that was part of
3 the deposition notice. And I just wanted to establish
4 for our record that those documents were, in fact,
5 things that you brought from your personal file.

6 With that in mind, Dr. Rowe, have you had a
7 chance to check through the three volumes of the
8 exhibits to the deposition of yourself taken on
9 October 1st and October 2nd of 1992?

10 A. I have not.

11 Q. Can you tell us, sir, whether or not the
12 documents that are in each of the three exhibits to
13 your October 1st and 2nd, 1992, deposition did come
14 from your personal files at home?

15 MR. PIERCE: I think with that
16 question you have to give him at least
17 a few seconds to scan them or
18 something.

19 Why don't you just take a quick --

20 Scan through them very quickly.
21 MR. ALMQUIST: And for the benefit
22 of Dr. Rowe, as well, let me simply
23 tell him that these are the
24 documents that we had copied and
25 produced; that I have looked at

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1 them, as well, to make sure that they
2 are the documents that you brought.

3 MR. PIERCE: From the first
4 deposition.

5 MR. ALMQUIST: From the first
6 deposition.

7 Q. But take a moment, if need be, to --

8 A. Well, there's quite a volume. All I can say
9 is that the originals that I provided the attorneys I
10 have to assume are - these are copies of those. That
11 was -- That was the understanding when I gave them to
12 them for copying. And if they can attest to the fact
13 that -- They came -- All they had to copy came from my
14 personal files, yes.

15 MR. ALMQUIST: And I can tell you
16 that I had - took those documents that
17 Dr. Rowe gave me and had them copied
18 and provided them to you. And they are
19 attached as the three volumes of
20 exhibits to his first deposition.

21 Q. Okay. Mr. Pierce, is that --

22 MR. PIERCE: I have no problem.

23 I'm not making any objection. I just
24 think the way you worded the question
25 would put him in a -- But I think he's

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1 explained; and that's fine for all of
2 us, I believe.

3 Q. All right, sir. Now, Dr. Rowe, bear with me
4 on a few questions about a couple other things from
5 the older times.

6 Do you recall, sir, having with you at Dow
7 the industrial toxicology textbook from 1934 when you
8 were working there?

9 MR. PIERCE: Objection to the form
10 of the question. It's vague. No
11 author --

12 Q. A text titled Industrial Toxicology,
13 published in '34.

14 A. I -- Was this the -- Who was the editor?
15 Was it Patty?

16 Q. I think it's too early for Patty.

17 A. I think so, too. I don't believe so. The
18 earliest one that I have is the Industrial Hygiene and
19 Toxicology edited by Patty, and I can't remember what
20 the publication date on that was.

21 Q. All right, sir. I think you told us before
22 that you thought that was the first edition. Do you
23 know --

24 A. Yes. It is.

25 Q. Okay. Do you recall having a text called

1 Industrial Hygiene, edited by Lanza --
2 A. No. No.
3 Q. -- and Goldberg from '39?
4 A. I do not. I do not.
5 Q. How about Cyril Blacktin's text titled Dust
6 from 1934?
7 A. I do not.
8 Q. Did you have a book called Industrial
9 Hygiene for Engineers and Managers by Carey McCord and
10 Floyd Allen?
11 A. No.
12 Q. Do you recall having Drinker and Hatch's
13 text titled Industrial Dust from '36?
14 A. No, I do not.
15 Q. How about Lanza's 1938 book titled Silicosis
16 and Asbestosis?
17 A. No.
18 Q. All right, sir. Dr. Rowe, sometime in the
19 morning a couple of boxes of papers were wheeled in.
20 And could you explain to us where those copies came
21 from, just generally?
22 A. The big bulk of that material was a file
23 that I accumulated over - of reprints that I
24 accumulated over the years on various - various
25 aspects of the subject of carcinogenesis. And I had

1 at one time a thought that I might try to write a
2 treatise of some description on the subject. It
3 always did intrigue me, but I never knew enough about
4 it; and nothing has ever happened. Those things -- I
5 don't know why I shipped them down here when I came
6 down here 13 years ago, but I did. And I haven't
7 looked at them since until Counsel suggested that they
8 might be part of the things that I should provide.
9 And there's nothing -- I have nothing to hide. I
10 simply didn't believe that they pertained to the
11 particular subject that we had at issue.

12 Q. Okay.

13 A. So, I made them available for whatever use
14 you may have.

15 Q. Okay. So, back in October it just didn't
16 strike you that they came within the scope of the
17 document request; but since then you've considered
18 they might be?

19 A. That's true.

20 Q. And you were kind enough, then, to go
21 through your papers of the ones you've just described
22 and pull out those that you thought could possibly be
23 responsive to the document request?

24 A. That was what I did at the first
25 deposition. I have not even -- I did not even go

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1 through that box of stuff. It just was in my closet.

2 Q. I see. Okay. Does that pretty much exhaust

3 your collection of old articles and papers, then?

4 A. It does.

5 Q. All right, sir.

6 A. I may have something on 2,4,5-T and loose
7 paper clippings on Agent Orange and things like that
8 and the dioxins that -- I think I have those yet.

9 Q. Generally speaking, Dr. Rowe, the two boxes
10 of documents you brought consist of articles from
11 years past concerning carcinogenicity and related - or
12 just generally toxicology and industrial hygiene, I
13 suppose.

14 A. Well, the one batch was -- I tried to
15 categorize them years ago into what was related to
16 carcinogenesis, occupational and otherwise. And then
17 there are other documents that I didn't think had any
18 bearing on - on the hearing that are now available to
19 you - a lot of personal cards and notes that I've used
20 and will probably continue to use in lectures on this,
21 that, and other things. Every once in a while someone
22 asks me to give a talk on the subject, and I go back
23 and I look at some of my old notes so that I don't
24 have to reconstruct everything.

25 Q. Okay.

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1 A. So -- But they're there for whatever value
2 they may be to the purpose of your inquisition.

3 MR. PIERCE: Appropriate
4 terminology.

5 A. I don't know what's going on but --

6 Q. Oh, well, Mr. Pierce was laughing at your
7 use of the word "inquisition," which is one of my
8 favorites, too, but...

9 All right, sir. The articles that are in
10 the boxes, would those be reprints that you acquired
11 around the time that the articles were published?

12 A. I don't know.

13 Q. Does the box also include typed notes of
14 some lectures that you, yourself, gave over the years?

15 A. It could be.

16 Q. If among the documents in the two boxes are
17 papers that on their title show that it's a paper
18 authored by you or a speech to be given by you, would
19 that be accurate?

20 A. I think so.

21 Q. All right, sir. And if the box contains
22 text of speeches given by others and yourself and the
23 title shows that to be so, would those, to your
24 knowledge, be accurate, as well?

25 A. They all came from my file.

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1 Q. So, for example, --

2 A. I don't know what all -- I don't even know
3 what all is in there.

4 Q. Well, for example, if we were to find in
5 there a couple of talks that appeared to have been
6 authored by John Zapp, a Cummings Lecture, or a
7 Stokinger Lecture, would it be your recollection that
8 those would be copies of speeches that you obtained

9 around the time they were given?

10 A. Yes.

11 Q. And there are also, as you mentioned, some
12 handwritten documents in there. And I don't mean to
13 address them globally, but some of those would be
14 things that you, yourself, wrote that have been
15 copied - photocopied?

16 A. I think they're probably all - all my
17 writing. I looked over those, those - those
18 handwritten statements. And there may be one or two
19 in there that I can't even remember where they - where
20 they were given. So, I don't know.

21 Q. Okay. Well, that's understandable.

22 A. But they're there, and that's why I brought
23 them.

24 MR. PIERCE: Mr. Blanks, perhaps
25 this would be an appropriate time to

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1 put on the record what we were
2 discussing informally before -
3 Mr. Almquist, yourself, and myself -
4 that if there are any questions as to
5 any specific document's handwriting,
6 that if you'll bring it to our
7 attention, we'll certainly have
8 Dr. Rowe look at it and identify it for
9 you at any time.

10 MR. BLANKS: Well, we appreciate
11 that kind offer, sir.

12 (By Mr. Blanks)

13 Q. I had a few specific ones that I did want to
14 visit with you about, if we could just take a few
15 minutes.

16 Dr. Rowe, I've got - I have a reprint of an
17 article titled, "Public Health Hazards from
18 Environmental Chemical Carcinogens, Mutagens and
19 Teratogens," that I'd like to show you here as soon as
20 I can put a label on it.

21 MR. BLANKS: And I'm going to
22 label this Plaintiffs' Exhibit 710105
23 WCH.

24 (PLAINTIFFS' EXHIBIT 710105 WCH
25 WAS MARKED FOR IDENTIFICATION

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1 PURPOSES BY MR. BLANKS. SAME WILL BE
2 FOUND IN THE EXHIBIT VOLUMES ATTENDANT
3 TO THIS DEPOSITION.)

4 (By Mr. Blanks)

5 Q. (Tendering document) And this one does have
6 some handwritten notes on it.

7 MR. PIERCE: (Reviewing document)

8 (By Mr. Blanks)

9 Q. But Mr. Pierce doesn't want you to see it
10 yet.

11 MR. BLANKS: I'm sorry. I should
12 have gotten out your copy, too. I
13 think there were two of them in there.

14 MR. PIERCE: I mean, I hope you
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15 don't object to me looking at a
16 document that you're about to hand the
17 witness.

18 MR. BLANKS: Well, I think it's -
19 I think it's quite unreasonable,
20 actually, but...

21 MR. PIERCE: (Tendering document
22 to the witness)

23 (By Mr. Blanks)

24 Q. Do you recognize the handwriting that's on
25 the front page of that article or reprint, sir?

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1 A. (Reviewing document) I don't recognize the
2 handwriting.

3 Q. So, that's not your handwriting on the cover
4 of that?

5 A. No, sir.

6 Q. Okay. Is this an article that you did have
7 in your files, however?

8 A. Yes.

9 Q. Okay. And you recognize the name of the
10 author?

11 A. Dr. Hueper?

12 Q. Yes, sir.

13 A. Yes.

14 Q. Okay. Did you ever have any dealings or
15 communications, correspondence, that sort of thing
16 with Dr. Hueper?

17 A. I -- I don't remember.

18 Q. Okay.

19 A. He was pretty early on in the game, when I
20 was a neophyte.

21 Q. Yes, sir. Okay. Do you think you ever met
22 the gentleman?

23 A. I may have met him at a meeting or something
24 of that nature, but I've never had any meetings with
25 him.

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1 Q. All right, sir. Dr. Rowe, the note on the
2 cover page of Dr. Hueper's article looks to be signed
3 by -- Chet?

4 A. Yes.

5 Q. Do you know who "Chet" is?

6 A. His name was Chet Otis.

7 Q. How do you spell that last name, sir?

8 A. O-t-i-s.

9 Q. Oh, Otis. Okay.

10 A. He signed it up above.

11 Q. Oh, I see. And who was he with, Dr. Rowe?

12 A. He was in our agricultural - I don't know
13 what the name of it - agricultural division. In
14 sales, I believe.

15 Q. I see.

16 A. Sales or development. I don't know which.

17 Q. Do you recognize the name above the Chet
18 Otis name at the top right?

19 A. I beg your pardon.

20 Q. Can you tell what word that is above Chet

21 Otis' name?

22 A. I don't know who that is. I don't know who
23 that is.

24 Q. Oh, okay. Probably of no - no matter.

25 Dr. Rowe, I've got some papers that are

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1 handwritten notes that came out of one of the files in
2 the boxes that you provided today that was titled,
3 "loose papers at top of stack." And I rubber-banded
4 them together so that we'd know where they came from,
5 but could we just run through these quickly and let
6 you at least identify them as being in your hand or
7 not and perhaps just a brief clue as to what each one
8 might represent (tendering document)?

9 (PLAINTIFFS' EXHIBIT ROWE 9
10 WAS MARKED FOR IDENTIFICATION
11 PURPOSES BY MR. BLANKS. SAME WILL BE
12 FOUND IN THE EXHIBIT VOLUMES ATTENDANT
13 TO THIS DEPOSITION.)

14 MS. COLDWELL: What exhibit is
15 that?

16 MR. BLANKS: This is marked as
17 Rowe Exhibit No. 9. And I've penciled
18 in at the top there "from loose papers"
19 so we'd keep track of it.

20 A. (Reviewing document)

21 THE WITNESS: See if there's
22 something missing (directed to
23 Mr. Pierce).

24 MR. BLANKS: I don't know,
25 Mr. Pierce. I thought this was an

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1 appropriate time for you to object that
2 the document speaks for itself and...

3 MR. PIERCE: I haven't heard a
4 question yet. Maybe I will.

5 MR. BLANKS: No. I was asking
6 Dr. Rowe to just try and tell us what
7 that collection of notes was or
8 pertained to.

9 (AT THIS TIME PLAINTIFFS' EXHIBITS
10 ROWE 10, ROWE 11, ROWE 12, ROWE 13,
11 ROWE 14, AND ROWE 15 WERE MARKED FOR
12 IDENTIFICATION PURPOSES BY MR. BLANKS.
13 SAME WILL BE FOUND IN THE EXHIBIT
14 VOLUMES ATTENDANT TO THIS DEPOSITION.)

15 MR. HOBSON: He's waiting for a
16 question.

17 (By Mr. Blanks)

18 Q. Oh, I'm sorry. Could you give us a clue as
19 to what that generally pertains to or what it is?

20 A. Well, it's obviously the card notes that I
21 used in a speech somewhere.

22 Q. Topic --

23 A. But I can't tell you where.

24 Q. Could you tell what the topic of the talk
25 was, Dr. Rowe?

1 A. I don't know. It has to do with - with the
2 broad concept of toxicology and safety and
3 responsibility and the kinds of tests that are
4 conducted and... It looks like an educational lecture
5 for somebody that I don't -- I don't know where
6 (tendering document).

7 Q. All right, sir. Can you place it in a
8 decade, even?

9 A. No.

10 Q. Let me hand you Rowe Exhibit 10, sir, and
11 ask you if that's your handwritten notes (tendering
12 document).

13 A. (Reviewing document)

14 MR. PIERCE: Mr. Blanks, no
15 underlinings or tabs or anything like
16 that on these documents?

17 MR. BLANKS: No. Just the "from
18 the loose papers at the top of the
19 stack" right here.

20 MR. PIERCE: Okay.

21 MR. HOBSON: We haven't had time
22 to accomplish that yet. Lunch was only
23 an hour. Hour and a half, I guess.

24 MR. BLANKS: There is a note
25 written in here on one, "We knew all

1 along..."

2 A. (Reviewing document) Again, obviously, my

3 notes from a speech. I have no idea where it was

4 given.

5 Q. Or even --

6 A. When.

7 Q. -- or even approximately when? All right,

8 sir. Let me hand you Rowe 11 and ask you if you can

9 answer the same questions about that, sir (tendering

10 document).

11 A. This, again, is another one of the same

12 category.

13 Q. All right, sir. Your handwritten notes?

14 A. Yes.

15 Q. (Tendering document) Rowe 12, please, sir.

16 A. That's my handwriting.

17 Q. All right, sir. (Tendering document)

18 Please look at Exhibit Rowe --

19 What is that one? Hold it. What's the

20 number on that, please?

21 A. Twelve.

22 Q. Oh, dear. I've misnumbered here. We've got

23 two 12's. You just gave me back 12. Let me change

24 the number on that. I've equivocated on us here.

25 MR. BLANKS: All right. We've got

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1 12. I'm going to change that one to 16

2 because I've already marked up through

3 15.

4 (PLAINTIFFS' EXHIBIT ROWE 16
5 WAS MARKED FOR IDENTIFICATION
6 PURPOSES BY MR. BLANKS. SAME WILL BE
7 FOUND IN THE EXHIBIT VOLUMES ATTENDANT
8 TO THIS DEPOSITION.)
9 (By Mr. Blanks)
10 Q. Let's proceed on orderly fashion to Rowe
11 Exhibit No. 13, sir (tendering document).
12 A. (Reviewing document) That's my handwriting.
13 Q. Thank you. Would you please look at Rowe
14 Exhibit 14 (tendering document).
15 A. (Reviewing document) That's mine. There's
16 a blank piece in here that I don't identify as mine,
17 though. I don't know where that belongs or where it
18 came from (tendering document).
19 Q. "Do you want to cover the presentation and
20 provisions?" Well...
21 A. I don't know where it came from.
22 Q. Okay. I'd leave out --
23 A. As I said, I didn't...
24 Q. All right, sir. Anyway, that's not your
25 writing?

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1 A. That's not mine, no.
2 Q. Apparently it was in there, but nothing to
3 do but set it aside now.
4 All right, sir. And Rowe Exhibit 15. would
5 this be your handwriting, as well, sir (tendering
6 document)?

7 A. (Reviewing document) Yes, it is.

8 Q. Dr. Rowe, the next bunch of these appears to
9 be from - copies of file cards. And they were not
10 stapled together; so, I assume they were all loose in
11 your file, as well. But we've marked these as Rowe
12 Exhibit 16. And these came out of a file in the boxes
13 that was labeled "from V. K. R.'s talks and papers,"
14 within which were found, also, typed notes that
15 appeared to be from your talks.

16 Could you identify that stack or
17 characterize it generally for us (tendering document)?

18 A. (Reviewing document) This is my
19 handwriting.

20 Q. All right, sir. Dr. Rowe, I have some
21 handsome laser color copies of what look to be charts
22 here. And we've just paper-clipped them all together
23 at this point. I've not marked them yet. But could
24 you tell me, first, if they all go together, as best
25 you remember (tendering charts)?

619

1 A. (Reviewing charts) Yes. These are copies
2 of color slides that I have used in - in talks to
3 discuss various aspects of carcinogenicity and other
4 diseases and so forth and particularly to demonstrate
5 the -- I think most all these data probably came from
6 U. S. Public Health Service publications relative to
7 the incidence of various types of cancer in the
8 population. My use of it was primarily in lectures in
9 which I was trying to get people to understand the

10 hazards of smoking.

11 Q. All right, sir. Would these have been
12 slides that you had had prepared while you were still
13 at Dow?

14 A. Yes. I had those prepared. And there were
15 several copies of them. I had one sheet - one set of
16 slides that I used in lectures. And I've used them
17 here - I mean at my present location - for other
18 groups, not recently but sometime -- The data is
19 pretty much outdated, I think, now; but nevertheless
20 it does explain the - or shows graphically the
21 incidence of various types of cancer that the
22 population in this country experiences.

23 Q. Would the data be generally from the Sixties
24 and Seventies?

25 A. I -- It would be in the Sixty or Seventy,

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1 somewhere in that range. I don't know. I can't tell
2 you.

3 Q. All right, sir. I'm going to label this
4 collection as Rowe Exhibit 17, and we'll leave them
5 grouped together. And I'm going to put that label on
6 the clean side of the mystery paper. And we'll put
7 that together.

8 (PLAINTIFFS' EXHIBIT ROWE 17
9 WAS MARKED FOR IDENTIFICATION
10 PURPOSES BY MR. BLANKS. SAME WILL BE
11 FOUND IN THE EXHIBIT VOLUMES ATTENDANT
12 TO THIS DEPOSITION.)

13 (By Mr. Blanks)

14 Q. All right, sir. Was it -- The kind of notes
15 that you have on your file cards, would those be,
16 like, notes for little talks you might have given to
17 Dow employees?

18 A. Very likely. It could have been any place,
19 but I did give a lot of talks like that to various
20 groups within the company.

21 Q. And generally when you made a presentation
22 before a professional body of your colleagues or your
23 peers, you would normally have that talk typed up in
24 advance to where you would have a more complete and
25 formal draft, would you not?

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1 A. That generally would be true, but I did not
2 always in verbal presen - in verbal presentations read
3 a talk. And sometimes I used cue cards, so to speak,
4 in - to keep me on track.

5 Q. Okay. Dr. Rowe, if we looked to one of
6 these cards, specifically the -- Let's just look at...

7 MR. HOBSON: Garth Brooks. Never
8 mind. Wrong award. I'm sorry.

9 MR. BLANKS: That was even
10 supposed to be a joke?

11 MR. HOBSON: Some people got it.

12 (By Mr. Blanks)

13 Q. Dr. Rowe, let's just look at one of these
14 cards out of your Exhibit Rowe 9, or any of the other
15 cards on there that you want. But I'm wondering from

16 looking at the sixth page and using these notes what
17 kind of a presentation you would give from that
18 (tendering document).

19 A. (Reviewing document) This would have been
20 to some area of management or sales department
21 people. I think there's a lot more in this than just
22 the - some of the legal and moral responsibilities;
23 but that type of talk would have been internal and to,
24 as I say, sales management or company management or
25 whatever. I don't know.

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1 Q. Could you share with us the message that you
2 would have been - would give off of these notes on
3 this particular card and the context of the rest of
4 that talk?

5 A. Well, I was attempting to emphasize to
6 whoever was present that the - that subject, breach of
7 warranty of safety. What I said was (reading)
8 warranty expressed in or implied from communication
9 such as letters, labels, advertising, or verbal
10 statements made by a representative. And deceit or
11 fraudulent misrepresentation allegations usually are
12 that defendant made false or misleading statements to
13 conceal true facts. Generally if moral or legal
14 responsibilities are discharged there will be few --
15 "Suits," I guess it is (tendering document).

16 Q. I'm sorry. The last part was "Generally if
17 moral and legal responsibilities are discharged," --

18 A. Yes.

19 Q. -- "then there will be few suits"? And this
20 was a message you were giving to --

21 A. Management.

22 Q. Dow management?

23 A. Someplace. Yes.

24 Q. All right.

25 A. Or sales - salespeople. I say some area of

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1 management. I don't know where.

2 Q. For these different exhibits you've been
3 kind enough to go through with us up through 16, 17,
4 do these notes reflect your thoughts accurately at the
5 time that you - that you made them?

6 A. Yes.

7 Q. And they - what facts or views that you set
8 out on the notes would have been truthful at the time
9 that you made them, whenever that was?

10 A. That was -- I would have no reason to
11 believe otherwise.

12 Q. All right, sir. Very good. I would like to
13 mark as Rowe Exhibit 18 the remainder of the
14 documents, the contents of the box - the box, itself.
15 And we will arrange to have those and all these other
16 exhibits appropriately stamped and numbered so that we
17 have a record of what you've been good enough to
18 bring, Dr. Rowe, and attorneys.

19 A. Well, I brought them -- I don't know whether
20 they're useful, whether they're of any interest; but
21 they were in my files.

22 Q. Very good. Well, we appreciate that, sir.
23 MR. BLANKS: So, that will be
24 Plaintiffs' Exhibit No. Rowe 18. And
25 there are many hundreds of pages.

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1 (REPORTER'S NOTE: PLAINTIFFS'
2 EXHIBIT ROWE 18 WAS LATER MARKED FOR
3 IDENTIFICATION PURPOSES BY THE
4 REPORTER. SAME WILL BE FOUND IN THE
5 EXHIBIT VOLUMES ATTENDANT TO THIS
6 DEPOSITION.)

7 (By Mr. Blanks)

8 Q. Dr. Rowe, finally, I want to ask you about a
9 couple of things that we've talked about before.

10 Has Dow, since we last met, hired you to
11 serve as a consultant to them in connection with these
12 cases or any other cases?

13 A. When I retired I had a contract with Dow to
14 consult and to do a lot of writing, which I did after
15 I retired. They wished me to be a part of the
16 information source. I did not require or ask -- As a
17 matter of fact, I told them I did not want a contract
18 but I would try to be available if I could be helpful
19 or useful in things that I knew about. And that is
20 the arrangement that we've had since then. We have no
21 formal arrangement. I do bill them for my time, and
22 they pay me.

23 Q. In connection with the lawsuits that we're
24 here testifying about today, are you actually serving

25 as a consultant to Dow?

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1 A. I presume so, but I don't know the
2 connotation of that word all the way but...

3 MR. ALMQUIST: He's a fact witness
4 in this case, obviously, Mr. Blanks.
5 And we have reimbursed him for his time
6 since there's been a significant drain
7 on his time, obviously, to be here for
8 these depositions; but we are not
9 retaining him as an expert witness
10 in this litigation either as a
11 consulting expert or at trial.

12 (By Mr. Blanks)

13 Q. Okay. Before we resumed our deposition
14 yesterday, had you taken time to visit again with
15 lawyers about the continuation or resumption of your
16 deposition?

17 A. This particular one?

18 Q. Yes, sir.

19 A. Yes.

20 Q. When did that occur?

21 A. Monday - Monday afternoon, about 3:30 to
22 5:00 o'clock, I believe, something like that.

23 Q. And that was the first time since we'd left
24 you in October that you'd met with any lawyers about
25 your testimony in these cases?

1 A. That's correct.

2 Q. Who was present at your Monday afternoon

3 meeting?

4 A. Dr. Pierce and Linda.

5 MR. ALMQUIST: Linda Fiegener.

6 Q. And who do you understand Ms. Pickner to be?

7 A. Pardon?

8 Q. Who do you understand Ms. Pickner to be

9 associated with?

10 MR. ALMQUIST: Fiegener.

11 MR. BLANKS: I'm sorry.

12 MR. PIERCE: Fiegener.

13 MR. BLANKS: Sounds like what I

14 said.

15 How do you spell it?

16 MR. PIERCE: F-i-e-g-e-n-e-r.

17 MR. BLANKS: Thank you.

18 (By Mr. Blanks)

19 Q. Yes, sir. Who is the lady connected with?

20 A. She's representing Dow someplace or other.

21 Texas division, I think.

22 Q. Do you understand her to be an attorney who

23 works for Dow?

24 A. I understand her to be an attorney.

25 MR. ALMQUIST: Let's correct the

2 legal assistant in the Dow legal
3 department.

4 Q. And during this visit with Ms. Fiegenger
5 present, what things were discussed, Dr. Rowe?

6 MR. PIERCE: I direct you not to
7 answer any questions as to any
8 specifics of our conversations.

9 MR. ALMQUIST: And I will join --

10 MR. PIERCE: And, listen, you know
11 that this is attorney-client
12 privilege. You know this is
13 inappropriate. So, please, let's not
14 go through this again.

15 MR. ALMQUIST: And on behalf of
16 Dow, we would assert the
17 attorney-client privilege, as well,
18 with any communications with Mr. Rowe.

19 Q. Did the lady, Ms. Fiegenger, have anything to
20 say at this meeting, Dr. Rowe?

21 MR. ALMQUIST: Again the same
22 instruction, the same objection.

23 MR. PIERCE: I direct you not to
24 answer anything about our
25 communications.

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1 Q. Dr. Rowe, are you going to continue to
2 follow the instructions of your counsel?

3 A. I believe that's what I should do.

4 Q. All right, sir. Are you going to follow the

5 instructions from Mr. Almquist who is here as Dow's
6 lawyer today?

7 A. Yes.

8 Q. There were, in fact, conversations that took
9 place while Ms. Fiegenger was present with you and
10 Mr. Pierce, were there not?

11 MR. PIERCE: You can answer that.

12 A. Certainly.

13 Q. Okay. And did you look at any documents or
14 papers before or during that meeting or at any time to
15 get ready for resuming your deposition, sir?

16 A. Yes.

17 Q. What did those consist of, Dr. Rowe?

18 A. That 50, 60 pounds of paper that you
19 received.

20 Q. All right, sir. Anything other than the
21 documents you were kind enough to bring today that you
22 looked at before the deposition or for purposes of
23 preparing --

24 A. I beg your pardon.

25 Q. I was wondering, sir, if there were any

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1 other papers besides those that are in Exhibit 18 and
2 Exhibits 9 through 17 --

3 A. I don't believe so.

4 Q. Have you had any conversations with
5 Mr. Almquist about your testimony either in the past
6 or during this week?

7 A. Not at all.

8 Q. Have you had any letters or written
9 communications from him?

10 A. No.

11 Q. Or from any other lawyers associated with
12 Dow, that you know of?

13 A. No.

14 Q. Do you understand, Dr. Rowe, that Dow is
15 paying for Mr. Pierce to appear here with you today
16 and yesterday?

17 A. Yes.

18 Q. And who was it, Dr. Rowe, that suggested
19 that or told you that Mr. Pierce would be designated
20 to represent you at these deposition days?

21 A. Nobody told me that he would. They asked me
22 if I would like to have him represent me, and I said
23 yes.

24 Q. So, this came in the form of a --

25 A. Pardon?

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1 Q. This came in the form of an implied
2 suggestion that you might want to have him represent
3 you, then?

4 MR. PIERCE: Objection to the
5 form.

6 He said it came in the form of a
7 question which he answered.

8 Q. Who asked you that question, Dr. Rowe?

9 A. Mr. Stuart.

10 Q. Duncan Stuart, the lawyer that's an employee

11 of Dow Chemical Company?

12 A. Yes.

13 Q. Same --

14 MR. PIERCE: I think we're getting
15 back to the same area of specifics
16 and conversation between attorney and
17 clients. And although I'm not going to
18 interpose objections on behalf of The
19 Dow Chemical Company, I feel that we're
20 skirting an area of privilege which you
21 should not raise at this deposition.
22 And you should be on notice about that,
23 please.

24 Q. Did you have any conversations with Duncan
25 Stuart about your deposition either in October or this

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1 upcoming one or - the one that we're in here today on?

2 A. No.

3 MR. BLANKS: Okay. I'm going to
4 pass the witness at this time,
5 provisionally given that we still have
6 Exhibit 18 and several thousand pages
7 of documents to peruse and with the
8 reservation that we may need to return
9 and spend a little more time with
10 Dr. Rowe, but not to a certainty. We
11 don't know that until we get a
12 chance to look through all those
13 documents. But I want to give anybody

14 else who wanted to cross-examine
15 Dr. Rowe on asbestos-related matters an
16 opportunity to do that at this time.

17 MR. PIERCE: Okay. Let me
18 also state for the record that if there
19 are a few questions that do come to
20 mind, we'd be very happy to give you
21 written responses - notarized, if you
22 wish - to any of those questions so as
23 to make no unnecessary trips or
24 problems for any of the attorneys
25 involved here. We'd be very happy to

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1 cooperate with you.

2 MR. BLANKS: Well, depending on
3 the nature of the questions,
4 we'll --

5 MR. PIERCE: Well, of course.
6 Yeah.

7 MR. BLANKS: -- try to work with
8 you on what's appropriate. Very good.

9 Does anyone have any examination
10 for Dr. Rowe?

11 MR. HOBSON: Asbestos.

12 MR. BLANKS: On asbestos?

13 And the room was silent. Well,
14 then, let us move on to the wonderful
15 world of silica.

16 Just another dust, Mr. Pierce.

17 (By Mr. Blanks)

18 Q. Dr. Rowe, we visited at great length, as you
19 know, about your toxicology work and the industrial
20 hygiene program at Dow and the general philosophy that
21 you had and that you observed at Dow concerning
22 occupational health and safety.

23 Would the same general principles that
24 you've described to us about the industrial hygiene
25 program at Dow apply to dealing with any potential

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1 silica dust hazards that might arise in the Dow
2 premises?

3 A. I think anything that I could say with
4 respect to silica would probably also - or what I
5 would say about asbestos I would probably take about
6 the same position with respect to silica, at least as
7 I understand it. Again, I would - I wish to qualify
8 I'm not an expert at all in the field of silicosis or
9 other such diseases.

10 Q. Certainly you recognized before 1940 in your
11 first few years at Dow that silicosis was a recognized
12 occupational disease among people exposed to
13 sufficient quantities of free silica, didn't you, sir?

14 A. I don't know when I became aware of it.

15 Q. It certainly would have been during the
16 first decade of your work in toxicology?

17 MR. PIERCE: Objection to the
18 terminology "certainly" within those
19 questions.

20 A. I would expect that to be true.
21 Q. All right, sir. And at Dow from time to
22 time abrasive blasting was done using sand as the
23 abrasive, was it not?
24 A. I don't know.
25 Q. Do you know, sir, whether or not Dow

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1 required even back to 1940 the use of air-supplied
2 hoods to protect workers doing sandblasting on their
3 premises?
4 A. I don't know.
5 Q. Would it be your view, sir, that that would
6 be the appropriate protective device to give a man
7 doing sandblasting?
8 A. I do not know from firsthand experience what
9 kind of equipment was used.
10 Q. Was air-supplied respiratory equipment
11 available in the Dow plants back when you began
12 working there?
13 A. I don't know.
14 Q. You don't recall encountering air-line
15 respirators or --
16 A. I had no personal experience with it.
17 Q. Okay. Do you recall encountering any cases
18 of silicosis among Dow employees during any of the
19 years you were with the company or being advised of
20 any cases?
21 A. I don't recall.
22 Q. Did you ever do any toxicological work in

23 connection with free silica or silica dust while you
24 were at Dow?

25 A. At one time I believe we used free silica as

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1 a control in an animal experiment - a very cursory
2 experiment - to check on the fibrotic nature of
3 something or other.

4 Q. And were you using silica in that
5 experiment, Dr. Rowe, as a positive control?

6 A. Yes.

7 Q. One where you knew that the control group
8 would develop a fibrosis or disease?

9 A. Yes.

10 Q. That's what we mean by "positive control"?

11 A. Well, we -- I don't know that - about the
12 disease part; but it elicited a particular type of
13 response when injected intraperitoneally in rats. And
14 it was rather - a rather unique observation so that
15 you could have something to compare with.

16 Q. Okay. If I could restate it, perhaps,
17 simply, then, you selected silica as your positive
18 control substance because you knew that it would
19 produce an adverse effect in the way you were using
20 it.

21 A. Well, we presumed it would.

22 Q. Okay. And did, indeed, find that it
23 worked.

24 A. Yes.

25 Q. Okay. You were aware at some point from

1 your dealings or communiques with the Saranac
2 Laboratory that they had done some work on the
3 inhalation hazards associated with silica, weren't
4 you, Dr. Rowe?

5 A. With whom?

6 Q. That the Saranac Laboratory scientists,
7 Dr. Gardner and his associates, had done some
8 experimental work with silica inhalation.

9 A. Yes.

10 Q. Could you recall approximately when you did
11 the study that used silica as a positive control,
12 Dr. Rowe?

13 A. I don't remember when that was.

14 Q. What was the nature of the rest of the
15 study; do you recall?

16 A. I don't remember the details. As I
17 remember -- What I do remember of it is that there
18 was - that one of the research laboratories had
19 developed something that they thought could be used as
20 a substitute somewhere along the line. And we had no
21 knowledge of what it might do; and, so, we thought we
22 would check it out. And that's what -- I don't even
23 know when it was.

24 Q. Or what they were trying --

25 A. I don't remember what the material was that

1 we were checking. Whether it ever came to production
2 or anything or not, I don't know.

3 Q. All right, sir. Do you recollect what you
4 were seeking a substitute for?

5 A. No. That's a blank, also.

6 Q. Okay. Did that lead to any kind of a
7 publication, that experiment that used the silica as a
8 positive control?

9 A. I beg your pardon.

10 Q. Did your work on the - that involved using
11 silica in the experiment, did that lead to any
12 publication?

13 A. No.

14 Q. What was it that gave you the idea to use
15 silica in your experiment, Dr. Rowe?

16 A. The purpose -- This was a totally new
17 technique for us. And if the results were to be any -
18 be meaningful, we had to know that - what the lesion
19 that would be produced by silica would look like under
20 those conditions. And if a material that we were
21 testing also produced a similar lesion, we would
22 assume it would behave similar to silica.

23 Q. I see. Was the new technique that of doing
24 the intraperitoneal injection of the irritant?

25 A. Yes.

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1 Q. So, that would probably place that back in
2 the first few years of your --

3 A. Not necessarily. I just don't know.

4 Q. Okay. I was just thinking there had been
5 some similar experiments done, perhaps at Saranac,
6 using that technique and by Bradley and Patty in
7 Detroit around the late Thirties, if that helps in
8 your recollection.

9 Did you ever consider in the tox. lab or
10 analyze any proposed substitute abrasives to use
11 instead of silica so that you could prevent any
12 possibility of silicosis in your sandblasters?

13 A. As I say, I don't remember what the material
14 we were working with was even designed for at this
15 time. I just -- I've forgotten, I guess.

16 Q. Oh, I'm sorry. I had moved on to wondering
17 if you considered any substitute materials for
18 abrasive blasting use.

19 A. I don't know. It might have been that the
20 material we were working on was a substitute for that
21 for all I know. I just don't know.

22 Q. Okay. Do you know if your industrial
23 hygienists at Dow were doing air monitoring in
24 connection with sandblasting work during that time
25 when you were in charge of the industrial hygienists?

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1 A. I don't remember.

2 Q. Would you agree with me that in the presence
3 of a visible dust cloud from sandblasting that
4 monitoring of the individuals in that work area would
5 be an appropriate thing for the industrial hygienists

6 to do?

7 MR. PIERCE: I'm going to object
8 to the form. And I'd like to indicate
9 to you that Dr. Rowe answered
10 previously that this was not an area in
11 which he is familiar or expert in.

12 But go ahead.

13 MR. BLANKS: I was simply asking
14 Dr. Rowe as the chief of the toxicology
15 and industrial hygiene department.

16 MR. PIERCE: Well, he's told you
17 that he was administratively head of
18 that, of the industrial hygiene
19 department.

20 A. Well, I would think that that would be
21 appropriate.

22 (By Mr. Blanks)

23 Q. All right, sir. Do you know, Dr. Rowe, if
24 Dow ever banned the use of silica as an abrasive for
25 blasting in its plants, sir?

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1 A. I don't know.

2 Q. Given the propensity for silica to cause
3 silicosis in workers sufficiently exposed, would it be
4 your view as a toxicologist that it would be desirable
5 to find a substitute abrasive for silica?

6 MR. PIERCE: I'd like to object to
7 the form; argumentative term,
8 "propensity."

9 Go ahead.

10 A. I think it -- It think it would be
11 appropriate.

12 Q. Thank you, sir. Dr. Rowe, do you think it's
13 really fair to - in giving health information to
14 workers to describe the toxic qualities of silica in
15 terms of being merely an irritant to the lung?

16 A. I beg your pardon. Would you please
17 repeat.

18 Q. Yes, sir. If you were -- In the context of
19 a worker's safety manual, is it fair to simply
20 describe the toxic character of silica from
21 sandblasting as being merely an irritant to the lung?

22 A. I don't think that -- I wouldn't think that
23 that would be quite appropriate. It wouldn't be
24 right.

25 Q. And why would information like that be

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1 deficient? I mean, how would it be deficient?

2 MR. PIERCE: Objection to the form
3 and mischaracterization of his
4 testimony. He never indicated it was
5 deficient.

6 Go ahead.

7 MR. BLANKS: Don't worry, Stan.
8 Dow didn't do this sort of thing.

9 MR. PIERCE: I'm just dealing with
10 the questions you are setting up for
11 this witness. And I'd like him to have

12 an opportunity to answer the questions
13 fairly. That's my only interest here
14 today.

15 (By Mr. Blanks)

16 Q. I'm sorry, sir. Tell the jury why a warning
17 or an instruction that simply describes the toxicity
18 of silica in sandblasting as an irritant is not fair
19 or adequate, if you don't think it's adequate.

20 A. Well, I don't -- I don't think that would be
21 correct. It would not be correct.

22 Q. Would you say, Dr. Rowe, that it would be
23 also incorrect and inadequate to describe the toxicity
24 of asbestos as being merely an irritant to the lung?

25 A. I don't...

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1 MR. PIERCE: You mean as we sit
2 here today?

3 A. If that's a hypothetical, that's one thing;
4 but I don't believe we ever did that.

5 Q. I don't suggest that you ever did that,
6 sir. It was a hypothetical.

7 Would it be fair to describe the toxic
8 properties of asbestos simply as an irritant to the
9 lung?

10 A. No.

11 MR. ALMQUIST: I think we can just
12 take a couple of minutes before you go
13 on for him to move around a little.

14 MR. BLANKS: Oh. Well, okay.

15 MR. PIERCE: Thank you.
16 MR. BLANKS: You want to get
17 up and stretch just a second,
18 Dr. Rowe?
19 THE WITNESS: Yes. I will.
20 MR. BLANKS: We're about to
21 finish on this.
22 (Brief pause)
23 MR. PIERCE: Are you okay?
24 THE WITNESS: Yeah.
25 MR. PIERCE: Okay.

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1 THE WITNESS: Got it loosened up
2 again.
3 MR. PIERCE: Good.
4 (By Mr. Blanks)
5 Q. Would you agree, Dr. Rowe, that when
6 sandblasting in an inadequately ventilated area that
7 an air hood or equivalent equipment supplied with
8 filtered air should be worn by the workers?
9 A. If that's what's required to prevent
10 excessive exposure. As I say, I don't know what all
11 is available, what all is required; but my general
12 understanding is that some sort of ventilation to
13 provide reasonably clean air at least would be
14 appropriate.
15 Q. So that the air that the worker is breathing
16 has a very low amount of the pneumoconiosis-causing
17 dust in the air, right?

18 A. Well, as best as possible.

19 MR. BLANKS: All right. I'll pass
20 the witness at this time on this topic
21 for anybody that has cross-examination
22 on silica-related matters.

23 No takers, Dr. Rowe. You want to
24 take a short break at this point or...

25 MR. PIERCE: Unless you're ready

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1 to finish up.

2 MR. BLANKS: Well, I'm through
3 with that part; and we move on to
4 Chapter III now.

5 MS. KETAI: Let's take a break.

6 MR. POFF: Are we done with
7 silicosis now?

8 MR. BLANKS: I reckon.

9 MS. KETAI: Well, they'll think
10 of something to ask at the break.

11 If you want to leave, well, --

12 MR. BLANKS: All right. Be gone.
13 A pox on you. Get out. You've stayed
14 too long here.

15 MR. POFF: Don't want to stay too
16 long.

17 MS. KETAI: Yeah. Really. Get
18 out of here.

19 MR. BLANKS: Well, let's take a
20 quick break, Dr. Rowe, to stretch your

21 legs, get something to drink, and head
22 on toward the finish line.

23 THE WITNESS: I didn't need to
24 take that stretch, did I?

25 MR. BLANKS: Well, maybe you need

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1 another one.

2 (AT THIS TIME A BRIEF RECESS WAS
3 TAKEN, AND THE PROCEEDINGS THEREAFTER
4 RESUMED AS FOLLOWS:)

5

6 RE-EXAMINATION BY MR. HOBSON:

7 Q. Dr. Rowe, beginning here on a different
8 topic with you, sir, if we may, in the documents that
9 you produced was a copy of an article that you are
10 shown as a coauthor on with Mr. Wolf and others. It
11 starts on the Bates-numbered page 384 and has
12 Plaintiffs' Exhibit 561000, all caps "DOW," D-O-W, and
13 then in parentheses "AMA-AIH."

14 That is a paper that you were one of the
15 coauthors on; is that right, sir?

16 A. Yes.

17 Q. And this was published in the American
18 Medical Association Archives of Industrial Health,
19 October, 1956, as indicated in the reprint; is that
20 right, sir?

21 A. Yes.

22 Q. Can you tell me if Dow did any other
23 toxicological studies on benzene other than this

24 particular one, sir?

25 A. Not that I recollect.

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1 Q. There are a number of references in the
2 bibliography to this paper. And the bibliography
3 begins on page 395 and continues to 396.

4 Would it be accurate, sir, to say that you
5 had copies of all of these items that are listed in
6 the bibliography and had an opportunity to read them
7 and review them when you wrote this paper?

8 A. (Reviewing document) I don't remember
9 that - a number of those.

10 Q. Is it the usual practice sir, when, you cite
11 a paper in a bibliography that you've authored that,
12 indeed, you have read that particular paper that
13 you've referenced and would be familiar with it or you
14 wouldn't have put it in the bibliography?

15 A. That's right.

16 Q. There's a series of referenced items that
17 are shown to - or attributed to the American Petroleum
18 Institute that are called Toxicological Reviews for
19 various materials.

20 Do you happen to have a specific
21 recollection of those, Dr. Rowe?

22 A. I don't have a recollection of them. The
23 name rings a bell, so to speak, but I can't even --
24 I've forgotten, I guess. I don't know what they look
25 like.

1 Q. Can you give me your best recollection,
2 Dr. Rowe, of when you appreciated that there was some
3 association between benzene exposure and leukemia?

4 A. I don't know when it was.

5 Q. Do you recall any conversations that you had
6 while you were an employee of Dow about benzene and
7 its ability to cause leukemia?

8 A. Yes.

9 Q. Can you tell me, in general, what you
10 recall, sir?

11 A. I just recall that it was rather unique in
12 that category of aromatic hydrocarbons.

13 Q. Is there any way that you could tell me how
14 far back in time, even to the nearest decade, that you
15 would have had these conversations about benzene and
16 leukemia while you were a Dow employee, sir?

17 A. I -- I don't remember the situation, even.

18 Q. If you'll notice, Reference 5 to your
19 bibliography there happens to be one of the A.P.I.
20 Toxicological Reviews, this one for benzene. And it's
21 dated 1948.

22 A. Uh-huh.

23 Q. If -- The fact that it's referenced here as
24 No. 5 -- I think you told me earlier you would have
25 had that document and would have read it. Would a

1 reference to leukemia in a document like that be
2 something that you would have likely noticed, or can
3 you tell me?

4 A. I think that it would have been very -- If
5 it was in there. I don't know that. If it had been,
6 I'm sure we would have been - it would have struck us,
7 a note of concern.

8 Q. As of the time you left Dow as their
9 employee, would you give me, if you might recall, sir,
10 your understanding of benzene's ability to cause
11 leukemia at that point in time?

12 A. I guess I really don't know how to answer
13 your question. Try it again on me.

14 Q. All right, sir. I'm trying to find out if
15 you can relate to me -- And I know it's been some time
16 ago but -- Trying to learn what your appreciation was
17 at the time you left Dow Chemical as its employee
18 about benzene and the ability of benzene to cause
19 leukemia in humans.

20 A. Okay. I think that was very well known and
21 long before I left the company, but I can't tell you
22 exactly when I learned it.

23 Q. Is it your understanding, sir, that benzene
24 can cause different kinds of leukemia or one kind of
25 leukemia? Can you help me with that, please?

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1 A. Well, it -- As I recollect, it does produce
2 leukopenia at some stages. And it's somewhat
3 different in different species, as I remember; but I

4 don't remember the details now.

5 Q. Would you recall, Dr. Rowe, that if you look
6 in the medical and scientific literature as of the
7 time you left Dow that there were reports that benzene
8 could cause various kinds of leukemia in humans?

9 MR. PIERCE: I'm going to object
10 to the form of the question.

11 Would you identify which specific
12 types of leukemia you claim are
13 indicated by the time Dr. Rowe left Dow
14 as in any way related to benzene
15 exposure.

16 MR. HOBSON: Yes, sir. I have in
17 mind the myelogenous leukemias and the
18 lymphatic leukemias.

19 A. I just don't -- I'm not sure of myself. I
20 don't know.

21 (By Mr. Hobson)

22 Q. Do you recall a text called Industrial
23 Toxicology by Hamilton and Hardy?

24 A. Yes. That is quite ancient.

25 Q. I think there were several editions of it;

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1 and it does go back to the first edition being a very,
2 very long time ago. Would you recall --

3 A. I remember the name, yes.

4 Q. Is that a textbook that you would look at
5 with any kind of authority?

6 A. I would certainly look at it with - because

7 both of those people were very highly respected, I
8 guess, by the community.

9 Q. But as we sit here today, you can't recall
10 ever coming to an appreciation for whether or not
11 benzene can cause any one kind of leukemia or other
12 kinds of leukemia: would that be a fair statement?

13 MR. PIERCE: Asked and answered.

14 A. I've forgotten, I guess. I just don't know
15 now.

16 Q. I noticed in your paper that was published
17 in 1956 that we referred to earlier that you reported
18 on effect levels. And I wondered if you could help me
19 with part of that, Dr. Rowe, and make sure I'm reading
20 it accurately.

21 There's a Table 6 which is on the Bates
22 number 390, page 6 of your article. You see Table 6
23 there, sir?

24 A. Yes.

25 Q. And as I read Table 6, the levels of

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1 exposure that you tested for the different species,
2 the lowest levels that you used all showed an effect
3 in the species that received the exposure. Is that
4 the correct interpretation of that table, sir?

5 A. Yes.

6 Q. And over -- If you'll look, sir, on Table
7 11, it seemed to be a little bit confusing to me. And
8 I wanted you to explain to me precisely what you meant
9 as one of the authors of this paper. Table 9 which --

10 A. Table 9?

11 Q. I'm sorry. On page 9, Table 11.

12 A. Oh, okay.

13 Q. It says "Comparison of Results of Repeated
14 Vapor Inhalation Studies on Animals Exposed to Benzene
15 and Some Alkylated Benzenes." And under "Material"
16 the first one listed is benzene. And it lists the
17 species tested next. And then there's a column that
18 says "No Effect Level, Parts Per Million"; and you
19 have an entry there for benzene.

20 Could you read that entry and then explain
21 to me how you meant that?

22 A. (Reviewing document) Would you please
23 repeat your question. I --

24 Q. Yes, sir.

25 A. I'm on the right spot here now.

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1 Q. Okay, sir. Under "No Effect Level, Parts
2 Per Million" in Table 11 --

3 A. Yes.

4 Q. -- on page 9 of the article, in the row for
5 benzene, --

6 A. Yes.

7 Q. -- under that entry, it says "Not found:
8 well below 80." Were you intending to communicate
9 there that you did not determine a no-effect level for
10 benzene in this experiment?

11 A. That's correct.

12 Q. And that you believed that the no-effect

13 level for benzene in this experiment was well below 80
14 parts per million?

15 A. That was our interpretation.

16 Q. Did you ever determine, that you can recall,
17 what a no-effect level for benzene exposure was at Dow
18 Chemical?

19 A. I don't remember.

20 Q. Can you recall, Dr. Rowe, what it was at Dow
21 that led you to do this work on benzene and alkylated
22 benzenes?

23 A. Yes.

24 Q. Would you tell us, please.

25 A. Because of the effect of benzene, which was

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1 known, the questions came up primarily because we were
2 manufacturing ethyl benzene, styrene, a-methyl
3 styrene, and vinyl toluene and - which are closely
4 related to benzene. And the question logically came
5 up will these materials elicit a response similar to
6 that of benzene. So, in this study we used benzene as
7 a positive control. It was not a study on benzene for
8 the sake of benzene. It was a -- It was simply a
9 control - positive control - for evaluating the
10 potential of the other materials to produce a - a
11 hemolytic - hemological ex - effect and other
12 pathology, as well.

13 Q. Was benzene a product that or material that
14 Dow was using or manufacturing in its facilities in
15 the 1950's about the time this article was written?

16 A. Yes.

17 Q. And I was curious, sir. Would you know if
18 benzene was either used or manufactured by Dow when
19 you joined the company in the late Thirties?

20 A. I'm sorry. I didn't get...

21 Q. Would you recall, sir, if -- When you joined
22 Dow in the late Thirties, was benzene either being
23 used or manufactured at Dow?

24 A. I'm quite certain it was not being
25 manufactured, but I can't answer your question. I

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1 don't know.

2 Q. Is there a time that - or an approximation
3 of a time that you can give me that you learned that
4 Dow did use benzene in a process at manufacturing
5 activities?

6 A. I can't -- I don't know.

7 Q. So, sometime at least around 1956, though,
8 you know that Dow did use benzene in some of its
9 processes?

10 A. I'm sure Dow used benzene because they used
11 it as an intermediate in the chemical synthesis. I
12 don't know when this started.

13 Q. Was Dow already making some of these
14 alkylated benzenes at the time you did this work in
15 1956?

16 A. Yes.

17 Q. And had they been making some of these
18 alkylated benzenes for a number of years; or would you

19 know, sir?

20 MR. PIERCE: Objection to the
21 form; asked and answered.

22 A. I don't know exactly when these particular
23 benzene derivatives were first produced, but I would -
24 I would say that the article was published in '56.
25 So, the work was actually done before that. And I

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1 don't know just how long or the period of time it took
2 to get all the pathology done and the publication -
3 the reports written. I don't remember.

4 Q. I noted, sir, on page 388 of the -- That's
5 the Bates number. It's page 4 of the article,
6 itself. On the right-hand column - It's numbered
7 paragraph 2 - it talks about odor and irritation
8 experiments. Do you see that entry, sir?

9 A. Yes.

10 Q. It talks about human subjects. Was there an
11 activity in your laboratories that called from time to
12 time for you to use human subjects in your
13 experimentation on toxicology?

14 A. We did some, yes.

15 Q. May I ask, sir, how you - how you did that
16 as far as getting the volunteers? I take it they were
17 volunteers to do the work.

18 A. Yes. I was one of them. We used our
19 professional staff in toxicology, everyone thoroughly
20 understanding the situation. And as far as odor and
21 irritation is concerned, that's a very brief

22 exposure. But this is important to identify. If you
23 have a good warning property for a material, it's much
24 less hazardous than one that has no odor or irritating
25 properties.

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1 Q. Was there a standard protocol that you used
2 in working with human subjects in the early 1950's, or
3 was this fairly informal in that time period?

4 A. It was quite informal.

5 Q. Would the human subjects always have been
6 those workers there in the toxicological laboratories?

7 A. I -- I think so.

8 Q. I don't see that benzene was used in this
9 particular phase of the experiment. Would that be
10 your understanding of reading this, as well, sir?

11 A. Yes.

12 Q. Was that because you understood that benzene
13 did have the potential to cause serious injury to the
14 bone marrow at this time?

15 A. Yes.

16 Q. Are you aware of any epidemiological studies
17 that Dow did with regard to benzene?

18 A. I don't recall any.

19 Q. Were you involved at all, Dr. Rowe, in any
20 of Dr. Kilian's work with benzene in Texas?

21 A. No.

22 Q. Were you aware of it at the time it was
23 being planned?

24 A. I don't recollect.

25 Q. Are you now aware that Dr. Kilian did do

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1 some work with benzene and workers at the Texas
2 facilities with regard to chromosomal aberrations?

3 A. I know he was doing that kind of work, but I
4 don't know what materials he was working with. I
5 don't remember, if I did know.

6 Q. Now, the last six to eight years that you
7 were with Dow, would you have been getting reports of
8 what Dr. Kilian was doing in Texas?

9 A. I don't know.

10 Q. Now, Dr. Kilian was a physician, correct?

11 A. Yes.

12 Q. So, he was in a different organization than
13 you were; and, also, he was in Texas?

14 A. Yes.

15 Q. And the last five or six years you were with
16 Dow, what was your position again, sir?

17 A. I was in a section called
18 Health/Environmental Research.

19 Q. And did your job duties in that position
20 have anything to do with what Dr. Kilian would have
21 been planning on doing in Texas?

22 A. I doubt it.

23 Q. Was it your experience, Dr. Rowe, that if a
24 physician were going to carry out the kinds of tests
25 that Dr. Kilian did with regard to chromosomal

1 aberrations in benzene exposures that they would need
2 approval for that; or would you know one way or the
3 other?

4 A. I don't know -- I can't recall if I ever did
5 know what he did; so, I don't know.

6 Q. Would you know of a Dr. Ott, O-t-t, at Dow?

7 A. Doc -- Mr. Ott?

8 Q. Is it Mr. Ott?

9 A. Yeah. Yes.

10 Q. How is it that you knew of Mr. Ott?

11 A. He was a biostatistician. He was a
12 statistician, I guess.

13 Q. And an employee of Dow, I take it.

14 A. Yes.

15 Q. We had some testimony earlier about the
16 establishment of an epidemiological program at Dow.

17 Was Mr. Ott part of that program that was
18 established, the epidemiology --

19 A. I believe so.

20 Q. Could you tell me, if you have any opinion,
21 of Mr. Ott's ability to do his work at Dow?

22 A. We considered him to be competent in that -
23 in his area.

24 Q. Would Mr. Ott be doing the kind of work that
25 you as a scientist would rely upon?

1 A. Well, I don't - I believe Mr. Ott would have

2 been a - the prime investigator. On any of this type
3 of work I believe it would have been in an association
4 with an epidemiologist in the medical department.

5 Q. Would you know of a Mr. Bond or Dr. Bond?

6 A. Who?

7 Q. Bond, B-o-n-d.

8 A. That name is not familiar.

9 MR. BLANKS: James Bond.

10 (By Mr. Hobson)

11 Q. Did you ever have any involvement, Dr. Rowe,
12 with doing any work with benzene in trying to
13 determine the amount of benzene that would be expired
14 by Dow employees after exposure to benzene in their
15 expired air?

16 A. Some work of that nature was done, but I
17 don't recall that benzene was included. It may have
18 been. I don't know.

19 Q. But you never did anything any of that work,
20 yourself?

21 A. No.

22 Q. Or your laboratory?

23 A. Well, I may have participated in some
24 experiments to - in what we would call "metabolic
25 experiments." And I think many of us participated in

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1 that. But certainly not benzene.

2 Q. But not for benzene?

3 A. No.

4 Q. Are you aware of any human experiments at

5 Dow during your tenure that involved benzene?

6 A. No.

7 Q. And, I mean, you say that rather with some
8 assurances. Why would that be?

9 A. I know of none but - at least in - that I
10 had anything to do with.

11 Q. Would you have been opposed to any kind of
12 human experimentation with benzene while you were a
13 Dow employee?

14 A. I guess it would be -- Generally, yes. But
15 there may have been... Well, possibly some things can
16 happen when you have an accidental exposure, for
17 instance, and you know that it happened. Then it's
18 sometimes advantageous to collect biological samples
19 for purposes of possible use in monitoring when
20 questions are asked and things like this. I don't
21 know that anything purposefully was ever done.

22 Q. Yes, sir. And that was my question, really,
23 would be purpose - purposeful or intentional
24 experimenting --

25 A. I'm not aware of any.

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1 Q. And you would caution against doing any
2 intentional or purposeful exposures in human
3 experimentation?

4 MR. PIERCE: You mean at any level

5 or --

6 MR. HOBSON: Yes.

7 MR. PIERCE: And what time

8 frame are we --

9 MR. HOBSON: Any time he was a Dow
10 employee, even from the early
11 Thirties. I'm sorry. Late Thirties.

12 A. I don't necessari -- I wouldn't say that I
13 would categorically. It would depend upon the
14 particular circumstances. Certainly it would be done
15 with extreme caution.
16 (By Mr. Hobson)

17 Q. Now, you mentioned some biological
18 monitoring in connection with accidental exposures in
19 talking about benzene.

20 Are you aware of any of that work actually
21 being done at Dow, Dr. Rowe?

22 A. Any of what work?

23 Q. Biological monitoring following an
24 accidental exposure to benzene.

25 A. No, I'm not.

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1 Q. Let me tell you, sir, that I have heard -
2 and I wonder if you can confirm - that there were a
3 number of employees - less than a dozen - who did have
4 an accidental exposure to benzene in the early 1950's
5 that was on the order of a hundred parts per million
6 for some 90 days. Does that have any familiarity to
7 you at all, Dr. Rowe?

8 A. I don't remember that. It may have
9 happened. I don't know.

10 Q. Is that the kind of information that, if it

11 did happen, you would want to have known about and
12 likely would have recalled?

13 A. Well, --

14 MR. PIERCE: Object to the
15 speculative nature of that
16 question.

17 But go ahead and answer it.

18 A. I would have expected so.

19 Q. Can you tell me, Dr. Rowe, if in the
20 instance of a carcinogen whether or not you can
21 accurately and reliably determine a no threshold in
22 humans?

23 MR. PIERCE: I'm sorry. A what
24 kind of threshold?

25 MR. HOBSON: Accurately and

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1 reliably establish a no effect
2 threshold.

3 A. I don't know that you can. It comes down to
4 a matter of diminishing effects. And where that curve
5 tails off to zero nobody knows. There are statistical
6 ways of looking at it which I think are fallacious in
7 many instances.

8 (By Mr. Hobson)

9 Q. Would you agree then, sir, that the prudent
10 thing to do is to aim at the complete elimination of
11 exposure as much as you can do?

12 MR. PIERCE: I'm going to object
13 to that question as asked and answered

14 numerous times. The witness has
15 testified that zero exposure is the way
16 to go. I think he has been asked that
17 question at least six or seven times.

18 But once again...

19 A. Well, you certainly do as much as you can to
20 diminish the probability of exposure. It doesn't mean
21 that you can reach zero. There is no such thing if
22 you're going to work with a material and maybe not
23 even if you're not because there are other things
24 around that may elaborate benzene. Who knows?

25 Q. Dr. Rowe, we've previously marked Exhibit 17

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1 to your deposition. And there's one of these charts
2 that you identified for us. And I see at the top it
3 says "Occupational Exposure." And you've listed a
4 number of materials. And in the center of the middle
5 column is listed benzene (indicating).

6 Can you put in context for me how you would
7 have used this slide in any of your speeches?

8 A. No. I don't -- I would expect it would be
9 in the text - one of those texts that I gave you.

10 Q. It struck me that most, if not all, of these
11 materials that are listed on this chart have been
12 reported as having the potential to cause cancer. I
13 see coal soot, coal tar, petroleum - although that's a
14 very broad term --

15 A. Yeah. That's too broad.

16 Q. -- petroleum coke, wax - again a very broad

17 subject --

18 A. Uh-huh.

19 Q. -- creosote, anthracene. And it

20 continues.

21 MR. PIERCE: And includes iron

22 oxide and wood dust and --

23 MR. HOBSON: Yes.

24 MR. PIERCE: -- leather.

25 MR. HOBSON: Well, I think

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1 it's leather dust.

2 MR. PIERCE: Leather dust.

3 MR. HOBSON: As well as asbestos

4 and chromium and nickel.

5 A. I think it was used as an example of

6 materials that were suspected of being carcinogens.

7 (By Mr. Hobson)

8 Q. Can you give me any kind of a time period

9 when you would have first prepared this particular

10 list, Dr. Rowe?

11 A. I'm -- I'm not certain that I prepared that

12 list. I think maybe that was a copy from a

13 publication. And I don't know just when it was that I

14 used it. It was some years ago.

15 Q. All right, sir. You can't even put it in a

16 decade for me?

17 A. No.

18 Q. I notice the next one that we happen to turn

19 to in this particular exhibit at the top it's titled,

20 "Cancer Triggering Diseases." And on here is
21 pernicious anemia. Would you have had reference to
22 benzene with that, Dr. Rowe?

23 MR. PIERCE: I'm going to object
24 to that question.

25 And I'd like to bring to your

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1 attention I believe you are completely
2 misinterpreting the term "pernicious
3 anemia." And if you're trying to imply
4 that that's a benzene-related anemia, I
5 just -- That's not my place. I'm
6 sorry.

7 I withdraw that objection.

8 MR. HOBSON: That's what I thought
9 I was asking him. But anyway...

10 A. I don't remember.

11 MR. BLANKS: It was a pernicious
12 objection, as well.

13 MR. PIERCE: I get offended by
14 such obvious scientific inaccuracies.
15 I'm sorry. I should not have reacted
16 that way.

17 (By Mr. Hobson)

18 Q. Can you tell me, Dr. Rowe, if you recall,
19 how you intended to use the term "cancer triggering
20 diseases" that heads up this chart?

21 A. If memory serves me correctly, those were
22 associated with existing conditions in which perhaps

23 they were activators or at least would make a person
24 more susceptible to development of cancer from other
25 stresses or exposures.

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1 Q. And can you recall, sir, in the instance of
2 listing pernicious anemia --

3 A. I don't recall details on those.

4 Q. All right, sir. There's another chart that
5 makes up Exhibit 17 that appears to show a flow of
6 information. And on the left it says "inheritance,"
7 on the right it says "mutagens." And those two arrows
8 seem to come together on "defective chromosomes."

9 Can you tell me how you would have used this
10 chart and, in particular, that part of it, Dr. Rowe?

11 A. I don't remember enough of the detail now to
12 elaborate on it.

13 Q. And would that also be so for the rest of
14 this particular chart?

15 A. I think so, yes.

16 Q. Did you use benzene for purposes other than
17 positive control at your laboratory there at Dow; in
18 other words, did you use it as a solvent or as an
19 analytical agent?

20 A. Possibly. I don't know. I don't remember
21 that we did, but we could have because there are -
22 sometimes you have to use benzene. It's a very
23 excellent solvent. If you want to dissolve
24 something that won't dissolve something else, you use
25 benzene.

1 Q. Would you recall if you had any kind of a
2 medical surveillance program or a biological
3 monitoring program for your workers there at the
4 laboratory who would have done work such as the
5 benzene experiment that was reported in 1956?

6 MR. PIERCE: You mean -- Excuse
7 me. That question is ambiguous.

8 Do you mean only for the workers
9 who did - who might have done the
10 benzene work or for anybody who worked
11 in that laboratory?

12 MR. HOBSON: I was asking about
13 the ones who did the benzene work.

14 A. No, we did not.

15 (By Mr. Hobson)

16 Q. And, Dr. Rowe, if I could, I want to move to
17 another subject with you.

18 Did you ever do any work in your
19 laboratories at Dow, that you might recall, that dealt
20 with nitrosamines?

21 A. I don't remember working with nitrosamines.

22 Q. Is the area of nitrosamines and
23 carcinogenicity something that you feel that you have
24 knowledge about?

25 A. Those are in the category of aromatic amines

1 and the derivatives which as a class are suspect, I
2 guess. We would have recognized that.

3 Q. And the aromatic amines were known to be
4 human carcinogens at least from the late Thirties; is
5 that correct, sir?

6 A. I don't know the dates. Not all aromatic
7 amines are carcinogenic, as I understand; but there
8 are - that is a class of compounds that's associated
9 usually with the dyes that are of concern.

10 Q. And when you say that nitrosamines would be
11 suspect, how did you mean that, sir?

12 A. Well, they belong to an amine group or
13 amine-type compound that - that one would be cautious
14 about.

15 Q. Are you saying that because you know that
16 some of the materials in this family of chemicals have
17 known carcinogenic properties you would be suspicious
18 of the other families until you had evidence that they
19 were not carcinogenic?

20 MR. PIERCE: Objection to the
21 form; leading, leading.

22 Why don't you ask him what he
23 thinks.

24 A. I would -- I would say that it would be
25 analogous to the situation that we discussed earlier

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1 with respect to benzene and benzene derivatives.
2 Until you know about the others, you don't know. And

3 you have concerns because they belong to a class.

4 Q. And I think you've put in your writings in
5 the past that one of the jobs of a toxicologist is to
6 look at materials that have known properties and
7 extrapolate to other members of that same family of
8 chemicals for a suspicion and then do testing as
9 appropriate. Would that be accurate, sir?

10 MR. PIERCE: I'd like to object to
11 the form of the question as being
12 multipart.

13 A. Well, that, I think, is a reasonable
14 approach to the thing. Until you've tried it, you
15 don't know.

16 Q. And that's what you were doing in 1956 in
17 your publication on benzene and the alkylated
18 benzenes. Yet you knew about benzene. You had
19 suspicions about the other materials. And, so, you
20 tested them to show that they did not affect the bone
21 marrow and the blood as benzene did. Is that right,
22 sir?

23 A. That's correct.

24 MR. PIERCE: I'd like to object to
25 the form as a mischaracterization of

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1 the nature of that scien - paper which
2 you brought to his attention as an
3 exhibit earlier.

4 But go ahead.

5 A. That was our approach.

6 Q. Would you agree with me, Dr. Rowe, that
7 certain polynuclear aromatic hydrocarbons have been
8 known to be human carcinogens for at least 50 years,
9 if not much longer?

10 A. What -- Would you repeat, please.

11 Q. Yes, sir. Would you agree with me that
12 certain polynuclear aromatic hydrocarbons have been
13 known to cause cancer in humans for at least 50 years,
14 if not longer?

15 A. I don't know the time frame, but I'm aware
16 that - that certain polycyclic's aromatic compounds
17 have been associated with that.

18 Q. One of the materials on your chart that we
19 looked at a moment ago was anthracene. That's a
20 polynuclear aromatic hydrocarbon, is it not?

21 A. Yes.

22 Q. And it has known carcinogenicity, does it
23 not?

24 A. I -- I don't remember offhand that - the
25 information on anthracene.

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1 Q. Would you recall if Dow either purchased or
2 sold any materials that were rich in polynuclear
3 aromatic hydrocarbons, sir?

4 MR. PIERCE: Objection to the
5 form in the utilization of the vague
6 and ambiguous term "rich."

7 MR. BLANKS: Everybody knows
8 what's rich, who's rich and who's not.

9 MR. PIERCE: Go ahead.

10 A. I don't recollect that they did.

11 Q. Did Dow manufacture any products, to your
12 knowledge or recollection, that were used in the
13 rubber industry?

14 A. We made materials that were used in the - in
15 the synthetic rubber industry.

16 Q. And what kinds of materials would those have
17 been, Dr. Rowe, that you might recall?

18 A. It would be styrene and butadiene.

19 Q. Would you have made any of the other lesser
20 components of synthetic rubber such as antioxidants,
21 the retardants, the short stops, any of the other
22 materials that you might recall that are used in the
23 manufacture of synthetic rubber?

24 MR. PIERCE: Could we ask them
25 individually or -- Change the question

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1 so it really isn't a compound question
2 with these multi parts.

3 MR. HOBSON: Well, we might be
4 done with the whole topic, depending on
5 the answer.

6 A. I don't know.

7 MR. BLANKS: So, there.

8 MR. PIERCE: You were correct.

9 MR. HOBSON: I think that's all
10 I've got on this subject area.

11 I'll pass the witness for any

12 cross-examination.
13 There being none, I thank you for
14 your patience, Dr. Rowe. And I think
15 that for today's activities we are
16 concluded. Thank you, sir.
17 THE WITNESS: Okay.
18 (AT THIS TIME, 3:36 P.M., THE
19 PROCEEDINGS OF MAY 12, 1993, WERE
20 CONCLUDED.)
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1 THE STATE OF ARIZONA:
2 COUNTY OF :
3
4 I, VERALD K. ROWE, hereby certify that I
5 have read the foregoing Vol. II transcript of my
6 testimony, given in the foregoing numbered and styled
7 case, and that same is true and correct to the best of
8 my knowledge and belief.
9 I further certify that any and all
10 corrections have been made on a separate page and
11 initialed by me.
12 This day of , 19 .
13
14

VERALD K. ROWE

SWORN TO AND SUBSCRIBED BEFORE ME this

day of , 19 .

NOTARY PUBLIC

My Commission Expires:

675

1 THE STATE OF TEXAS :
2 COUNTY OF JEFFERSON:
3
4 I, SANDRA S. SULLIVAN, a Certified Shorthand
5 Reporter for the State of Texas, hereby certify
6 pursuant to the Texas Rules of Civil Procedure and/or
7 agreement of the parties present to the following:
8
9 That this Vol. II deposition transcript is a
10 true record of the testimony given by Verald K. Rowe,
11 the Witness named herein, on May 11, 1993, and May 12,
12 1993, after said Witness was duly resworn by me.
13
14 SWORN TO AND SUBSCRIBED by me on the
15 1st day of June, 1993.
16
17

18 SANDRA S. SULLIVAN, CSR, RPR
19 Certification No.: 2411
Expiration Date: 12-31-93
20
21 Business Address: Charlotte Smith Reporting, Inc.
235 Orleans
Beaumont, Texas 77701
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23 Telephone: (409) 839-4407
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