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2 RUSSELL ALLEN, ET AL
3 VS.
4 AMERICAN PETROFINA, ET AL
5

NO. B-126,986
IN THE DISTRICT COURT
JEFFERSON COUNTY, TEXAS
60TH JUDICIAL DISTRICT

6
7 FRENCH HICKS, ET AL
8 VS.
9 BETHLEHEM STEEL CORP., ET AL

NO. A-134,614
IN THE DISTRICT COURT
JEFFERSON COUNTY, TEXAS
58TH JUDICIAL DISTRICT

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14 VIDEOTAPED DEPOSITION OF
15 HAROLD ROBERT HOYLE
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20 On July 20, 1993, the videotaped
21 deposition of HAROLD ROBERT HOYLE, a Witness in the
22 above-styled causes, was taken at the instance of
23 the Plaintiffs at the Valley Plaza Inn, 5221 Bay
24 City Road, Midland, Michigan, pursuant to
25 Stipulations of Counsel contained herein.

2
1 Those Counsel present, representing their
2 respective client or clients in the causes of
3 action in which they have filed Answer, were as
4 follows:
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3 IN ATTENDANCE:

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

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3 IT IS STIPULATED AND AGREED BY COUNSEL

4 FOR THE PARTIES HERETO:

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7 That the deposition is taken pursuant

8 to the Texas Rules of Civil Procedure;

9

10 That Charlotte Smith, a Certified

11 Shorthand Reporter for the State of Texas, may act

12 as a Certified Shorthand Reporter for the State of

13 Michigan for purposes of swearing the Witness in

14 this deposition;

15

16 That an objection made by one Defendant

17 shall serve as an objection by all Defendants for

18 purposes of this deposition;

19

20 That the deposition is to be videotaped;

21

22 That the transcript will be submitted

23 to the Witness for reading and signing by said

24 Witness;

25

8

1 That according to Rule 206 of the Texas

2 Rules of Civil Procedure, the original transcript

3 will be delivered to MR. JOSEPH C. BLANKS.

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7 E X A M I N A T I O N I N D E X
8

9
10 EXAMINATION BY: PAGES:
11 Mr. Joseph C. Blanks 10 - 169
12 Mr. Arthur Almquist 169 - 171
13 RE-EXAMINATION BY:
14 Mr. Joseph C. Blanks 171 - 176
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2 having been duly sworn, testified as follows,
3 to-wit:
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5 EXAMINATION BY MR. BLANKS:
6 Q Good morning, Mr. Hoyle. I'm Joe
7 Blanks, as I'm sure you have been told, here to
8 ask you some questions today in our ongoing
9 asbestos cases.
10 Would you just do me the favor of
11 introducing yourself for the jury for the
12 purposes of your deposition, sir.
13 A Yeah. My name is Harold Hoyle.
14 Q And you are a former Dow employee, are
15 you, sir?
16 A Yes, sir.
17 Q Where do you reside these days,
18 Mr. Hoyle?
19 A Right now Midland, Michigan. In the
20 wintertime I'm in Florida.
21 Q Just for continuity purposes, let me
22 just recap a couple of things from your
23 background and also to get them focused in my
24 mind.
25 If I remember correctly, you served

11
1 for many years as the chief industrial hygienist
2 for Dow Chemical Company, roughly from '48
3 through '76. Would that be so?
4 A That's true. I was the chief
5 industrial hygienist.
6 Q And would you remind me when you
7 joined the company, sir.
8 MS. USERY: Could you have
9 the Witness speak up a little
10 bit?
11 MR. ALMQUIST: He's talking
12 as loudly as he can.
13 A I have a bit of a problem.
14 Q Speak at your comfort level and

15 MR. ALMQUIST: Speak at the
16 level you are comfortable with.
17 Q I'm sorry, I was asking you when you
18 joined the company. I apologize.
19 A In 1941 I was here for a summer, and I
20 returned to teaching and became a full-time
21 employee in 1942.
22 Q And your background I think was in
23 chemistry and physics?
24 A That's true.
25 Q Was that the field you worked in in

12
1 the first years, the first four, five, six,
2 seven years with the company was in the field of
3 chemistry?
4 A No.
5 Q What were you doing?
6 A The first job I had was a pipe shop
7 estimator in the summertime. And the second job
8 that I had was in the Accounting Department as
9 the Dow Magnesium Corporation.
10 Q This almost sounds like you were in
11 the Army instead of in private business. You
12 have a chemist and a physicist and you put him
13 in the Accounting Department. What was going on
14 there?
15 A I had a physical problem. I had
16 ulcers and I was told to find a job where I
17 would be responsible for my own actions. I was
18 a high school coach before that, which may
19 explain.
20 Q What led, then, to your move into the
21 industrial hygiene field in 1948?
22 A I had been a safety engineer for four
23 years prior to that, and the decision within the
24 company was that someone was needed to do this
25 job full-time.

13
1 Q And was it the case that before there
2 was actually an Industrial Hygiene Department
3 founded or created, that the Safety Department
4 had been responsible for industrial hygiene-type
5 activities and concerns?
6 A The Safety Department always had a
7 shared responsibility because it is part of
8 safety. Actually, the industrial hygiene done
9 prior to my arrival was done by a man who was
10 also the chief toxicologist.
11 Q Would that be Mr. Rowe?
12 A No. That was Dr. Edgar Adams.
13 Q So, if I understood you, then, before
14 '48 for some period of time Dr. Adams --
15 A Yes.
16 Q --- who was the chief toxicologist,
17 also did some industrial hygiene work at Dow?
18 A As needed. He probably was the father
19 of industrial hygiene at Dow.
20 Q Could you give me a feel for
21 approximately when Dr. Adams began with the
22 company?
23 A Yes. He came to Dow in 1934.
24 Q Was it your understanding that he had

25 kind of begun doing industrial hygiene-type

14

1 tasks back even into the late '30's on an
2 as-needed basis?

3 A I can't put a time on it, really. He
4 had done it because he was doing toxicology and
5 had the kind of information that would be needed
6 to make some decisions in industrial hygiene.

7 Q So, he had access to the health hazard
8 information about various materials?

9 A His job was to develop that kind of
10 information on our products.

11 Q And I guess necessarily he also had
12 laboratory facilities and a technical
13 background, of course, that would --

14 A He had a Ph.D. in biochemistry.

15 Q Was Dr. Adams actually the founder of
16 the Toxicology Department at Dow? Was that the
17 right way to say that?

18 A Dr. Donald D. Irish was the first
19 biochemist and did the first toxicology. His
20 interests were broader than just toxicology, so
21 he brought Dr. Adams in a couple of years after
22 he arrived.

23 Q What was it that got you interested in
24 industrial hygiene to where this position was
25 actually appealing to you and one you wanted to

15

1 take?

2 A Well, I think it goes back to the
3 thing you alluded to: I'm a chemist by
4 training, and although I was enjoying the safety
5 engineering job, it was not as technical as it
6 might have been. And industrial hygiene is
7 quite similar to safety as far as its goals are
8 concerned, being limited to the work environment
9 rather than things like falling down stairs and
10 getting electric shocks and things like that.
11 There's a whole laundry list of safety items
12 that are not chemical in nature.

13 Q So, this gave you a chance to combine
14 your safety background and your scientific
15 education into a --

16 A That's the way I saw it when I took
17 the job, yes, sir.

18 Q I guess you liked it. You stayed with
19 it for almost 30 years.

20 A For a while, yes.

21 Q Could you give me some sense of how you
22 came to have your training in industrial hygiene
23 and what did you do to really become proficient
24 at this job and who were you dealing with as you
25 began to develop in the field after '48?

16

1 A Maybe the best way to describe it is
2 to say that I have frequently said that Ed Adams
3 was my major professor. And, of course, there
4 were opportunities to - for training in terms of
5 seminars and opportunities to hear papers being
6 presented at technical meetings, things like
7 that.

8 Q If I remember correctly, you had said
9 earlier that you only missed one or two of the
10 American Industrial Hygiene Association meetings
11 over those years you were practicing.
12 A I believe that's right.
13 Q You went to the first one in 1948 in
14 Boston?
15 A Yes, it was in Boston.
16 Q This would have been an opportunity
17 for you to hear technical papers being
18 presented?
19 A Yes. That's the major one that I
20 remember. There were other circumstances, but
21 that was the annual thing that one could depend
22 on and it's where the people doing industrial
23 hygiene had an opportunity to present their
24 papers and reports.
25 Q And then these were published in the

17
1 quarterly journal of that association which you
2 also received?
3 A It was quarterly to start with.
4 MR. ALMQUIST: Mr. Hoyle,
5 we're getting so we're talking on
6 top of each other, and I know
7 Mrs. Smith over here is a real
8 good reporter, but she has a hard
9 time when both people are talking
10 at once. Please wait until
11 Mr. Blanks gets through with his
12 question before you start your
13 answer.
14 THE WITNESS: All right.
15 Q We tend to fall into a conversation
16 here --
17 A That's true.
18 Q --- and it's making it tough.
19 We were talking about the AIHA
20 quarterly journal. I suppose that would have
21 been one of the resources that you would have
22 had available and would have been reading --
23 A Yes.
24 Q --- as the issues came out, to stay
25 abreast of new developments and also to educate

18
1 yourself?
2 A That's right.
3 Q The Industrial Hygiene Foundation is
4 an organization you are familiar with, isn't it?
5 A Yes, sir.
6 Q I'm thinking back at some point that
7 it was called the Air Hygiene Foundation of
8 America?
9 A It may have been. That was before my
10 time.
11 Q It might have been back in the '30's.
12 And I understand Dow had been a member of the
13 Industrial Hygiene Foundation from fairly early
14 on as you recollect. Is that true?
15 A Yes.
16 Q Is that an organization whose meetings
17 you also attended from time to time?

18 A Yes.

19 Q And they had at least one or more
20 regular publications, too, I think. Do you
21 remember those, Mr. Hoyle?

22 A The one that I remember best was the
23 industrial hygiene Digest.

24 Q I guess "Digest" describes it.

25 A Well

19

1 Q I mean it was a collection of little
2 abstracts from articles published in the field
3 from around the world, wasn't it?

4 A Yes, sir.

5 Q Was that something that was handy and
6 useful to you?

7 A It was a source of information;
8 useful, of course.

9 Q I guess it gave you a convenient way
10 of keeping up with developments in a lot of
11 different fields of industrial hygiene without
12 having to actually subscribe to the hundred or
13 more journals that they abstracted periodically.
14 A More importantly, you didn't have to
15 read all those journals - the articles that were
16 of interest.

17 Q And for the jury's benefit, then, this
18 Industrial Hygiene Foundation Digest would give
19 you just a little brief paragraph describing the
20 highlights of a new article on whatever the
21 topic might be --

22 A Yes, sir.

23 Q --- to where you could skim through
24 the Digest, look for the topics of interest.
25 And if it looked like it was worth pursuing,

20

1 then you could obtain a copy of the actual
2 article that was mentioned in the Digest. True?

3 A Yes.

4 Q Do you remember, Mr. Hoyle, if this
5 Digest was a resource that they had at Dow when
6 you began to do industrial hygiene work there -
7 which would have been in '48 again?

8 A Well, I remember seeing it early on
9 when I went to work there. Does that answer
10 your question?

11 Q I think so. It was there when you
12 began or at least --

13 A Or copies came across my desk sometime
14 soon after I got there.

15 Q Do you know which individuals from
16 Dow; if any, were connected with the Industrial
17 Hygiene Foundation - I mean as directors or
18 officers or something like that?

19 A Not any, to my knowledge, that I
20 remember.

21 Q Do you remember that the IHF was
22 organized that way to where individuals did
23 serve from outside companies?

24 A They had a board of directors - I
25 remember that - and officers. And I think these

21

1 people may have been from companies, but I don't
2 remember that there was any Dow involvement at
3 that level.

4 Q Do you recall that the Industrial
5 Hygiene Foundation was a foundation organized by
6 different companies, industrial companies, to
7 further industrial hygiene matters?

8 A I don't believe that I know how it was
9 organized. It was already there when I became
10 interested in the field.

11 Q But specifically during the 28 years
12 that you were doing industrial hygiene, you know
13 of no Dow employees who actually served as board
14 members?

15 A I can't remember any such circumstance.

16 Q Or any Dow employee who actually had
17 any position with the Industrial Hygiene
18 Foundation that you can recall?

19 A Not in any permanent position, no.

20 Q Now, I understand that the Industrial
21 Hygiene Foundation from time to time did
22 consulting work in the field.

23 A Yes, sir.

24 Q Do you recall Dow ever using the IHF
25 as a consultant?

22

1 A Not during my time at Dow did we use
2 them. Whether they were used before my arrival,
3 I don't know.

4 Q And I suppose other than going to the
5 annual meetings or the periodic meetings that
6 the Industrial Hygiene Foundation sponsored for
7 its members, you never went to any organizational
8 meetings?

9 A No. There were occasional symposiums,
10 I remember, that they had sponsored from time to
11 time.

12 Q That's a better way to describe it -
13 for the meetings. So, you went to the technical
14 symposia from time to time?

15 A Yes, I participated from time to time.

16 Yes:

17 Q But never had any connection with any
18 of the activities of the organization in terms
19 of how it was run --

20 A No.

21 Q --- or its policy settings or anything
22 like that?

23 A No.

24 Q What kind of connection, if any, did
25 you ever have with the American Congress of

23

1 Governmental Industrial Hygienists, the ACGIH?

2 A Well, they had their meetings
3 concurrent with the AIHA meetings. I had
4 contact with some of their members because the
5 State Health Department people were members of
6 that group; in Michigan, that is.

7 Q How was it, Mr. Hoyle, that you were
8 acquainted with the State Health Department
9 industrial hygienists in Michigan?

10 A Well, they had an industrial hygiene
11 unit in that group, and, therefore, they had
12 industrial hygienists whose job it was to
13 largely help industry maintain and create
14 healthful work environments. It was in that
15 context that I had my contacts with them. They
16 were called engineers.
17 Q Industrial hygiene engineers?
18 A I believe that's right.
19 Q Do you have any understanding of how
20 far back in time the Michigan industrial hygiene
21 unit goes in the State Health Department?
22 A Well, to 1948, I know, and before.
23 Q Did you ever hear that it was founded
24 back in the '30's or during the early '40's?
25 A I wouldn't doubt it at all, but I have

24
1 no specific recollection-of when it was started.
2 I know it was there when I got started.
3 Q Can you recall, Mr. Hoyle, any of the
4 gentlemen connected with that unit that were
5 around when you began doing industrial hygiene
6 at Dow?
7 A I have trouble with names, remembering
8 names. Always have. If I saw a list I could
9 pick them out, but I'm afraid I can't just
10 offhand name the people that I had contact with
11 over the years.
12 Q Nobody comes to mind at the moment?
13 A I can tell you his first name and
14 describe him to you. His first name was Russ,
15 and he was tall.
16 Q Tall Russ.
17 A Tall Russ, an engineer who had his
18 office in Saginaw, and I would see him
19 occasionally. He's one that comes to mind.
20 There was another fellow who was before
21 him who I can describe to you, but I can't even
22 tell you his first name. I can tell you that he
23 was a pilot and flew his own plane because I
24 remember he told me about that, and he left the
25 state service at the time Russ came to this area.

25
1 Q Do you recollect that any of these
2 gentlemen left the State Health Department and
3 went to work in industry?
4 A None of those that I know did. I
5 wouldn't be at all certain but that somewhere
6 along the way there might have been somebody
7 that did.
8 Q Did you ever do any projects with them
9 or consult with them on things at Dow?
10 A Not too often because they were usually
11 responding to complaints, and we didn't have many
12 complaints. That's the reason the contacts were
13 more in the line of our being source people, I
14 guess, to stop by once in a while and say,
15 "What do you know about such-and-such material?"
16 That was the context I remember.
17 Q So, often these state industrial
18 hygiene engineers would be relying on some of
19 the scientists at Dow for a little technical

20 expertise?

21 A I would hate to say they relied on us,
22 but I would say that our professional contacts
23 were such that there was an easy exchange of
24 information.

25 Q Did that work both ways?

26

1 A Yes, but I think they probably got
2 more than they gave because we had a toxicology
3 lab and they did not.

4 Q Did you have a local section in the
5 late 1940's for the Industrial Hygiene Association?

6 A Well, it wasn't the late '40's, I
7 don't think. I think it may have been in the
8 '50's. We tried for two years to have a local
9 section because in the wintertime it wasn't very
10 nice to drive to Detroit for meetings. But it
11 didn't work out - mostly I think because people
12 who were available for membership were mostly
13 Dow employees and we saw each other all day
14 anyhow. So it just didn't work out. But there
15 was a local section here for more than one year
16 and less than five. I don't remember exactly.

17 Q So, effectively, the local section was
18 the Dow personnel and --

19 A There were only a few others because
20 there were only a few others in the Saginaw
21 Valley.

22 Q And the state people you were seeing
23 informally from time to time anyway?

24 A That's right. I can't recall whether
25 Russ joined our group or whether he maintained

27

1 his membership in the so-called Michigan
2 Section.

3 Q Which would have been down at Detroit?

4 A Down at Detroit.

5 Q Did you go down there for any
6 meetings?

7 A Yeah, I did occasionally if the
8 weather wasn't too bad and I didn't have too
9 many things I had to do. I was a member of that
10 group and still am.

11 Q Did you make the acquaintance of Bill
12 Bradley from Detroit?

13 A Not in that context. I knew him at
14 AIH. He had already left Michigan by the time
15 he became an industrial hygienist, I think.

16 Q Yes, sir, that was his testimony:
17 that he left about the time the War began,
18 probably about the time you started at Dow,
19 actually.

20 A Yes.

21 Q Going to New York.

22 A Wasn't he with Cyanamid?

23 Q Yes, sir. Was Mr. Patty back in
24 Detroit when you started doing industrial 25 hygiene work in '48?

28

1 A He was, indeed.

2 Q I suppose you made his acquaintance.

3 A I did.

4 Q Somebody that you would see from time
5 to time in your professional activities?
6 A Generally at AIHA meetings or at the
7 Michigan meetings.
8 Q We were told that Mr. Patty and
9 Mr. Bradley were the founders of the Detroit -
10 or the Michigan Section.
11 A It sounds reasonable to me, but I
12 wasn't around, so ...
13 Q What company was Frank Patty working
14 with during the years you knew him?
15 A General Motors.
16 Q They are based down in Detroit, are
17 they?
18 A It's a suburb of Detroit where they
19 are now, so-called GM Tech Center, I think. I
20 don't know the name of the suburb.
21 Q Now, we were talking briefly about the
22 ACGIH, and I understood you to say that they met
23 at the same time or in the same city and in the
24 same week as the American Industrial Hygiene
25 Association for convenience sake.

29

1 A It was a concurrent session. People
2 from either group were welcome at the other
3 group's meetings.
4 Q Oh, okay. I didn't understand.
5 A And many of the ACGIH people were
6 members of AIHA. We didn't exclude them. They
7 excluded us.
8 Q The ACGIH consisted of industrial
9 hygienists who were not industrial employees?
10 A I believe they had to be governmental
11 employees of some kind.
12 Q That would also have included those
13 attached to universities, I suppose?
14 A I think so.
15 Q And you were able to attend their
16 meetings that took place along with the AIHA
17 meetings?
18 A Yes. If they had a session we wanted
19 to go to, we were welcome.
20 Q What sorts of things would they cover
21 in their sessions? Was it the same sort of
22 general industrial hygiene topics?
23 A They reported what they had been
24 doing, if what they had been doing had led to a
25 scientific publication, which was true of the

30

1 other organization, the AIHA.
2 Q Did you ever have any dealings with
3 their threshold limits value committee or its
4 predecessor, Mr. Hoyle?
5 A I was sometimes involved in
6 conversations, particularly where they were
7 considering materials that Dow made and handled,
8 where they wanted - were interested in our
9 industrial hygiene experience. That's the only
10 contact I had.
11 Q And you recall, don't you, sir, that
12 other Dow professionals or scientists also had
13 dealings with the ACGIH committees over the

14 years?

15 A In much the same way that I did.

16 Q In fact, there were at least a couple
17 of individuals that had been referred to as like
18 ex officio members of the --

19 A Just one that I know of.

20 Q Which one?

21 A Dr. Theodore Torkelson. It probably
22 would have been more accurate to call him a
23 source person than a member of the committee,
24 but he did act as a consultant to them. As an
25 individual and not as a Dow employee.

31

1 Q To the TLV committee?

2 A Yes, sir.

3 Q And didn't V. K. Rowe also do that
4 from time to time as you remember?

5 A Well, Torkelson worked for Rowe, and
6 he was in charge of the inhalation toxicology
7 laboratory. Of course, that's the laboratory
8 that generates the kind of information they
9 would have been most interested in - that
10 context, I'm sure.

11 Q Mr. Hoyle, could you give me some idea
12 or understanding of how the TLV committee of the
13 American Conference of Governmental Industrial
14 Hygienists would contact you and how the flow of
15 information or discussions would go when it
16 would happen that they would be interested in a
17 chemical that Dow was making or using?

18 A Well, there wasn't a formal procedure
19 that can be described. It was a matter of
20 personal contact and the question being asked.

21 The questions usually were, "What experience do
22 you have? What data do you have?" They were
23 interested in data. In my case they were
24 interested in what had we measured in the work
25 environment. In V. K.'s case they were interested

32

1 in whether the animal data - what the animals
2 said to us, in other words.

3 Q So that those of us here can
4 understand and the jury can understand, could.
5 you tell me, you know -- Who would it be from
6 the ACGIH that would contact you? I mean was
7 there an official committee and employees that
8 would make the contact or would it be some
9 individual who was working on a particular
10 material? I mean just how did it work? How
11 organized was it?

12 A They had a committee. These were all
13 volunteer people. They had no staff, so to
14 speak, and the contacts would - they could be
15 telephone contacts or whatever.

16 Q Letters were probably more common back
17 then.

18 A Well, I would say more common was just
19 through conversation - at an AIHA meeting as far
20 as my contacts would be concerned. The
21 telephone would be the second most likely.

22 I don't remember too many written requests.

23 I'm not sure but what there may have been some,

24 but I don't remember.

25 Q But if I am understanding you, then,

33

1 there would be committees of ACGIH members who
2 might be, let's say, looking at threshold limit
3 values. And as you perceive it, one or more
4 individuals on that committee might have the
5 responsibility to look into --

6 A I wasn't on the committee, so I don't
7 know how they assigned it. My contacts were all
8 with some one individual person. It would just
9 be playing guesswork. I would guess that they
10 probably would take assignments for a particular
11 material.

12 Q That was at least your perception of
13 it?

14 A Well, I don't know if I had a
15 perception. To be honest with you, I think
16 these were people that I knew who came and asked
17 for information. It was that simple.

18 Q They were volunteers that did this on
19 their own time?

20 A That's right. That's right.

21 Q And however they got the assignment -
22 whether it was personal interest or an actual
23 assignment from the committee chairman - an
24 individual might contact you and talk with you
25 at a professional meeting and say, "What can you

34

1 tell me about chemical 'X'?"

2 A That's right. And it was a matter of
3 contact between two people, both in the same
4 profession and both trying to assure safe
5 working conditions in industry. It was in that
6 context.

7 Q I appreciate that. So, they were
8 seeking data from the actual users of the
9 particular material?

10 A I presume that they were seeking data
11 anywhere they could find it, and certainly the
12 users were the ones - or the manufacturers were
13 the ones most likely to have measurements made
14 in the work environment, I would think.

15 Q Your experience certainly would
16 support that inference, wouldn't it?

17 A That's right.

18 Q And I suppose that, short of asking
19 for this data from tox labs or from your field
20 industrial hygiene surveys, the ACGIH really
21 didn't have much other way of obtaining this
22 information other than what would be in the
23 published literature. Would that be a
24 reasonable assumption?

25 A That's true.

35

1 Q Were there any times, Mr. Hoyle, when
2 Dow would actually go to one of the ACGIH
3 committees and say, "Fellows, we've got some
4 data on a new material we have developed. We
5 have some concerns about it," or, "We need to
6 handle it in a particular way to be careful,"

7 or, "It is more toxic than generally might be
8 believed"? In other words, where you would
9 actually take the first step and contact them
10 and say, "Here is some information on a chemical
11 we've been working with that you need to
12 consider in formulating the threshold limit
13 values for it"?

14 A I think that that may have happened.
15 I don't know all of the different ways that they
16 became interested in materials. I do know that
17 we did publish at Dow tox information on
18 materials as soon as investigations were
19 complete.

20 Q Well --

21 A I personally was not much involved in
22 that.

23 Q of course, you wouldn't have been
24 doing the toxicology work.

25 A I wasn't doing the tox. V. K. is the

36

1 one that I am remembering-what he and his people
2 did more than I did.

3 Q Do you recall publishing results of
4 field surveys, field measurements?

5 A Generally, no. Generally they were
6 not scientific investigations in the terms that
7 most editors look at scientific investigations.
8 We did make some publications, but in many cases
9 our investigations were to gather the
10 information that we needed. We didn't try to
11 keep anybody from getting it from us, but there
12 is industrial hygiene information unpublished
13 because it is simply not extensive enough to
14 satisfy an editor.

15 Q Yes, sir.

16 A That's what I'm trying to -- I'm
17 having trouble answering the question without
18 using a lot of words.

19 Q It's all right. I'm not doing a good
20 job of asking questions. I'm kind of nervous
21 now that Duncan has told his new lawyer here
22 that he's going to see a good job done.

23 MR. STUART: Well, I'm sure
24 he is.

25 Q What I'm getting at, though, Mr. Hoyle,

37

1 was how in your experience would field data or
2 industrial hygiene survey data regarding some
3 material get to the ACGIH if they didn't come
4 asking for it?

5 A We might have volunteered it at times.

6 I don't remember specific instances, so "yes" or
7 "no" I can hardly say. But I -- Certainly in
8 conversation when I was asked, I can remember
9 passing such data. I cannot remember a case
10 where we said, "My goodness, we'd better get
11 this to the TLV committee," not having found
12 many cases of that kind. But Torkelson, because
13 of his relationship, might have been a conduit
14 from time to time.

15 Q Again, because of the laboratory --

16 A That's right.

17 Q --- and the fact that they were --
18 A We worked closely enough with the
19 toxicologist so he would have had information
20 from our lab as well as his.
21 Q You had an industrial hygiene lab that
22 was in addition to the toxicology lab at Dow?
23 A Yes, sir.
24 Q How early on was that set up, sir?
25 A In 1948 with my advent to the scene.

38

1 Q You mean they made you the industrial
2 hygienist and then gave you a tox lab at roughly
3 the same time?
4 A Not a tox lab.
5 Q I'm sorry. I'm looking at what I had
6 written down. They made you the industrial
7 hygienist in '48 and equipped you with an
8 industrial hygiene laboratory then, too?
9 A Yes, sir.
10 Q Can you just briefly describe what
11 that consisted of in terms of space and
12 equipment?
13 A Yes. It was a one-room laboratory,
14 and the equipment was the kind of equipment that
15 you need to get air samples, for the most part.
16 Q So, you had sampling devices?
17 A Yes.
18 Q Like --
19 A Go ahead.
20 Q You go ahead and tell me what was
21 there. I'm just guessing. You know.
22 A Well, some of this equipment I should
23 have said was there because otherwise Adams
24 couldn't have done any industrial hygiene.
25 Q Sure.

39

1 A So formally having it separate
2 happened in 1948. Having some of the equipment
3 present was before that time. But there hadn't
4 been a specific laboratory for industrial
5 hygiene until they had an industrial hygienist.
6 Q So, you had counting equipment as well
7 as the sampling equipment?
8 A Yes.
9 Q Microscopes, I guess?
10 A Yes, sure did.
11 Q Were you using midget impingers back
12 in '48?
13 A We were using Greenburg-Smith
14 impingers which are big impingers. And as soon
15 as I got acquainted with midget impingers, we
16 started using midget impingers.
17 Q When did you obtain the Bausch & Lomb
18 dust counters?
19 A That was there when I arrived. Adams
20 had bought it.
21 Q Did you have any Zeiss konimeters?
22 A No.
23 Q Did you ever get one?
24 A No.
25 Q Did you have some sort of a device

40

1 around that time for sampling for vapors?

2 A Several.

3 Q Is there some sort of a spectrometer
4 device that is used for that purpose?

5 A Not for sampling, no.

6 Q What would you use to sample for
7 benzene vapors?

8 A Well, we used silica gel to a large
9 extent as a trapping agent.

10 Q Did you have to do the lab work
11 yourself in the beginning?

12 A Not the analytical part, no. Dow was
13 well established in the analytical business
14 before I arrived. I had to get samples that the
15 chemists could handle.

16 Q So, you'd grab them and they would
17 count them?

18 A As far as the counting is concerned, to
19 begin with I did count them. As time went along,
20 I got a lab called the microscopy lab, much more
21 sophisticated than I was. From a research point
22 of view they did some of ours. But as far as
23 the counting, using the cookbook that you had to
24 use in order to use the standard, we did it
25 ourselves.

41

1 Q At least back in the early years, huh?

2 A Yes.

3 Q Can you give me an approximate value
4 or number of how many times you think some
5 person from ACGIH TLV committee would have
6 contacted you about a material that you were
7 working with over the years?

8 A Oh, dear.

9 Q And it is very approximate, of course.

10 A It wasn't an unusual circumstance. I
11 was there for 30 years. I have difficulty
12 answering your question. I don't know.

13 Q Well --

14 A Was it --

15 Q --- certainly more than a few times?

16 A More than a few times, but certainly
17 not every day or anything of that kind, either.

18 Q Over 30 years maybe even as much as 100
19 times perhaps, given the years that were involved
20 and that it was a period of a lot of activity in
21 your field?

22 A Well, I hesitate to put any kind of
23 number on it. It was not unusual, I can tell
24 you that.

25 Q Can you recall that there were any

42

1 times when some ACGIH member contacted you about
2 a proposed revision, a change, of a threshold
3 limit value as opposed to the creation of a new
4 one for some new material?

5 A The change that pops into my mind
6 immediately is the change that was proposed for
7 asbestos, and I was not contacted because I was
8 not an expert - wasn't doing research in the
9 area is what I should have said. I was expert

10 enough to apply the standards, but beyond that I
11 was not involved.

12 Q Do you recollect, Mr. Hoyle, that the
13 standards for the different TLV's were revised
14 very frequently over those years you were
15 practicing?

16 A Not very frequently. There were that
17 I remember revisions. Vinyl chloride was
18 revised, just to name one. It pops into my
19 mind. I need to do a little research to help my
20 memory, I guess, to answer your question.

21 Q I guess we could go back and compare
22 the tables from year to year.

23 A One after another you would certainly
24 find it, that's right. But that there were a
25 lot of changes, that's not my recollection.

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1 Q And if we were to review the tables
2 from one revision to the next, isn't it so that
3 we would find some new materials added --

4 A Oh, yes.

5 Q --- for one thing?

6 A That's certainly true.

7 Q We would find a few revisions in a
8 standard for a particular material, such as you
9 mentioned with vinyl chloride ---

10 A I'm sure you would.

11 Q --- and perhaps benzene or some
12 others?

13 A Yes.

14 Q But when we speak of a revision of the
15 threshold limit values, there wasn't a wholesale,
16 across-the-board changing of standards for each
17 and every material or even more than just a
18 handful at any one time, was there?

19 A That's, I think, true.

20 Q And the proposed revisions of the
21 asbestos standard came roughly when as you
22 recall, in the '70's?

23 A No, I think we started hearing about
24 it in the '60's, the late '60's. These things
25 generally didn't happen on a Tuesday.

44

1 Q You mean --

2 A It took years of discussion among the
3 professionals before changes were made,
4 publications, this kind of thing.

5 Q Would it have been the case,
6 Mr. Hoyle, that no ACGIH member ever contacted
7 you about lowering or changing the standards for
8 asbestos exposures?

9 A I don't recall ever being contacted
10 about that change.

11 Q Do you recall ever being contacted at
12 Dow about any proposed change in the silica
13 threshold limit value?

14 A No, I don't.

15 Q Do you recall ever being contacted
16 about a proposed change let's say in the benzene
17 standard?

18 A I think I had some conversations with
19 someone - I can't remember who now - about that

20 in terms of, "What kind of measurements for
21 benzene do you see in the environment?" But I'm
22 not sure it was a member of the threshold limit
23 value committee. It might have been T.orkelson.
24 Q Can you recall approximately what part
25 of a decade that discussion took place in?

45

1 A No, I don't.
2 Q Did you ever come across any
3 indication that any asbestos insulation
4 manufacturers had provided data to the ACGIH
5 TLV committee that would show the need to change
6 the standard for asbestos?
7 A Not being a member of the committee or
8 being involved with asbestos except as a
9 material that we bought, I would have been
10 surprised if I had, and I certainly don't
11 remember it.
12 Q Do you remember if any asbestos
13 insulation company ever came to you at Dow and
14 gave you any information that you could have
15 used to make better judgments about protecting
16 the people working in your plants from asbestos
17 exposure?
18 A My recollection is that we depended
19 upon the standards or, rather, the threshold
20 limit value and Patty's book pretty much. And I
21 don't recall having contact with any of the
22 suppliers.
23 Q What do you recall Dow doing to
24 prepare for the proposed change in the asbestos
25 exposure standard in the late '60's, Mr. Hoyle?

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1 A We initiated a study of the Dow
2 insulators to see what their exposures were - I
3 mean in some detail, because we wanted to know
4 whether we were satisfied already that we were
5 doing all right with the five million particles;
6 but we needed further information to see where
7 we would stand if it changed to two million
8 particles.
9 Q Was there a time when you or your
10 staff did some monitoring work for Dow Corning
11 employees?
12 A Yes, in response to a request from Dow
13 Corning. One of my industrial hygienists did a
14 study which was -- It's reported in detail in
15 one of the reports that was a part of my last
16 deposition.
17 Q Was it the case that Dow industrial
18 hygienists were available as consultants to Dow
19 Corning during any of the years you were there?
20 A Well, to any of the Dow associated
21 companies, not just specifically Dow Corning.
22 Q What other companies would that have
23 included that you can remember?
24 A Oh, there was a Dow-Smith, I believe,
25 Company that existed for a while, and then there

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1 was Dowell which was at times a separate company
2 and at times a division of the company.

3 Q Was Merrell Dow ever one of the
4 companies that your industrial hygiene section
5 ever provided services for?
6 A Merrell Dow didn't exist until years
7 after I retired.
8 Q What was the business of Dowell?
9 A They were an oilfield service company.
10 Q So I gather you did industrial hygiene
11 services for Dowell from time to time?
12 A I don't recall specifically that I did
13 when they were a separate company. From time to
14 time I had industrial hygiene contacts with
15 Dowell - I believe as a division of Dow.
16 Q Did any of the materials that they
17 handled include some that contained asbestos, to
18 your knowledge?
19 A Not that I recall.
20 Q You never did any sampling in
21 connection with the mixing of drilling mud?
22 A I did very little sampling in Dowell
23 at all - a little bit for HCL and some for an
24 organic solvent that I remember.
25 Q Did Dowell sell any products that had

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1 its own name on it?
2 A I don't know.
3 Q Mr. Hoyle, I thought that I was going
4 to find a resume with the exhibits from your
5 deposition done back in 1991 in Florida, and I
6 didn't. Have you prepared one or ever had one
7 over the years, a curriculum vitae or resume?
8 A No.
9 Q Have you published any articles, sir?
10 A My name is on quite a few articles.
11 Q I think you are dodging that bullet.
12 What --
13 A Well, that's the way -- Offhand I
14 don't remember specific articles. I think I
15 remember that - a list that may have been as
16 many as twenty where I was either the author or
17 an author, some of which were published in
18 scientific literature and some in trade journal
19 literature.
20 Q Do you --
21 A None of which had anything to do with
22 asbestos.
23 Q Do you have a list still of these
24 articles?
25 A No, I never -- I don't believe I ever

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1 kept a list.
2 Q Do you have any of your articles?
3 A No. When I left The Dow Chemical
4 Company, I left my files.
5 Q When you were a co-author, would it
6 more often than not have been along with some
7 other Dow scientists?
8 A Yes, always.
9 Q But none on asbestos, huh?
10 A That's right.
11 Q Any on any pneumoconiosis-causing
12 materials?

13 A No. No.

14 Q Any on any occupational carcinogens?

15 A Well, that's -- You'll have to define

16 "an-occupational carcinogen" for me. I don't

17 know how to answer your question in the absence

18 of such a definition.

19 Q Well, were there any where the focus

20 of the article was on the description of a

21 material that the authors --

22 A I don't remember that any of them had

23 that as an emphasis. Not to appear smart aleck --

24 Q No.

25 A --- vinyl chloride has been called ---

50

1 Q Yes, sir.

2 A --- and I think maybe vinyl chloride

3 might be one where my name would show up as a

4 co-author in one article, but I'm not even sure

5 about that.

6 Q But the focus of that article was not

7 on the suspected carcinogenicity of that

8 material?

9 A No, it would have been different than

10 that.

11 Q That's the way I meant the question.

12 A And carbon tet is another one that

13 some people say is a carcinogen, and the

14 definition is important at this point. Is

15 anything a carcinogen because you can somehow or

16 other cause an animal to have cancer? Well, if

17 that's your definition, that is almost

18 everything that we worked with. Not all, but

19 many things that animals have been shown to be

20 able to get cancer from.

21 Q Up until 1976 when you retired from

22 Dow, do you recall that the company had

23 identified any particular materials as being

24 carcinogens?

25 A Dow materials, you mean?

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1 Q Either Dow materials or materials used

2 at Dow.

3 A I think that some had been -- There

4 were materials used that had been identified as

5 carcinogens - one in particular that I remember.

6 Q One material that had been used at

7 Dow?

8 A Yes. Not produced by Dow.

9 Q Which one would that have been?

10 A That was a tar that was used in

11 manufacturing electrodes. The electrodes were

12 then used at Dow.

13 Q In the chlorine --

14 A And magnesium.

15 Q And the magnesium unit? Can you

16 recall any other materials that were used at Dow

17 that you believed to be cancer-causing materials

18 before you left?

19 A I didn't even know if that tar was or

20 not. It was simply reported by another company.

21 Arsenicals have been identified, things

22 containing arsenic.

23 Q I thought you said "our cynicals." I

24 was wondering what a cynical was.

25 A Well, I am sometimes. And Dow did

52

1 make a Paris Green a long time ago.

2 Q And Paris Green?

3 A That's a material used to kill bugs,

4 barely better than swatting them. There are

5 old-timers that would take issue with me on that

6 last statement. I meant it as a smart remark.

7 I forgot where I was for a minute.

8 Q It may have been the best thing they

9 had at the time.

10 MR. ALMQUIST: We've been

11 going for an hour. This might be

12 a good time for a short break

13 here.

14 Q In these twenty or so articles that

15 your name appears upon, some of which I guess

16 you were the sole author on --

17 A Yes.

18 Q --- would I be correct in believing

19 that what you wrote in those articles was

20 truthful and based on the best information that

21 you had available at the time and accurate in

22 all respects?

23 A I have never done anything on any

24 other basis. I have never been asked to be

25 anything but honest, and I have never been

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1 anything but honest.

2 Q And your expressions of opinions in

3 any of these articles would in fact be your

4 honest opinions based on your education and

5 training and experience and your research?

6 A And information available to me, yes,

7 sir.

8 MR. BLANKS: Thank you.

9 We'll take a brief break.

10 (AT THIS TIME A BRIEF RECESS

11 WAS TAKEN, AND THE PROCEEDINGS

12 THEREAFTER RESUMED AS FOLLOWS:)

13

14 (By Mr. Blanks)

15 Q Mr. Hoyle, do you recall a gentleman

16 named L. J. Richards from Dow from the late

17 '40's or anytime in the '40's?

18 A I do.

19 Q Do you recall him in the role of chief

20 engineer during part of that time?

21 A Yes, sir.

22 Q Did you ever work with that gentleman?

23 A No.

24 Q What generally would a chief engineer

25 have done in the early '40's?

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1 A I guess he would have been in charge

2 of the Engineering Department. I don't know

3 that much about it.

4 Q Were you ever working in the

5 Engineering Department?

6 A No.
7 Q So, when you were doing like your
8 estimating work for --
9 A That was another department.
10 Q What department would that have been,
11 construction?
12 A It was called the Standards
13 Department.
14 Q I guess I'm confused with the titles.
15 They don't seem to be descriptive to my frame of
16 reference. What were you doing in the Standards
17 Department?
18 A I was a pipe shop estimator.
19 Q Okay, and you were estimating
20 quantities for purposes of what, buying
21 materials, fabricating?
22 A The estimates were in terms of how
23 much time, how much material, what would the
24 cost be.
25 Q To do what?

55
1 A A specific job.
2 Q Were these maintenance jobs or new
3 construction jobs or what?
4 A Maintenance.
5 Q So, you were doing the task that we
6 would associate normally with, say, a
7 construction estimator who would be doing a
8 material takeoff and making time estimates to
9 do a particular task, like you would be doing if
10 you bid a job for maintenance or a construction
11 project?
12 A Yes.
13 Q But this was being done for internal
14 purposes --
15 A Yes.
16 Q --- to budget and plan?
17 A Yes.
18 Q I see. And this was in the Standards
19 Department?
20 A That was the name of the department
21 that I was in.
22 Q What else did the Standards Department
23 do?
24 A Well, they set standards. They had
25 time study functions there.

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1 Q So, your time -- Let's see. The
2 industrial engineering type of --
3 A That's right.
4 Q --- time motion study work?
5 A That's right. Those standards were
6 basic to my estimating.
7 Q Did the Standards Department also do
8 anything to set standards for maintenance?
9 A Not to my knowledge. I worked there
10 in the summer.
11 Q That was your summer job?
12 A Uh-huh.
13 Q Okay. Could you tell us what
14 department in Dow in the early '40's, if there
15 was one, would have been the one that would have

16 written the specifications for materials used in
17 the plant, such as thermal insulation?
18 A I would think that that was the
19 Engineering Department.
20 Q I was thinking that, too.
21 A I have no specific knowledge to answer
22 your question. I should have answered it
23 differently perhaps because I don't really know.
24 Q Well, you answered me that you think
25 it was the Engineering Department.

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1 A I would have guessed that it was.
2 That's the best I can do.
3 Q Do you have any recollection or
4 information that would suggest that at some
5 later period of time at Dow this responsibility
6 was with some other department than Engineering?
7 A No, I have no knowledge of any.
8 Q What kind of dealings did you have
9 with Mr. Richards back in the '40's?
10 A With Mr. Richards in the '40's, none.
11 Q But you did know him to be the chief
12 engineer?
13 A I did.
14 Q Including say around 1942 when you
15 began full-time work with the company?
16 A In 1942 I didn't know that he existed,
17 I suspect.
18 Q Do you have any recollection of when
19 Mr. Richards retired from the company?
20 A I know that he retired. I don't
21 remember when.
22 Q Before you did, I suppose.
23 A Sometime before.
24 Q Do you recall ever seeing in your
25 library or offices at Dow a copy of The Asbestos

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Worker's Journal?
A No.
Q This was not one of the regular
4 publications that came to Dow in any of the
5 offices you were in?
6 A No. I have never heard of it until
7 you mentioned it.
8 Q Do you have any idea whether Mr. Richards
9 is still living?
10 A I believe he is not.
11 Q During your years as the industrial
12 hygienist, did Mr. Richards ever pass on to you
13 any information that he had received from any
14 insulation companies about their products, their
15 suspected or potential toxicity, or that sort of
16 thing?
17 A No.
18 Q So, your recollection is that you
19 found no correspondence there in your office
20 from any of the asbestos or other insulation
21 manufacturers with whom Dow might have been
22 doing business in the '40's?
23 A I don't recall any communications that
24 fit your description you just named.
25 Q Did you inherit any industrial hygiene

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1 files when you took on the job of industrial
2 hygienist in 1948?

3 A There were files.

4 Q These would have been files that would
5 have been developed by your predecessors in that
6 field?

7 A Yes.

8 Q Dr. Adams?

9 A Specifically.

10 Q What did they amount to generally?

11 Were they survey reports or technical literature
12 or memos from the Safety Department? Could you
13 give us a feel for the flavor of it?

14 A The part of the files that I had
15 reason to look at were reports of surveys.

16 Q Do you recall any kind of a file or
17 technical literature that would have been kept
18 in the -- Well, you didn't have an Industrial
19 Hygiene Department before then, but in those
20 offices apart from what would have been your
21 technical library or central index system?

22 A Well, there was no industrial hygiene
23 when I got there. There was toxicology, and I'm
24 sure there were files.

25 Q Focusing on the technical literature,

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1 though, was it the practice back in the late
2 '40's when you became industrial hygienist for
3 your colleagues to tear out articles and keep
4 them in a file at hand, or was it simply you
5 kept the journals on a shelf in some place that
6 would be accessible?

7 A I don't recall ever tearing out
8 articles and filing them.

9 Q You kept the whole journal?

10 A We didn't have extensive journal
11 tiles, I don't believe. I don't remember
12 tearing any out.

13 Q By the same token, you didn't throw
14 away like the AIHA quarterly. Those were
15 references you kept?

16 A Those were kept.

17 Q .Did you ever play any part in the
18 drafting or revising of plant safety manuals,
19 just a general safety handbook for Dow
20 personnel?

21 A Only as a source person. I never
22 wrote any of them.

23 Q Which department had that
24 responsibility?

25 A The Safety Department.

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1 Q And whenever a manual might have been
2 written for contractor employees, would that
3 also have been under the Safety Department?

4 A Yes, sir.

5 Q So, some person from the Safety
6 Department might come to you when it was time to
7 revise a manual and ask you some specific

8 questions or ask you for comments or what you

9 thought might go into it?

10 A Yes.

11 Q Was this revising of the manual

12 something that happened on a regular basis or

13 was it just whenever the whim struck or somebody

14 got around to doing it? How do you remember

15 that, sir?

16 A I don't remember.

17 Q It's not a chore you were faced with

18 on an annual basis?

19 A It doesn't stand out in my mind in

20 terms of the calendar, no.

21 Q Do you remember ever being asked to

22 review the safety manual or handbook to suggest

23 changes in any parts of it?

24 A Well, not in total; but I have acted,

25 as I said, as a source person to the safety

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1 engineers as they went about their job.

2 Q Would that consist of maybe reviewing

3 a section on respiratory protection or something

4 like that and making editorial comments for

5 their benefit?

6 A Respiratory protection would have been

7 an area where I might have been asked to either

8 review - or specific questions. I don't recall

9 in detail enough to answer better than that. I

10 might have been asked a question or I might have

11 been asked, "Hey, read this over and see what

12 you think of it." I don't remember which.

13 Q When you determined with the Bausch &

14 Lomb counter that the asbestos dust levels in

15 connection with the sawing and the tear-off of

16 asbestos insulation were higher than you wanted,

17 you made a recommendation about respiratory

18 protection, I think.

19 A Uh-huh.

20 Q And what generally did that amount to?

21 What was it?

22 A I don't know exactly how that was

23 finalized, as I have testified before. It is a

24 report that I should have written and apparently

25 I didn't, and I am embarrassed about not having

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1 done it. However, I suspect that the whole

2 thing was taken care of over the telephone

3 inasmuch as it didn't go through our regular

4 procedures with the safety engineer in question.

5 And it was a rather minor thing that could

6 easily have happened that way because I was

7 telling him, "There are two parts to the job

8 where we think they ought to wear respirators,"

9 and that's all I had to tell him.

10 Q And the two parts were the sawing of

11 the insulation?

12 A The sawing of the material and the

13 tear-off, as I recall.

14 Q Now, if I understood what you said a

15 moment ago, you were suggesting that you didn't

16 think there was a written report of this

17 sampling that you did and a recommendation?

18 A It did not show up when the files were
19 searched for things having to do with asbestos.
20 I know no more than that about it.
21 Q What you know is apparently it wasn't
22 found during a review of the files?
23 A That's exactly what I know.
24 Q You may have actually made a written
25 report?

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1 A If I did, it's lost. I don't know.
2 Q I think you told us that all the
3 written reports that Industrial Hygiene did make
4 were or should have been filed --
5 A They were.
6 Q And up through the time of your
7 retirement, certainly all of these old industrial
8 hygiene reports that were filed were kept?
9 A That's right.
10 Q And this particular sampling effort or
11 monitoring project with the Bausch & Lomb
12 counter that led to the recommendation for the
13 use of respiratory protection during sawing and
14 tear-out was done in the late '50's? Is that
15 your recollection?
16 A That's my recollection, sometime in
17 the '50's. Probably in the late '50's is the
18 way I think I stated it before.
19 Q Do you recollect whether or not in the
20 late '50's there was at Dow some sort of a data
21 sheet that dealt with asbestos-containing
22 insulation products?
23 A We had industrial hygiene data sheets
24 that we -- And I believe that by the late '50's
25 we had invented this little tool. My recollection

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1 of the date on the one that had to do with
2 asbestos isn't good enough that I can tell you
3 what the date on it is. I have seen the data
4 sheets, so it you want to know, it could be
5 looked up. I think it's in the late '50's:
6 '57, '58, something like that. But it might
7 have been a little later than that.
8 Q Let me make sure that I understood
9 you, sir. You said something about inventing
10 this little tool. I guess you meant the use of
11 the data sheet?
12 A The data sheet itself was a device to
13 report information to knowledgeable people.
14 Q So, this was a reporting form that was
15 developed in Industrial Hygiene or Toxicology or
16 both, I guess, together?
17 A Yeah, that's right.
18 Q As a format to report information to
19 the people at Dow that needed to know?
20 A That needed to know.
21 Q About the hazards and the toxicity of
22 specific materials or products --
23 A Yes, sir.
24 Q --- that would have been in the plant?
25 A Yes, sir.

66

1 Q And you're saying that you all began
2 doing this you think in the late '50's?
3 A I rather think that's true.
4 Q And I think my question that led to
5 this discussion was do you remember that data
6 sheets were done, then, around that time in the
7 late '50's for asbestos-containing insulation
8 products or did that come later?
9 A I believe it would have been a little
10 later.
11 Q Do you think that there were any
12 asbestos-containing products that were covered
13 on a data sheet early on; that is, in the late
14 '50's?
15 A I would have to go and look. I can't
16 tell you for sure.
17 Q Where would one look for these?
18 A Well, I believe they are in the
19 exhibits associated with my former deposition.
20 Q Is it your understanding, Mr. Hoyle,
21 that those data sheets that were attached as
22 exhibits to your February 1991 deposition were
23 the only ones that could be located by Dow on
24 asbestos?
25 A I wasn't involved in the search because

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1 I was retired, so I can't answer that question.
2 I can tell you that they were the ones that were
3 presented to me to look at at the deposition.
4 Q That is, those were the ones that the
5 Dow lawyer brought to the deposition?
6 A That's correct. I had nothing
7 whatever to do with getting the collection
8 together. I don't know how it was done.
9 Q You didn't get to go look through the
10 old files?
11 A I didn't know that I was supposed to,
12 and I would have probably objected to it. I'm
13 sorry.
14 Q No, I'm not suggesting that you were
15 supposed to. But you didn't have anything to do
16 with the search for them?
17 A No, nothing. That's what I'm trying
18 to say.
19 Q Were you told that these particular
20 data sheets that ended up being exhibits to your
21 1991 deposition were the only ones that could be
22 located; that there were no others that were
23 found?
24 A I don't remember that I was told
25 anything one way or the other.

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1 MR. ALMQUIST: Let me
2 caution you, Mr. Hoyle. If you
3 start being asked questions that
4 deal - that require you to talk
5 about conversations with Dow's
6 attorneys, then I'm going to
7 instruct you not to reveal the
8 content of any of those
9 conversations.
10 THE WITNESS: Okay.

11 Q When the data sheets were prepared on
12 asbestos-containing materials at Dow, whenever
13 that was - and I suppose we are now necessarily
14 referring to ones that you have seen lately, the
15 ones that were exhibits to your deposition - did
16 the toxicity information about asbestos come
17 from the Toxicology Department or the Industrial
18 Hygiene Department or do you recall?
19 A Both groups would have had a look at
20 the data sheets, so it could have come from
21 either place.
22 Q Where would the author ordinarily be?
23 Who would typically be the author or the little
24 division responsible for drawing them up?
25 A In a certain sense I suppose I should

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1 say that both, because one side of the data
2 sheet was toxicological properties and the other
3 side was proposed precautions.
4 Q So, Industrial Hygiene would have had
5 the precaution side --
6 A Yes, sir.
7 Q --- and the Toxicology people would
8 have had the other part?
9 A Yes, sir.
10 Q Was there a system in place to
11 generate these data sheets? Could you give us a
12 sense of that?
13 A Talking about --
14 Q Talking about early on when you began
15 this --
16 A You mean what triggered the data sheet
17 being made in the first place? Is that what
18 you're asking me?
19 Q Let me rephrase and start over.
20 A Please.
21 Q First of all, what triggered or led to
22 the decision that there would be data sheets at
23 all on potential toxic materials?
24 A This could happen if there was an
25 investigation in the toxicology laboratory that

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led to knowledge. When the report was written,
a data sheet would have been initiated.
Q Let me interrupt and try again so we
4 go in a sequence.
5 A Yeah.
6 Q My first question would be what was it
7 that you remember, Mr. Hoyle, that led to this
8 decision to actually do data sheets at all, to
9 create the form and use that as a way of
10 communicating with your folks at Dow?
11 A That came about because of a felt need
12 by me to interpret the information available in
13 a way that it would be useful to the line
14 supervision who had the responsibility for the
15 safety of the people that worked in their
16 departments.
17 Q So, you perceived a need to have some
18 way to give specific safety information to the
19 line supervisors so that they could take care of
20 their folks?

21 A That's right.
22 Q In a format that would be consistent
23 and familiar to them?
24 A That's right.
25 Q Concise and easy to use?

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1 A That's right.
2 Q Now, I guess this innovation preceded
3 what are now commonly called material safety
4 data sheets. That term had not come into wide
5 use?
6 A That terminology had not been -- That
7 came from OSHA, as I recall.
8 Q What was it, then, that would lead you
9 to prepare or have prepared a data sheet on a
10 particular material? That brings us back to
11 where we were a moment ago.
12 A And I have answered it, partly by
13 saying that if a sample was investigated in the
14 toxicology laboratory, that when the report was
15 written a data sheet would be initiated as a
16 part of that. And the other way -- There were
17 two ways that should be mentioned here. The
18 other way was by activity of the industrial
19 hygiene group, because our first step - or one
20 of our first steps was to inventory all of the
21 materials in a particular work environment before
22 we started to investigate the degrees of exposure.
23 If we didn't have data sheets for all of the
24 materials, then we went about whatever we had
25 to do to initiate one to get information.

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1 Q I suppose at the beginning in the late
2 '50's you had rather a large task of creating
3 data sheets for a lot of different materials.
4 A As fast as we did inventories, as fast
5 as we did our job, then that department would be
6 covered.
7 Q Like so many systems, it's a lot
8 easier to maintain it, once it is in place. But
9 the creating of it would have been very time
10 consuming?
11 A Well, it took a while.
12 Q And you have said that you did
13 inventories, then, as part of this process of
14 creating data sheets?
15 A Which simply means that we have a list
16 of the materials in that work environment,
17 whatever the process.
18 Q In the late '50's, this process of
19 getting inventory from each unit or each plant
20 unit, would this have been the first time that
21 Industrial Hygiene had actually obtained an
22 inventory of materials from the plants at Dow?
23 A Well, the data sheets followed the
24 commencing of industrial hygiene. We didn't
25 have data sheets in 1948. So the answer is

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1 that there were inventories done prior to the
2 data sheets.

3 Q Let me try my question a little better
4 because I have confused both of us, I think.
5 When you became the industrial
6 hygienist in 1948, did you set out then to do
7 inventories of all of the units or were you just
8 dealing with problems as they were thrown at you
9 or a little bit of both?
10 A There were inventories for some
11 departments where Adams had already been when I
12 got there.
13 Q So, he had already done some?
14 A That's right; not too many, but there
15 were some.
16 Q And you continued that process?
17 A We continued it to the day I retired.
18 Q I guess I was picturing sort of an
19 initial inventory.
20 A No, we didn't get it done all at one
21 time.
22 Q So, over the course of that decade,
23 your first decade as industrial hygienist from
24 1948 to the late '50's when the data sheets were
25 devised by you and came to be created, this task

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1 of inventorying the stressors and the potentials
2 for toxic exposures in the Dow facilities were
3 just continued over that whole period?
4 A Yeah, it was an ongoing thing. There
5 was no end to it.
6 Q But then in the late '50's when you
7 began to prepare the data sheets, you
8 specifically requested from the production units
9 a current list of all materials that they were
10 using in the plant so you could assess them for
11 the need for data sheets?
12 A The need for the data sheet was the
13 presence of the material on the site.
14 Q And the inventory from the unit gave
15 you --
16 A Gave us that information.
17 Q About what was on the site?
18 A Yeah.
19 Q And I suppose you looked at those and
20 decided which ones needed the highest priority?
21 A We did put priority on it, yes.
22 Q And got on the worst ones first and
23 worked your way down to the less serious ones?
24 A Uh-huh.
25 Q And then, as new materials were

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1 developed or put into use, then those you would
2 do along with the toxicological work that
3 accompanied every new product or material that
4 was used in the Dow plant or put into a Dow
5 product; is that right?
6 A That's a pretty good description.
7 Q I mean it was the case that Dow was
8 doing toxicological research work on all of the
9 materials that it sold?
10 A Well, now, that's not quite true,
11 although almost, I guess. The samples are
12 usually sent in when the thing was still in

13 research as far as products are concerned, and
14 there are many data sheets for materials that
15 never --
16 Q Never made it.
17 A --- very much beyond the eye of the
18 researcher.
19 Q So, the company's approach was
20 actually to investigate the toxicity of the
21 materials --
22 A Right at the start.
23 Q --- before they even decided that they
24 would make a product ---
25 A Oh, yeah.

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1 Q --- and sell it?
2 A Sure.
3 Q Why?
4 A Well, it's basic information to decide
5 whether it is a suitable material to be sold.
6 Q You mean whether it would be safe for
7 people to use?
8 A Yeah, that's right. You wouldn't want
9 to spend a lot of effort developing a material
10 that couldn't be used.
11 Q I gather it was also, then, the Dow
12 philosophy not to sell materials that couldn't
13 be safely used?
14 A That's true. I think I should say
15 that a little differently.
16 The philosophy was to have information
17 available to the people who would use the
18 materials so that they could safely use it. We
19 weren't in the business of developing their
20 techniques for handling.
21 Q But at least part of your business was
22 telling them about the hazards they would face --
23 A That's right.
24 Q --- when they did handle the material?
25 A That's right.

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1 Q Was this something that Dow started
2 doing late in your career when the OSHA
3 regulations came in?
4 A No. This started with Don Irish's
5 arrival on the scene in 1934 and developed from
6 that. The history is that Toxicology preceded
7 Industrial Hygiene.
8 Q But it's been part of the Dow product
9 development program since the mid '30's?
10 A Well, yes, to an increasing extent in
11 its facilities. That's true.
12 Q To your knowledge was health and
13 safety information about Dow products - that is,
14 products Dow made and sold - was that ever
15 withheld from Dow's customers?
16 A Quite the contrary: It was not
17 withheld. It was made a part of sales
18 literature.
19 Q So, the information actually went out
20 with the products or with the literature that
21 accompanied the sale of the products?
22 A Frequently, if not every time. I

23 presume every time if it presented any
24 particular hazard.
25 Q Did Dow do anything in the way of

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1 following up in the field with some of its
2 customers?
3 A Sometimes.
4 Q To help them to safely handle the Dow
5 products that were being used by the customers?
6 A Yes.
7 Q Did you, yourself, go out on some
8 industrial hygiene --
9 A Oh, yes.
10 Q --- surveys with customers?
11 A Yes.
12 Q And what was the idea behind this?
13 Why was this done?
14 A Well, it was our -- The reason that I
15 had a job was to help make certain that we had
16 available information that would allow people to
17 manufacture the material and use the material
18 safely, and also so we would have the
19 information so that the neighbors would not be
20 adversely affected. That's the three things I
21 was told. That's basically the philosophy, and
22 so all that you are talking about grew out of
23 that philosophy, I guess.
24 Q Surely you approached your own work
25 force with the same attitude of keeping them

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1 well informed about the potentials for harm --
2 A Yes.
3 Q --- that they could encounter at work?
4 A That's right.
5 Q How did you put in the hands of the
6 people that would be working with asbestos
7 insulation in the late '50's this information
8 about the need to use respiratory protection
9 while sawing insulation or while tearing out old
10 insulation, such as they might be doing during
11 maintenance work?
12 A It was presented at safety meetings
13 for the pipe coverers.
14 Q So, the approach was, then, for a Dow
15 safety man armed with the information that you
16 had provided and your recommendations to
17 actually meet with the insulators - the pipe
18 coverers as you called them?
19 A Either that or the foremen. Safety
20 meetings didn't always have a safety engineer
21 present, but the safety engineer would have been
22 the source person for the foremen.
23 Q So, the new rule of "always use a
24 respirator when you are cutting insulation or
25 when you are tearing it out" would have gone from

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1 Industrial Hygiene down to the Safety Department
2 and then been relayed to the men actually doing
3 that work through safety meetings?
4 A Yes.
5 Q Would this rule also have been put

6 into the safety or work manual?

7 A I don't know that they had a work
8 manual. This causes me to think of a thick book
9 of some kind or other. I don't remember that
10 kind of thing. There may have been in some
11 places.

12 Q The only examples I have with me of a -
13 Maybe "work manual" is the wrong term. I've got
14 one called like "safety rules and regulations,"
15 for instance.

16 A The Texas Division.

17 Q Yes, sir.

18 A Well, there were safety rules and
19 regulations booklets which covered general
20 safety items that I remember. I don't know what
21 is in that one.

22 Q But you would call this -- Would this
23 be like the safety book? I mean how would you
24 commonly refer to it at the company, safety
25 manual?

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1 A I don't ...

2 Q I just wonder what your terminology
3 was.

4 A The one that I'm acquainted with at
5 Midland was a thing you could put in your
6 pocket. There was just "Safety" on the outside
7 of it, as I recall.

8 Q Do you recall that there were special
9 handbooks or manuals for the different trades
10 that worked at Dow, such as pipe coverers; that
11 is to say, insulators of pipes?

12 A There were things called key points
13 cards which I think are what you're talking
14 about, and these described the things that
15 needed to be done to do a specific job safely.

16 Q So, they had a safety focus to them?

17 A That's right.

18 Q As opposed to a, "Here's how you fit
19 the insulation or cut your pipe"?

20 A That's right.

21 Q And these key points cards were also
22 specific to different trades or tasks?

23 A Yeah. Generally they were task-oriented,
24 I think.

25 Q Do you recall, Mr. Hoyle, if there were

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1 any kind of special training programs for
2 particular crafts or craft lines in Dow during
3 any of the years that you were there?

4 A I wouldn't have had much reason to
5 know about it after I left the Safety
6 Department, so I don't know the history of it at
7 that point.

8 Q Did you come across any such things
9 before you left the Safety Department?

10 A We had safety meetings.

11 Q I was thinking more in terms of a
12 little training program or course for particular
13 crafts, like an insulator training program or a
14 pipefitter training, that sort of thing.

15 A Well, they had something that they

16 called a tailgate meeting which was before they
17 started the job, they reviewed their key points
18 cards and talked about how they were going to do
19 the job. That was commonly done.
20 Q You mean like before they would start
21 on a particular little maintenance project --
22 A That's right.
23 Q --- they'd take a look at the hazards
24 they would be facing?
25 A That's right.

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1 Q And the approach to it?
2 A That's right.
3 Q But, stepping back a pace or two from
4 the safety issue, do you recall if there were
5 any training manuals used at Dow to train
6 apprentices in a particular craft?
7 A I was never closely enough connected
8 with that vehicle to be able to speak to it.
9 Q And, certainly, if there were such
10 things, at least you in Industrial Hygiene
11 didn't have any input into those that you knew
12 of, I guess?
13 A We were source persons, and our input
14 would have been upon request, if they felt a
15 need for it.
16 Q Sure. And you just don't remember
17 being requested for any help with training
18 manuals, if there were any?
19 A I had -- I guess I just can't
20 remember. I just can't remember specifically at
21 that point.
22 Q Do you remember if there was anything
23 in the nature of actual specifications for
24 thermal insulation materials to be used in Dow
25 plants; whether it was hot or cold or what have

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1 you?
2 A That's a question for the Engineering
3 Department. I don't know. Not that I ever had
4 anything to do with. I didn't write specs, is
5 what I'm trying to say.
6 Q Okay. No --
7 A Nor did it enter into my job much.
8 Q So, even in doing your inventory of
9 materials in the units, you don't recall coming
10 across any kind of specs for, say, a particular
11 kind of insulation?
12 A We would have been looking for
13 specific materials, not the purpose of the
14 material being there. It wouldn't have been
15 very pertinent to us.
16 Q I was just thinking of it in the
17 context that maybe the specification sheet would
18 say the contents or the ingredients of such-and
19 such --
20 A Whether we ever looked at one of those
21 or not, I can't tell you. We would have if we
22 had thought it was of any use to us.
23 Q Were there some materials that were
24 used at Dow for which Dow did not rely on the
25 ACGIH published threshold limit values that you

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1 can remember?

2 A We had a good many materials that had
3 not yet reached the threshold limit values list,
4 lots of them.

5 Q Did you develop your own --

6 A We did.

7 Q --- standards or limits for those
8 materials?

9 A We did.

10 Q What did you do at Dow to validate or
11 increase your comfort level with the in-house
12 standards for materials that hadn't yet been
13 published on the ACGIH list?

14 A I don't know quite how to answer your
15 question, I guess.

16 Q I guess it goes to --

17 A What is it you are looking for?

18 Q Tell us how you would actually come up
19 with a value to put on your own - your in-house
20 threshold limit figure.

21 A That I can tell you. That was - would
22 have been supervisory people from Medical,
23 Toxicology, Industrial Hygiene and Safety. They
24 would have met together with all of the
25 information we could get together in front of

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1 us, and we would have come to a consensus.
2 Either that or the decision that we could not
3 come to a consensus, and then we would have to
4 find more information. How do you do that? The
5 toxicology laboratory has got some more work to
6 do, or you go back to the supplier if it's an
7 outside material.

8 Q And the data from the toxicology lab
9 would be in the form of results of animal
10 testing --

11 A That's right.

12 Q --- for the most part?

13 A That was their contribution, was
14 meeting that problem.

15 Q So, you would be looking to see
16 perhaps how much of a concentration of a
17 particular particulate or vapor would have a
18 noticeable detectable effect on the laboratory
19 animal and try and generalize from there?

20 A And from that you would come to a
21 number that suited everybody in that group.

22 Q Applying, I suppose, a good dose of
23 margin for error and safety factor in order to
24 reach the final number?

25 A Of course. Safety factors depend on

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1 how good your data is and how serious the
2 consequences are if you mess up.

3 Q Now, since that's the way you would
4 establish a threshold limit value --

5 A Yeah.

6 Q --- I suppose you would use similar
7 steps, similar experiments and information, if

8 you wanted to revisit a particular value and
9 consider making a change in it?
10 A As further information became
11 available, then changes were made accordingly.
12 Q Were there any times when you took the
13 published threshold limit value figure for a
14 material and, based upon your own experience,
15 determined that that was too high and you were
16 going to use a lower standard at Dow? You were
17 going to set the limits down at a lower level
18 because you wanted more of a safety factor or
19 more of a margin for error?
20 A No, I don't remember any. There may
21 have been, but I don't remember any. I don't
22 think there were.
23 Q Certainly you had the capability in
24 your laboratory and with the competent people
25 that worked there to look at any of those

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1 materials that you wanted to --
2 A That's right.
3 Q --- and run your own experiments --
4 A Yeah.
5 Q --- and kind of validate whatever the
6 ACGIH had come up with?
7 A That's true. We could have, but I
8 think we seldom changed those numbers. You see,
9 those were industry wide consensus figures, to
10 begin with. Unless we had reason to actually
11 look at those - I mean to test those materials,
12 I can't imagine what you are describing as being
13 the case.
14 Q I mean you could have had serious
15 adverse health effects at exposure levels that
16 were near the limits or close to them.
17 A We could have, but we didn't have. To
18 my knowledge we didn't have.
19 Q But I mean had you had health effects
20 at or below the published threshold limit
21 values, that would have been a sign to you that
22 you needed to revisit that value?
23 A We would have taken immediate action.
24 Q Just so it's clear, having found
25 evidence that there were cases of disease at

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1 below the threshold limit value would have made
2 you as the industrial hygienist at Dow want to
3 move your exposure level down to a lower point?
4 A Our position was we wanted to use the
5 best information available to us to ensure
6 safety in the work environment.
7 Q And that kind of information, cases of
8 disease at the threshold limit value or below
9 the --
10 A That kind of information.
11 Q --- that would have required a
12 response, in your judgment?
13 A That's right.
14 MR. BLANKS: Could we
15 suggest that this is a good
16 lunchtime?

17 (AT 11:58 A.M. A RECESS WAS
18 TAKEN FOR LUNCH. AT 1:22 P.M.
19 THE DEPOSITION RESUMED AS FOLLOWS:)
20
21 (By Mr. Blanks)
22 Q So, Mr. Hoyle, welcome back from what
23 I am sure was a delightful lunch.
24 A Thank you.
25 Q We were visiting about threshold limit

90
1 values and cases of disease at or near the TLV
2 level and so on when we recessed. And I was
3 reminded that I think you had said the decision
4 making at Dow in the Industrial Hygiene
5 Department depended to a large extent on the
6 MAC's, the maximum allowable concentration
7 values and later the threshold limit values.
8 A We were guided by those guides, yes.
9 Q And where there wasn't a guide, you
10 made your own based on the research done in your
11 labs?
12 A And the opinions from the Medical and
13 Safety Department and Industrial Hygiene.
14 Q And I am recollecting that the Medical
15 Department did relate closely to the activities
16 of the Industrial Hygiene Department and the
17 Safety Department - I mean where the interests
18 were the same. You had access to the Medical
19 Department for support?
20 A Yes.
21 Q And I guess they would --
22 A And vice versa.
23 Q --- call on you from time to time.
24 Now, what is your earliest and best recollection
25 of there being a medical monitoring program at

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1 Dow for workers potentially exposed to any
2 particular toxic material?
3 A The physical examination program, as
4 it was known, developed over time, I think, all
5 the way from the time when the Medical
6 Department's activities were treating people
7 with complaints associated with the job to the
8 point where it was made available to everyone.
9 So we're not talking about a particular year or
10 day.
11 But I would think that by the '50's
12 sometime that the physical examination program
13 available to the employees, if they wanted it,
14 would have been in place.
15 Q So, this would have been a routine or
16 a periodic --
17 A A periodic --
18 Q --- physical exam for employees who
19 requested it at Dow?
20 A True.
21 Q Beginning in the late '50's?
22 A Sometime in the '50's.
23 Q Approximately?
24 A My memory isn't good enough to put it
25 closer than that.

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1 Q In the '50's. Had there been as far
2 back when you got hired a pre-employment physical
3 as a condition of going to work?

4 A There was.

5 Q Do you recall any particular product
6 lines at Dow for which the men working on that
7 production unit had to have medical monitoring?

8 A I don't know that it was ever made a
9 condition of employment. There were places
10 where it was advised almost to the point of
11 requirement. I don't remember at Dow that we
12 ever had hard and fast rules for things like
13 that, you know, where you would say "either/or."
14 I don't remember that being the case. I think
15 it was generally well accepted.

16 Q Well accepted that one participated?

17 A If it was recommended, most of the
18 people took advantage of it.

19 Q Was this a program that you, yourself,
20 took advantage of regularly; that is, getting a
21 physical examination?

22 A I generally got a physical once a year
23 under that program, I guess, until I reached the
24 place where there was a different program for
25 supervisory responsibility - supervisory people.

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1 I guess they called it an executive program.

2 Q Can you recall, Mr. Hoyle, if there
3 was any time when there was a special program
4 for medical monitoring of workers potentially
5 exposed to asbestos at Dow?

6 A Yes.

7 Q What decade would that have been in?

8 A Around 1960, I would think, in that -
9 Give or take five years either way.

10 Q Did you have anything to do with the
11 proposing of that and causing that to be put
12 into place?

13 A This group that I mentioned to you
14 before - Medical, Safety and Biochemical - or,
15 rather, Toxicology and Industrial Hygiene people -
16 it certainly was planned in that working group.

17 Q Do you recall that the decision to
18 begin this monitoring grew out of the perception
19 of any particular problem or exposure levels
20 that you had detected?

21 A No.

22 Q What would it have been that triggered
23 this?

24 A Just the fact that asbestos and -
25 Silica is another material that would have been -

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1 it was known that people worked with these
2 materials, so they were included in the program.

3 Q How long did this program continue
4 where you monitored the workers potentially
5 exposed to asbestos or to silica?

6 A I think about two or three years, and
7 the medical director decided that the findings
8 were all negative and that the chest X ray
9 wasn't needed under the circumstances.

10 Q So, the medical director decided to
11 terminate that program?
12 A He decided not to expose the people to
13 chest X rays on his recommendation because of
14 their environment.
15 Q Were they also doing pulmonary
16 function testing --
17 A They were.
18 Q --- of these same workers potentially
19 exposed to these dusts?
20 A They did.
21 Q Did that pulmonary function testing
22 stop at the same time that the X rays --
23 A The testing was still there and
24 available. The only thing that stopped was the
25 aggressive selling of the idea to this

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1 particular group because it was this particular
2 group.
3 Q The particular group being like the
4 insulators or the sandblasters?
5 A The insulators and sandblasters mostly.
6 They had been singled out for a recommendation
7 that they surely take advantage of it when
8 available. They weren't getting anything that
9 was not available to other people, as I recall.
10 Q Are you meaning that the X ray program
11 and the pulmonary function testing program was
12 available to other trades as well?
13 A To anybody that worked there as well.
14 MR. ALMQUIST: We're falling
15 back into the same trap a little
16 bit. Make sure he's through
17 talking before you start.
18 THE WITNESS: Okay.
19 Q So, your recollection is that around
20 the time the medical monitoring program was in
21 place in the '50's - perhaps close to 1960 as
22 may be - that chest X rays and pulmonary function
23 testing were both available to employees who
24 asked for it or who were recommended to have it
25 by someone at Dow?

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1 A That's correct.
2 Q It was just the aggressive program of
3 encouraging insulators and sandblasters to have
4 annual chest X rays that was eliminated by the
5 medical director after a few years of taking
6 films of these men?
7 A True.
8 Q Did you have at that time as you
9 recall any kind of data about the exposure
10 profiles that these workers potentially exposed
11 to asbestos or to silica had had when they were
12 in the X ray program?
13 A There was no industrial hygiene data
14 that described the exposure of these people in
15 detail at that time.
16 Q Do you recall, sir, if you had data
17 that would at least describe for you the number
18 of years that these individuals had been working
19 in their particular trades?

20 A That's a question for the Personnel
21 Department. I don't know what their records
22 looked like. "Probably" is my answer.
23 Q Probably you had it available?
24 A It probably was there. I don't
25 remember specifically going and asking for it.

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1 Q Certainly you would have appreciated
2 the significance of the durations of past
3 exposures in terms of evaluating an occupational
4 disease, wouldn't you?
5 A As well as the levels that they
6 probably were exposed to.
7 Q As well as what?
8 A The levels of probable exposure.
9 Q And you would not have expected -
10 certainly with the insulators - to have seen
11 signs of asbestosis on the X ray films or lung
12 changes suggesting asbestosis after only a few
13 years of exposure, would you?
14 A I don't know how long it would have
15 taken. I suspect it would have been related to
16 the levels of exposure as well. I know that
17 there is some length of time. I don't know that
18 there is a specific length of time.
19 Q Did you appreciate that the medical
20 director at Dow would have had an understanding
21 also of the latency periods involved with
22 asbestosis or silicosis diseases?
23 A I really -- You said would I have
24 expected. The answer is "yes." Do I know, I
25 don't know.

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1 Q Who was this gentleman, the medical
2 director?
3 A There was more than one. Dr. Gay was
4 the first one; Dr. Gordon was the second one,
5 after Dr. Gay retired.
6 Q Dr. Harold Gay?
7 A Harold Gay and Harold Gordon.
8 Q And Harold Hoyle.
9 A And Harold Hoyle. They used to say we
10 had a meeting of Harolds. There was also one
11 from the Safety Department.
12 Q Do you know which of these two doctors
13 would have been the one who terminated the X ray
14 program for the insulators?
15 A Yeah, I think it was Dr. Gay.
16 Q Before you left Dow in 1976, was there
17 a renewal of this sort of periodic monitoring of
18 workers potentially exposed to asbestos for
19 medical exams?
20 A I don't think so. I don't remember
21 that there was.
22 Q Do you recollect, sir, in the last few
23 years you were there - let's say in the '70's -
24 whether there was any specific periodic
25 monitoring done of the gentlemen who worked in

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1 insulating at Dow; that is to say, monitoring of

2 their dust exposure?

3 A There was one careful study done in
4 about 1968 or so.

5 Q Okay. That was your '68 or '69 study --

6 A It may have been '69. There may have
7 been some of it happening in both years. I
8 don't remember.

9 Q That was done by Mr. DeGesero?

10 A DeGesero; Roy DeGesero, correct..

11 Q But in the '70's - at least the '70's
12 while you were with the company - there was no
13 routine industrial hygiene monitoring of the
14 workers potentially exposed to asbestos?

15 A What kind of monitoring?

16 Q You know, you did your detailed study
17 of the insulators in the late '60's. I was
18 wondering if in the '70's you began to do
19 periodic monitoring on a routine basis of
20 workers potentially exposed to asbestos working
21 at Dow.

22 A I don't recall that there was. The
23 findings of that study would not have prompted
24 such a program. They were not above the five
25 million particles on average.

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1 Q So, the average of the time-weighted
2 averages that came out of that study were
3 slightly below the TLV of the time, right?

4 A Yes. And it was -- The study combined
5 with what we knew of the medical histories are
6 the things I'm thinking about when I say I don't
7 think there would have been any reason to change
8 the program as it was existing.

9 Q And by the time you retired some seven
10 or eight years after that detailed study of
11 insulators, had you obtained any new medical
12 data on the men who had been part of the
13 insulator study at Dow?

14 A I'm not sure about that. I think the
15 medical records would have to speak for
16 themselves.

17 Q It didn't come to your attention --

18 A I don't recall that such was done.

19 Q --- such as X rays in the mid '70's
20 that would look for changes over the last few
21 years?

22 A I don't recall that.

23 Q Were there any particular industrial
24 hygiene records that you asked Dow or its
25 lawyers to locate for you before the depositions

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1 you have given?

2 A I didn't ask anybody to get anything
3 for me. I responded to a request that I appear.
4 That's about the size of my activity.

5 Q You didn't suggest that it might be
6 handy to have some of your old files or records
7 or anything like that?

8 A I don't recall making such a request.

9 Q Did you happen to keep any kind of
10 files or old literature or correspondence,
11 diaries, memos; or did you leave everything

12 behind when you left Dow?
13 A I didn't take anything home with me
14 because I was retiring, and whatever I had I
15 felt should be left there for my successor.
16 Q And when you retired, all of the files
17 that you had accumulated over the years were
18 intact in your office or in your filing system?
19 A We had a rather extensive filing
20 system. It was intact when I left.
21 Q Can you give us an approximate
22 quantity of the volume of this, some
23 quantification of the magnitude of the files?
24 A Well, it was pretty close to 30 years
25 work, varying from two people to -- Because soon

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1 after I started, another man came along - up to
2 a dozen people. And we had kept all of the
3 original data and all of the copies of the
4 reports that we had written.
5 Q Would we be speaking in terms of tens
6 of - or dozens of file cabinets full of papers,
7 reports and data and memos?
8 A Oh, I guess probably. It's a hard
9 question for me to answer. There were lots of
10 them, and that's about the way I remember it.
11 Q Okay.
12 A And if I wanted something, I usually
13 asked my secretary to get it for me.
14 Q And, as a general rule, she was able
15 to find it?
16 A Always.
17 Q Always?
18 A Almost always.
19 Q Sometimes you had lost it?
20 A I suddenly put my scientist hat on and
21 remembered that nothing is always.
22 Q There was not any kind of a policy or
23 program in place when you left Dow then in 1976
24 that required the routine review of old
25 documents prior to their being destroyed or

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1 trashed?
2 A There was such a program.
3 Q There was?
4 A Yes.
5 Q When did that go into effect?
6 A I don't know. Before I retired
7 sometime, not too long before. Maybe in the
8 late '60's or so, and I remember it because I
9 was asked what kind of things we needed to keep.
10 It was a matter of maintaining order and
11 usefulness of the files. And my recommendation
12 was that we not dispense with anything that had
13 data in it and records of data or professional
14 opinions. And it was still -- We kept all of
15 those things up until the time I left, I'm sure.
16 Q * And I suppose you don't have any
17 knowledge about what has happened since then to
18 either the policy or the records?
19 A I have had no contact with it.
20 Q Do you recall any kind of communication
21 with anybody in Dow suggesting that any of these

22 records ought to be purged or gotten rid of
23 because of potential litigation problems or
24 exposures ---
25 A No.

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1 Q --- or difficulties?
2 A No. Strictly on the basis of making
3 room for - reducing the quantity of stored
4 records.
5 Q And, as you understood it, this
6 program covered the whole company?
7 A The whole company.
8 Q But there was obviously some room for
9 discretion in terms of maintaining scientific or
10 technical or engineering data, I suppose?
11 A People at my level were asked, "What can
12 you safely not keep and what do you think you
13 have to keep," both sides of the pot.
14 Q And this happened across different
15 departments. I suppose Toxicology and Medical
16 would have been asked the same thing.
17 A I would presume so. My contact was a
18 contact with a fellow that had the program and
19 was trying to reduce the quantity of paper that
20 was around.
21 Q Who was this individual charged with
22 shoveling out the Aegean stables?
23 A It beats me.
24 Q You don't remember the man's name?
25 A His name - his first name was the same

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1 as mine, but I can't tell you his last name. I
2 should be able to, but I don't remember. I
3 didn't know him except in that one contact. He
4 contacted me and told me what he was doing and
5 asked me what we could do.
6 Q Do you recall, sir, taking part in a
7 toxicology symposium in the very early '60's -
8 maybe '60, '61 - along with your colleagues,
9 V. K. Rowe and other gentlemen?
10 A Well, I remember one in Texas where
11 almost all of us were involved, I guess.
12 Q Can you tell me some more about that,
13 please?
14 A My recollection is that it was put on
15 for the benefit of people at the Texas Division
16 and also for the Texas Chemical Society, I
17 believe, if that's the right name. I'm not sure
18 about that.
19 Q How about Texas Chemical Council,
20 perhaps?
21 A It could be. It could be. And we
22 each made a presentation having to do with our
23 own area of interest, and we did it.
24 Q This would have been down in Houston,
25 I suppose?

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1 A Well, it was in Houston for the Texas
2 Chemical whatever, and it was in the Lake
3 Jackson, Freeport area. The Texas Division.
4 Q So, it was two presentations --

5 A It was the same thing.

6 Q --- of similar material?

7 A The same papers, I think.

8 Q So there were actually papers of a

9 sort or akin to what you might present at a

10 meeting of one of your professional associations?

11 I mean --

12 A Yeah, it could be. It was fairly

13 general as I recall.

14 Q And your talk was printed up into a

15 little booklet, wasn't it?

16 A I'm sure it was, yeah.

17 Q Would you recollect this document that

18 I am going to label in a minute as a reprint of

19 the symposium from the - circa 1960?

20 A Well, it's got pictures of the right

21 people anyhow. Without reading all the words, I

22 can't tell you whether it's - what it is. But

23 it looks to me as though ...

24 Q Do you recognize that fellow there

25 (indicating)?

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1 A I think I've seen him in the mirror.

2 It was an attempt to give people an understanding

3 of the whole field of industrial health and

4 control health problems, as I recall.

5 Q It's a nice general overview with some

6 detail to give them a sense of what services

7 were available at the corporate offices?

8 A Yeah. Actually it was, as it says

9 here, a symposium on toxicology. It was oriented

10 toward the toxicology laboratory, and the rest

11 of the things you see in here were people who

12 used that information to do things in their

13 daily work.

14 Q I could not find a date in here, and

15 I'm not going to ask you to look for one because

16 I don't think there is one. But I was attempting

17 to place it in time, and just from the biographic

18 sketches I was hoping we might find enough to

19 where you could increase our competence level in

20 the date of this.

21 A No.

22 Q For instance, it mentions V. K. Rowe

23 graduating in 1937 and having worked for the

24 past 23 years in toxicological research.

25 A Yes, sir.

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1 Q I add that up to 1960. Here's

2 Mr. Olson - K. J. Olson. What was his first

3 name, Kenneth?

4 A Kenneth.

5 Q It mentions that he got a Ph.D. from

6 Michigan State in 1947 and had spent 13 years in

7 research: seven with Upjohn and the last six at

8 Dow.

9 A That's probably the only markers

10 you're going to find because I think he went

11 directly from Michigan State to Upjohn and

12 directly from Upjohn to Dow. That's my

13 recollection of Ken's history. So it's 1960 is

14 what that comes out to, which is probably what I

15 would have said if you had asked me to guess.
16 Q They don't let me get away with asking
17 you to guess very much, although I don't know
18 why not if you qualify it.
19 This mentions Mr. Hoyle here - for the
20 past 13 years has been engaged in environmental
21 research; now in charge of that program in the
22 biochemical research laboratory at Dow.
23 A Right.
24 Q So, would you say 1960 is probably as
25 close as we can get with the dating of this?

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1 A Well, if you add 13 onto 1948, it
2 comes out to '61.
3 Q Is this Donald D. McCollister
4 illustrated here?
5 A Yes.
6 Q It gives him 15 years of tox research
7 and presently in charge of long-term dietary
8 feeding studies, which I assume he may have been
9 doing for two or three years or so by the time
10 of this paper.
11 A I think the 15 years includes that
12 because the dietary feeding studies was a part
13 of toxicology.
14 Q I guess you worked with all of these
15 people in your job.
16 A All in the same department.
17 Q Charles G. Cramer, M.D. Now, what --
18 A He's a medical doctor in the Medical
19 Department.
20 Q Was he ever the medical director?
21 A No.
22 Q Just on the staff?
23 A He was a staff doctor.
24 Q This has him associated with
25 industrial medicine for the past nine years,

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1 graduated in '49. That still gets us in the
2 same ballpark, I suppose.
3 Did he stay with the company through
4 the years that you were there - Dr. Cramer?
5 A He may have left a little ahead of me.
6 He did leave the company.
7 Q Had he reached retirement age?
8 A I don't know how old Chuck was. He
9 may not have been 65 because the last I heard,
10 he was a physician at an Indian reservation out
11 West, so he is still around and able to practice
12 medicine. I don't know what his age is.
13 Q Did you hear what state he was in?
14 A Yeah, I think it was North Dakota.
15 Q Not too far west, then. It's a little
16 west of here.
17 A Uh-huh.
18 Q Mark Wolfe - did he stay with the
19 industrial hygiene section for very long?
20 A He never was in industrial hygiene.
21 He's a toxicologist.
22 Q Did he stay with the company for long,
23 then?
24 A Until he retired at 65.

25 Q I see. This seems to cover a variety

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1 of topics here: household chemicals, industrial
2 chemicals. Here is Dr. Irish on carcinogenicity.

3 A Uh-huh.

4 Q Do you recall -- This would have been
5 an area that you would have talked about from
6 time to time - industrial chemicals, I suppose.

7 A True.

8 Q Would that be true? That's
9 illustrated in here.

10 MR. BLANKS: I'm going to
11 label this as "60 0000 Dow," seeing
12 as how 1960 is the approximate
13 date, plus or minus a year or so.

14 A I wouldn't quarrel with that.

15 (REPORTER'S NOTE: THE

16 EXHIBIT MARKED BY MR. BLANKS WAS
17 RETAINED BY HIM AT THE CONCLUSION
18 OF THE DEPOSITION.)

19

20 (By Mr. Blanks)

21 Q Do you recall, Mr. Hoyle, were there
22 other times that your talks of the group of you
23 gentlemen from Toxicology and Industrial Hygiene
24 got printed up in this nice fashion or ---

25 A This is the only one I know of. It

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1 was put together. I suppose it was kind of a
2 P.R. effort as well as a scientific effort, in
3 an effort to give people scientific information
4 or a feeling for science. And I think that may
5 account for the fact that it was done up rather
6 carefully and passed out to all of these members
7 of the Texas whatever it was. And I think that
8 would account for its having been done in this
9 way. I don't think there's another like it.

10 Q So, our best knowledge today would be
11 that this booklet with the title "Symposium on
12 Toxicology" would represent the talks presented
13 down in Texas around 1960 that we have been
14 discussing here?

15 A That's right.

16 Q You will be happy to know that at
17 least one copy made its way to the Haskell
18 Laboratory Library, which is where this one came
19 from.

20 A Good. I'm not surprised.

21 Q Sir?

22 A I'm not surprised because V. K. was in
23 contact with Haskell at the time.

24 Q There must have been some times when
25 you were called upon to deal with people from

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1 government that were engaged in regulating or
2 writing regulations to cover Dow products and
3 activities; isn't that right?

4 A Yes.

5 Q Can you place this in time for us?

6 A The last time that I was involved -
7 therefore, I suppose, the first one that comes

8 to mind - was a NIOSH committee that was working
9 up criteria for the chlorine standard, and that
10 was probably - well, certainly had to be late
11 '60's or early '70's because of the date when
12 NIOSH got started.

13 Q Can you explain to me what you're
14 talking about when you speak of the criteria for
15 a standard or the criteria document?

16 A Yeah. Under OSHA there was a
17 requirement that NIOSH prepare basic information
18 needed to set standards. And chlorine - there
19 was a committee for each standard, I believe,
20 and I was involved in the one for chlorine.

21 Q Could you flush it out a little bit
22 with some examples of what kind of information
23 goes into making the criteria for setting
24 standards? What sort of things are you looking
25 at?

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1 A You're looking at whatever can be
2 found in the literature that relates to either
3 animal experiments or to environmental
4 measurements or results of health surveillance,
5 that kind of thing.

6 Q Sort of an attempt to gather together
7 everything that had been published about --

8 A To gather together and evaluate as
9 best we could what was available.

10 Q And then try and come to some agreed
11 number for a standard, exposure standard?

12 A A number, and then I believe that
13 there was also a write-up that summarized the
14 basic information that went along with that
15 standard. It was quite a long while ago, so I
16 can't remember exactly what it looked like.

17 Q But just generally in terms of the
18 process --

19 A This information went to OSHA and they
20 promulgated standards. It was a recommendation
21 to OSHA, I think is another way to say it.

22 Q So, while working with this committee,
23 I suppose it was, you members would have tried
24 to come to a consensus and make a recommendation
25 for a standard?

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1 A It was a matter of evaluating the
2 information that we could find that was put
3 before us and make a recommendation, that's
4 right.

5 Q Pretty much doing what you had done in
6 Dow along with the medical and the toxicology
7 people?

8 A That's true.

9 Q Except on a bigger scale, a national
10 level?

11 A It was on a national level. Maybe it
12 was more wordy, if not more sophisticated.

13 Q I suppose that there were other Dow
14 scientists who did similar things in terms of --
15 A I don't know.

16 Q --- helping develop criteria documents
17 and standard recommendations?

18 A I don't know. I don't remember is
19 what I should say. I don't remember. I
20 remember that one in particular.
21 Q But you don't remember any other Dow
22 scientists --
23 A Other than myself, no, I don't.
24 Q --- doing such things?
25 A No, I don't remember. Whether V. K.

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1 I did or not, I don't know.
2 Q It wouldn't surprise you to learn --
3 A Not at all.
4 Q --- that he had?
5 A I don't remember.
6 Q You referred to this NIOSH chlorine
7 standard as the last one you can remember, the
8 most recent in time. Could you recall for us
9 any others?
10 A I don't remember -- I'm fuzzy at this
11 point because I don't remember what I may have
12 worked on for some other entity other than the
13 government.
14 Q And what other entities might that
15 conceivably have been if there were any?
16 A I was on a committee for the American -
17 ANSI, I think they call it - American National
18 Standards something or other. I think this was
19 chlorinated hydrocarbons - to set a standard for
20 the use of chlorinated hydrocarbons for cleaning
21 metals.
22 Q Can you think of any other type thing?
23 A Those are the only two that come to
24 mind right now.
25 Q I think you told us earlier that you

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1 I never got involved in the setting of standards
2 for asbestos exposure --
3 A No.
4 Q --- or the revision of that standard?
5 A No. The only contact I had with that
6 standard was to use it.
7 Q Do you recall, sir, if any of the
8 trade associations you knew Dow to belong to or
9 Dow employees to belong to were engaged in any
10 efforts to, let's say, influence or direct or
11 suggest standards or changes in standards for
12 occupational exposures to toxic materials?
13 A I had no contact with trade associations
14 in that sense except the Chlorine Institute.
15 That's in my other testimony.
16 Q The Chlorine Institute. That sounds
17 kind of strange. Was it a big organization,
18 quite a few companies involved?
19 A Well, those who made chlorine and a
20 few who used it. And there was some pretty good
21 research done on chlorine from an industrial
22 hygiene point of view.
23 Q Did you have anything to do with any
24 of the activities of the MCA or CMA?
25 A I was never on a committee of either

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1 of those organizations that I can remember.
2 Q Certainly Dow would have had members
3 or at least maybe the company was a member of
4 the --
5 A Quite likely. In fact, probably. I
6 don't know if they were.
7 Q Mr. Hoyle, there were some studies
8 done that we have learned of in the '50's that
9 were published in the late '50's, around the
10 time you did your first asbestos monitoring,
11 that came from another trade association called
12 the American Petroleum Institute. And these
13 studies dealt with the incidence of cancer in
14 people working in the petroleum industry.
15 Did any of these papers ever reach you
16 or your office that you know of?
17 A Didn't have a whole lot of contact
18 with the American Petroleum Institute; like
19 none, that I can remember. If you asked me if
20 any of the papers came to my desk, I can't
21 remember any specific paper in that time.
22 Q Do you recall getting any kind of
23 materials that were sent out by the medical
24 advisory committee of the API that dealt with
25 industrial hygiene matters or disease in the

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1 petrochemical work force?
2 A I don't remember any specifically.
3 Q Who was your main contact at Dowell
4 during the late '50's and early '60's; do you
5 remember?
6 A I had contact with their safety
7 director. His name was Perry Arnot.
8 Q How do you spell his last name?
9 A A-r-n-o-t, I think.
10 Q He was the safety director?
11 A And anything else having to do with
12 safety. He was a one-man Safety Department.
13 Q I guess he would have sent information
14 on to you whenever he had information that he
15 thought would be helpful to you, like you would
16 do to him?
17 A I don't remember sending him anything.
18 I remember him more seeking advice; but that's
19 what I recall mostly of our contacts.
20 Q Did you ever hear of anybody at Dow
21 being involved in the proposed revision of the
22 asbestos standards?
23 A I don't recall that we were ever
24 involved in that, the reason being we probably
25 had nothing to contribute. I can say positively

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1 that as far as industrial hygiene is concerned,
2 there was no such contact. I shouldn't speculate
3 about anything beyond that.
4 Q And your clear recollection is that
5 before 1970 at least, you had no reports of
6 asbestos-related disease in any Dow employees or
7 former employees. Is that true?
8 A That's true.
9 Q Nor any reports of allegations of
10 asbestos disease in Dow employees or employees

11 by 1970?

12 A I had had none.

13 Q That's what I'm asking.

14 A If you're asking me, I had heard of
15 none, and I don't know beyond that point.

16 Q When was it that the epidemiology
17 study was done that contrasted the Dow
18 pipefitters with the Dow insulators? Would that
19 have been in the '70's?

20 A That wasn't in the '70's. It was
21 before that. It was when Jerry Ott first came
22 to work for Dow. It was the first exercise he
23 did. He was a biostatistician, and the study
24 involved Medical Department records and did not
25 involve any industrial hygiene records, as I

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1 remember. That's my recollection of that.

2 Q He was working strictly on what
3 records he could find in the doctors' files?

4 A Doctors' files, medical records.

5 Q And his study was not based on any
6 sort of quantitative exposure data about either
7 the insulators or the pipefitters or whoever was
8 the control group?

9 A We didn't have that kind of data, so
10 he could not have used it. I'm talking now
11 about good industrial hygiene studies.

12 Q Yes, sir.

13 A We had some information that you have
14 already asked me about having to do with
15 specific things that pipe coverers did. And, of
16 course, it had to do, as I told you, with pipe
17 coverers.

18 Q Yes, sir, what I have been calling
19 insulators.

20 A Yeah. Okay.

21 Q Well --

22 A That's our jargon. Yeah, they are
23 insulators.

24 Q And I have been using that because

25 "pipe coverer" sounds too much like "pipefitter,"

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1 and I just wanted to distinguish them clearly.

2 A They covered the pipes, and the
3 fitters put them together.

4 Q Most of the insulating at Dow was
5 actually of pipes?

6 A Pipes and vessels.

7 Q And vessels as well. Okay. So the
8 guy you call a pipe coverer did both?

9 A He might have covered some vessels.

10 Q Sure.

11 MR. ALMQUIST: Could we take
12 a short break?

13 MR. BLANKS: Certainly.

14 (AT 2:10 P.M. A RECESS WAS
15 TAKEN. AT 2:22 P.M. THE DEPOSITION
16 RESUMED AS FOLLOWS:)

17

18 (By Mr. Blanks)

19 Q Let me trouble you about a few more
20 trade association organizations, just in the off

21 chance that Dow was a member.
22 Do you recall or know of any insulation
23 related associations, such as the National
24 Insulation Manufacturers Association, something
25 of that nature, to which Dow belonged at any time?

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1 A Not that I know of.
2 Q When was it that Dow began making the
3 urethane insulation products or the -- Is it
4 isocyanates?
5 A Well, I guess I can't put a time on it
6 for you; but it was probably in the '60's.
7 Q Is there anything that you can recall
8 to connect Dow in any way with the Asbestos
9 Textile Institute?
10 A Nothing. That one I would be real
11 surprised if there was any connection.
12 Q Dow never made any textile products,
13 did they?
14 A Not out of asbestos.
15 Q I mean any at all.
16 A Well, no. I don't think we made any
17 textiles at the Dow Chemical Company.
18 Q Did you make chemicals that ended up
19 being used in textiles, like a nylon or a rayon
20 or something like that?
21 A Well, that's why I answered you the
22 way I did. There may have been some of the
23 resins that got into the textile business.
24 Q If Dow sold the resins, none of them
25 included any mineral fibers?

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1 A No.
2 Q Like asbestos?
3 A No.
4 Q And Dow didn't manufacture any
5 finished fiber goods like we mean when we speak
6 of textiles?
7 A I don't remember any -- I guess there
8 was one that for a while may have reached the
9 market.
10 Q What would that have been?
11 A It was called Rovana.
12 Q R-o-v-a-n-a?
13 A Uh-huh.
14 Q Just for curiosity's sake, what was it
15 and what was it used for?
16 A Well, it was a fiber that was, I
17 suppose, woven into something or other.
18 Q A chemical fiber?
19 A It would have been a plastic fiber.
20 Q Do you have any association in your
21 mind between Dow and the Rubber Manufacturers
22 Association or any of its prior forms or
23 organizations?
24 A I don't know quite how to answer your
25 question. I do not know that Dow ever belonged

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1 to that organization. I can answer that much.
2 I don't know about it.

3 Q Is there anything more that comes to
4 mind regarding the Rubber Manufacturers
5 Association?
6 A Not unless we started to try to think
7 of all the things rubber manufacturers use, and
8 I'm not an expert at that point. I don't know.
9 I know that to make rubber, you have to have
10 something to make it, but I can't answer your
11 question. I am not knowledgeable at that point.
12 Q So, it is logically possible that Dow
13 might have sold some raw materials or some
14 chemicals that would be used in that industry, I
15 suppose, is what you are allowing?
16 A ~ I'm saying I couldn't say it's
17 impossible, but I don't know.
18 Q But you don't recall anything that
19 suggests that Dow ever belonged to the Rubber
20 Manufacturers Association?
21 A I have no knowledge that the company
22 ever belonged to it. That's to my personal
23 knowledge.
24 Q You do remember Dow being a member of
25 the National Safety Council ---

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1 A Oh, yes.
2 Q --- even back when you were first
3 employed there?
4 A Oh, yes.
5 Q And it had been, to your understanding,
6 for a number of years?
7 A I don't know how long before I came to
8 work that Dow had been a member. But I can say
9 with certainty that Dow was a member of the
10 National Safety Council in 1944.
11 Q Were there any times when the Zurich
12 Insurance Company did any kind of audits or
13 surveys of a Dow facility that you know of?
14 A Yes.
15 Q Could you tell us about those, please,
16 sir?
17 A Zurich was the Dow insurance carrier
18 for a couple of years, and one I remember is an
19 industrial hygiene survey of a foundry, magnesium
20 foundry, that we operated.
21 Q This was one that you went on along
22 with Mr. Warren Cook?
23 A That's correct.
24 Q And this would have been after you
25 became an industrial hygienist?

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1 A Yes.
2 Q So, after 1948?
3 A Yes.
4 Q But not too much after, I suppose.
5 A Fairly soon after, I would think.
6 Q Was Mr. Cook at that time, then,
7 associated with or an employee of Zurich
8 Insurance Company?
9 A He was in charge of their industrial
10 hygiene unit.
11 Q He after that moved to the University
12 of Michigan and set up a program in industrial

13 hygiene, did he not?
14 A Yes, sir.
15 Q I suppose they would know at the
16 university, but do you recall approximately when
17 that would have been?
18 A As far as I can recall, that's where
19 he went from Zurich, but I don't remember dates
20 too well. Probably in the '50's.
21 Q Can you recall any other industrial
22 hygiene survey or inspection that Zurich did at
23 Dow besides the magnesium foundry?
24 A That's the only hands-on activity that
25 he had at Dow. The rest of his contacts would

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1 have been in the way of audits or their
2 programs.
3 Q I'm sorry, the rest?
4 A In the way of audits of our program,
5 "What are you doing and how are you doing it,"
6 that kind of thing.
7 Q Could you elaborate on that just a
8 little bit, what an audit consisted of? An
9 audit of the industrial hygiene program?
10 A Well, as they were done by Cook for
11 Zurich, they weren't very extensive. And he
12 asked whatever questions he wanted to ask about
13 our industrial hygiene program. I have no idea
14 what he decided to ask or what he did ask. But
15 it was in that context that he was interested in
16 what we were doing.
17 Q Was this something that would happen
18 periodically?
19 A Oh, I think they were the carrier for
20 two, three, four years.
21 Q Maybe longer?
22 A Not longer, I don't think. I don't
23 think he came around more than once a year.
24 Q So, he would come around and visit
25 with you about the industrial hygiene program at

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1 Dow?
2 A Uh-huh.
3 Q Odds and ends, "What are you doing,
4 how are things going, what have you been working
5 on"?
6 A Uh-huh.
7 Q That general professional discourse?
8 A He did whatever he needed to do to
9 satisfy himself that we were adequate.
10 Q Do you remember that there were times
11 when he would make recommendations to you and
12 say, "Harold, I think you ought to be doing this
13 and such or maybe you ought to be looking at
14 that," or anything like that?
15 A I don't think he ever had much to say
16 in that -- I think we were doing pretty much
17 what he had in mind.
18 Q After Zurich ceased to write the
19 insurance for Dow, who took their place; do you
20 remember?
21 A I don't know. There were a number of
22 different insurance companies. I had no contact

23 with the Insurance Department. My recollection
24 is he was the only industrial hygienist from the
25 insurance company that we saw.

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1 Q That you ever saw?

2 A Uh-huh.

3 Q So, when Mr. Cook and Zurich no longer
4 had the Dow account, the industrial hygiene
5 audits from the outside ceased?

6 A From the insurance companies, yes.

7 Q Nobody else was doing any kind of
8 industrial hygiene audits of you, were they?

9 A Well, not unless you want to call
10 visits by the state engineer that we talked
11 about this morning. I don't know that that was
12 an audit, but I saw him, so ...

13 Q So, they would drop by and --

14 A We weren't operating in a vacuum, but ...

15 Q They weren't coming by in response to
16 any complaint; they were just coming by to --

17 A Sometimes. And once in response to a
18 complaint maybe. I don't remember. Not very
19 often, anyway.

20 Q Do you remember that Zurich ever put
21 any conditions on Dow, you know, relating to
22 industrial hygiene?

23 A No.

24 Q Or health hazards?

25 A I don't remember any such thing.

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1 Q Would Mr. Cook prepare any sort of a
2 written report of his meetings with you or
3 survey or audits that would end up crossing your
4 desk thereafter?

5 A I don't remember any reports. Zurich
6 was on the - was Dow's carrier when I first
7 became an industrial hygienist, in that period
8 of time.

9 Q And you don't know how far back
10 in time they had the coverage?

11 A I really don't know. I'm having
12 trouble answering your questions because of how
13 long ago it was and also there's a point that I
14 don't know whether they were on it or not. I
15 just don't know.

16 Q Do you know if Metropolitan was
17 providing coverage for Dow employees in the
18 early part of the '40's when you began working
19 for the company?

20 A As soon as we had employee health
21 insurance, Metropolitan was the carrier. That I
22 remember.

23 Q Did they remain the carrier for a
24 number of years or was it a short-lived thing,
25 too?

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1 A Well, I think they still are. I don't
2 know the intricacies of the insurance business,
3 but I think they are.

4 Q I just ask it because their name
5 appeared in the 1941 Texas Division safety rules

6 and regulations on Page 3. It just mentions
7 insurance and Metropolitan Life, Health and
8 Accident Insurance Company. Let me see if that
9 jives with your recollection.
10 A Yeah, that's the insurance company
11 that has been the carrier of the employee
12 insurance program all the time that I have been
13 associated with such a program; in other words,
14 a participant, I should say.
15 Q Yes. Do you remember, sir, ever
16 having the benefit of any consultations from the
17 Metropolitan Life Insurance Company's Medical
18 Department or its industrial hygienist, if it
19 had any such thing?
20 A I don't know whether they had one or
21 not.
22 Q How about from their doctors?
23 A I had no contact with the doctors.
24 Q Do you remember that information from
25 Metropolitan came to you at Dow or to your

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1 colleagues at Dow that would deal with
2 occupational health or occupational disease?
3 A I don't recall -- I don't recall any
4 such information.
5 Q Mr. Hoyle, you've told us how in the
6 late 1950's - '58, '59, thereabouts - you did
7 some monitoring of asbestos exposures and found
8 levels that you thought were higher than you
9 wanted to have in the plant while the men were
10 sawing or tearing off old insulation.
11 A I don't think that I can agree with
12 your terminology because those measurements were
13 not measurements of the degree of exposure of
14 people. Those were specifically set up so that
15 I could get some data that would allow me to
16 tell the Safety Department which jobs I thought
17 they ought to have respiratory protection on.
18 It's a little different than making an
19 evaluation of somebody's health hazard. I
20 didn't do that.
21 Q That's fair. Did Safety actually ask
22 you to go take some samples of --
23 A My recollection of the thing is they
24 didn't ask me to take samples. What I recall is
25 that Harold Lindsey called me up and said, "We

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1 want to talk about respiratory protection in the
2 shops in general." And in the shops was the
3 covering crew. And I felt a need to get a
4 little bit of data before I answered him on
5 which ones of their jobs they maybe ought to
6 have respiratory protection. And I made a
7 recommendation, in my recollection, that I
8 considered to be very conservative at the time,
9 partly because I did - got the numbers from a
10 method that counts a lot more dust than the
11 regular method. It didn't bother me a bit at
12 the time because I was being conservative.
13 Q And that was using the Bausch & Lomb
14 tool?
15 A The Bausch & Lomb tool. It never was,

16 in my opinion, a suitable piece of equipment to
17 count dust and compare with five million
18 particles. And I didn't use it that way. I
19 used it as a measurement of dirtiness, and in a
20 way that's what I was looking at.

21 Q Because the values you get using the
22 Bausch & Lomb --

23 A Were much too high. You see much more
24 particles with that technique.

25 Q I see.

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1 A And many of those are probably too
2 small to be significant.

3 Q And you were understanding that
4 actually you had enough magnification, then,
5 with that tool to see particles that were too
6 small to cause any harm to the lung?

7 A Let's say optics, the magnification
8 plus the type of illumination.

9 Q That was a dark light - dark field --

10 A Dark field technique.

11 Q --- technique. Well, going back then
12 to the 1958 or '59 effort of measuring for
13 dirtiness in the shop so you could advise the
14 insulator crews where they should be using
15 respiratory protection -- And we've talked about
16 that at length. I'm just wondering, using that
17 information and what you found there, when was
18 it after that time that Dow made it its rule
19 that contractors' employees working in the Dow
20 plants should also have to use respiratory
21 protection when they were sawing or tearing off
22 asbestos insulation?

23 A I don't have that information. The
24 Safety Department administered that program.

25 Q So, that would have been up to the

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1 Safety Department to make that rule and to --

2 A That would have been the only contact
3 in that context with the contractor.

4 Q Would have been through the Safety
5 Department?

6 A Through the Safety Department.

7 Q And if --

8 A My function was to act as a source of
9 information if asked.

10 Q Did you ever act as a source of
11 information with respect to potential contractor
12 exposures in Dow premises?

13 A I don't believe that I had any -- I
14 think that whole thing was handled with
15 information that was already available to the
16 Safety Department for internal use. So I had no
17 direct contact at that point.

18 Q Do you know if Dow, through the Safety
19 Department or otherwise, ever made it the rule
20 that contractors' employees working in Dow
21 plants had to be warned about the potential
22 health hazards of asbestos dust exposures?

23 A At what time?

24 Q Well, whenever.

25 A Well, to begin with, the relationship

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1 between Dow and the contractors was that Dow
2 would provide the contractors with a work
3 environment that was not hazardous due to the
4 presence of chemicals. But the contractors were
5 pretty much independent as far as things
6 associated with their trade: in other words,
7 insulating materials for pipe coverers or
8 insulators and so on. That's my recollection of
9 the way it was.
10 Later on there was developed a
11 contractor safety program that I had very little
12 contact with.
13 Q Did that contractor safety program
14 begin before you left the company?
15 A Yes, in Midland. I'm not acquainted
16 with -- I presume probably at the same time
17 other places, but I don't know.
18 Q Am I right then in concluding that you
19 don't really know one way or the other whether
20 contractors and their employees were told in
21 that same time in the late '50's that
22 respiratory protection should be worn while
23 sawing or removing, tearing off asbestos
24 insulation?
25 A What I know about it myself is that

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1 the information was given to a Dow safety
2 engineer for use in a Dow meeting. Other than
3 that, I can't say, except to say - as I just did -
4 that the information was available when the
5 program did start that you know about.
6 Q The contractor safety program?
7 A Contractor safety program.
8 Q Is it true that the first knowledge
9 that you have of asbestos health warnings or
10 proper handling instructions going to
11 contractors and their employees was by means of
12 the contractor safety program that came in the
13 '70's?
14 A So far as I know, that is the conduit
15 for that information. That's all down there.
16 Q Mr. Hoyle, in dealing with the Dow
17 Corning Company, was there any kind of routine
18 program for giving to them or sending to them
19 industrial hygiene information or toxicology
20 information, or were you simply there on an
21 as-needed basis to help them when asked?
22 A We acted as consultants when we were
23 asked.
24 Q Was there ever a time when you were
25 asked by the Corning Company - not Dow Corning -

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1 but the other partner or.--
2 A No.
3 Q --- member of that venture for
4 industrial hygiene help or services?
5 A I never had any conversation with
6 anybody from Corning that I can remember.
7 Q Do you believe that the results of
8 Mr. Jerry Ott's epidemiology study comparing the

9 pipe coverers, insulators, and pipefitters and
10 others were ever passed on outside of Dow, like
11 to any other organization or trade association
12 or professional group?

13 A Not to my knowledge.

14 Q Surely this study by Mr. Ott was
15 written up in a paper or report of some form,
16 was it not?

17 A Well, I have seen it in the documents
18 from my last deposition.

19 Q Now you're trying to embarrass me.

20 A No, it's there. I think so.

21 Q But this information, to your
22 knowledge, never went, for example, to the
23 American Petroleum Institute?

24 A I don't remember that it was ever
25 published.

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1 Q Published outside of Dow?

2 A Outside of Dow. What I'm saying is it
3 could have been and I wouldn't have known
4 necessarily.

5 Q Did you make the acquaintance at any
6 time of Roy S. Bonsib?

7 A No.

8 Q From Standard Oil?

9 A No.

10 Q How about Clyde Berry?

11 A I know Clyde Berry well.

12 Q Did you know him in the late '40's
13 when you began the practice of industrial
14 hygiene?

15 A I don't remember when I first met him.

16 It was at an AIHA meeting. It may have been the
17 first one, for all I know. I've known him over
18 the years.

19 Q Do you remember him in any context
20 with Standard Oil for however briefly?

21 A No.

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

23 A Not one way or the other. I knew him
24 as an industrial hygienist and as a guy I saw in
25 the hospitality rooms and the like. You know,

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1 I'm just saying socially.

2 Q Yes, sir. Mr. Hoyle, besides
3 recommending the use of respiratory protection
4 for the insulators sawing and removing asbestos
5 insulation, can you recall any other
6 recommendations you made to perhaps control or
7 eliminate the exposures that those men in those
8 crafts were having at Dow?

9 A No, I didn't make any other
10 recommendations.

11 Q Was that group of workmen then using
12 other traditional measures to control the amount
13 of asbestos dust generated when they were doing
14 their work, such as wet methods for handling the
15 material?

16 A Whether they ever wet some down or
17 not, I don't know. Based on what I knew about
18 it from this rather limited dust counting that I

19 did, plus the fact that I had observed them at
20 work casually, this all led me to believe that
21 the use of respirators under those two
22 circumstances that I mentioned and for the
23 coverers themselves would be more than enough to
24 cover their exposures. That's a professional
25 judgment based on observations and limited data,

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1 you might say. And the medical records seem to
2 have borne me out.

3 Q At least --

4 A I'm -- In other words, at this point
5 my judgment is that that was never properly
6 done, and the only -- You see, pipefitters,
7 operators in the area and so on, as a part of
8 this same judgment would not have been at risk
9 based on the data we had at the time - I mean on
10 the standards that were available at the time -
11 or the guides, I should say. And that's why
12 nothing more was recommended.

13 Q And the only data that you had in the
14 late '50's was what you got from your few Bausch &
15 Lomb samples?

16 A That I described to you, that's right.
17 It confirmed my notion that there wasn't a high
18 priority problem with asbestos with our pipe
19 coverers because not all insulation, by any
20 means, has any asbestos in it. Most of it
21 doesn't. In fact, the dustiest of it doesn't.

22 Q You're speaking of the insulation used
23 by Dow in its plants that its own people put on?

24 A That's all I know anything about.

25 Q That is to say the insulation Dow

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1 mechanics actually installed?

2 A Yeah, which would have been the same,
3 I presume, that contractors installed on similar
4 equipment, because Dow insulators normally were
5 at work making small repairs on bigger
6 installations that would have gone in when the
7 thing was built in the first place; and smaller
8 projects - they may have done the whole thing.
9 So I don't think there would be a difference as
10 far as materials are concerned, not to my
11 knowledge.

12 Q There was no time while you were in
13 charge of Industrial Hygiene that dust
14 monitoring was done of other crafts working with
15 asbestos insulation or in the vicinity of the
16 asbestos insulators, was there?

17 A No, I have just explained why we
18 didn't. And that was a low priority in my
19 professional time. We spent the majority of our
20 time doing other things.

21 Q And so, by 1976 when you retired, Dow
22 had still not gathered any hard data about the
23 dust concentrations that might be faced by other
24 crafts besides insulators who would be working
25 in the plants?

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1 A No, we didn't, because we knew what

2 the case was by our - in our worst case
3 situation. So, it would have been a low
4 priority thing.
5 Q The worst case scenario being what you
6 had measured --
7 A People that actually worked with the
8 material. By that time we had a good study, in
9 my opinion, by DeGesero that told us what the
10 levels of exposure were.
11 Q The 1969 study?
12 A Something like that.
13 Q And that was the one that found
14 average time-weighted exposure levels at 4.9
15 million particles for indoor work and 4.7
16 average for outdoor work?
17 A Those are reasonable numbers. I have
18 forgotten them. Below 5, but close to 5.
19 MR. ALMQUIST: Whatever the
20 report reflects ---
21 A Whatever the report says, that's
22 right.
23 Q You mean I could be proven wrong
24 again? No, I think I recited them accurately.
25 A Off the top of my head I don't know

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1 what the numbers are. I. do know they
2 approached, but did not exceed, that. I can say
3 that with certainty.
4 Q There is no data that you gathered at
5 Dow prior to your retirement, anyway, that would
6 show that the exposures of other crafts working
7 near, below or beside insulators would
8 necessarily be lower or significantly lower than
9 those measurements you made of the insulators
10 themselves, is there?
11 A Based on my experience as an
12 industrial hygienist over the years, my judgment
13 at the time was it wasn't worth doing the
14 measurements.
15 Q Because if you reduced the exposure
16 levels for the insulators, then necessarily you
17 would have lower levels for any bystanders that --
18 A They would have gotten the highest
19 exposures, I'm sure; and certainly more
20 frequently than would have any other group of
21 people in the area where they might be.
22 I guess what I'm saying is that there
23 weren't pipe coverers that were every day where
24 they were at work. There's a large number of
25 pipefitters, for instance, and a relatively

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1 small number of pipe coverers.
2 Q Speaking of the Dow work force?
3 A Yeah, that's right. So they just
4 wouldn't be around because there weren't that
5 many of them. They were around enough to do
6 their job. Maybe another way to say it is that
7 certainly not all piping is covered, is what I'm
8 saying.
9 Q And certainly your staff never took
10 any dust samples around contractor employees who
11 were --

12 A No.
13 Q --- working with asbestos or handling
14 it?
15 A We did not.
16 Q Did you ever give any instruction to
17 contractors or contractor employees on the need
18 for monitoring for dust exposures?
19 A As I have told you, I had no contact
20 with the contractors except to the contractor
21 safety program. And I was not asked to do it,
22 so I didn't do it.
23 Q Okay.
24 A And if I -- Well ...
25 Q If you had been asked, what then?

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1 A I would have told them the same thing
2 I told the Dow people: That information was
3 already available in the program.
4 Q In the Dow program, you mean?
5 A Yes, and, therefore, in the contractor
6 safety program as soon as it got started.
7 Q And available actually in the Safety
8 Department at Dow from whenever you gave them
9 that information?
10 A From that time I was there.
11 Q So they could have shared that same
12 information with the contractor --
13 A Probably did.
14 Q --- that the safety men had available
15 for Dow employees?
16 A True.
17 Q How high up in the Dow management
18 hierarchy were you when you retired, I mean
19 relative to --
20 A My boss was Edsel Blair who retired as
21 a vice-president. I don't know whether he had
22 gotten that title when he was my boss or not.
23 It was sort of about that time.
24 Q How many vice-presidents were there at
25 Dow around then?

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1 A Beats me. I don't know.
2 Q Was it a company that had many vice
3 presidents, like Braniff used to have more
4 vice-presidents than it had planes or ...
5 A No, it's not quite like a bank. There
6 were not very many. His responsibility was
7 Health and Environmental Services.
8 Q Wasn't there a time when you worked
9 for or technically under V. K. Rowe?
10 A I think two different times. He got
11 there ahead of me and he progressed a little
12 faster, on that basis.
13 Q Was Health and Environmental Services
14 a position he filled at some time or other?
15 A V. K. was -- Before Blair was my boss,
16 V. K. was my boss.
17 Q But he wasn't a vice-president?
18 A No. He also worked for Blair. Our
19 curves went something like this: Here was V. K.;
20 here was Toxicology and here was Industrial
21 Hygiene. And they would be parallel and then

22 they would be nonparallel.
23 Q I see.
24 A And so V. K. was my supervisor until
25 there was a reorganization, and I became a

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1 director in the laboratory.
2 Q Where did the Safety Department fit
3 into this organization when you retired?
4 A The Safety Department was part of the
5 Personnel Department.
6 Q Did that Personnel Department have its
7 own V.P., too?
8 A I don't remember the organization at
9 that time. They did if you went far enough up
10 the line; everybody does, but the safety -- I
11 can't remember who McCutchin -- McCutchin was
12 the safety director at the time I retired, and I
13 don't know who he reported to.
14 Q Where did medical fit into this
15 scheme?
16 A They were in the Personnel Department.
17 Then they became both in Personnel and Health
18 and Environmental Services. I believe that's
19 the way it is now. I don't know. There were
20 two functions, is what I'm trying to say to you.
21 Q And then Toxicology was also under
22 Health and Environmental Services?
23 A Uh-huh.
24 Q Most of the time?
25 A Uh-huh.

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1 Q Or its equivalent?
2 A It started out being Biochemical
3 Research and went through a number of different
4 names. The functions stayed the same.
5 Q At any rate, as you have told us, the
6 Safety Department was separate from the
7 Industrial Hygiene Department?
8 A As far as lines of management are
9 concerned, they went to the General Manager by a
10 different route than we did.
11 Q And you didn't have any authority or
12 control over the Safety Department, did you?
13 A I'm not sure I had control over
14 anybody.
15 Q I know the feeling.
16 A I tried to influence them.
17 Q But I mean --
18 A There was no line responsibility.
19 There was a shared responsibility that I have
20 described to you in terms of the four groups
21 regularly having contacts.
22 Q Yes, sir. You shared information, but
23 you didn't -- These four groups didn't have the
24 same function to play in the company, and they
25 acted independently in doing their specific and

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1 particular jobs?
2 A I think that's fair to say.
3 Q So, Medical didn't really tell you
4 what to do, and you didn't tell Safety what to

5 do and so forth; but you did share information?

6 A It probably was more than just sharing
7 information. We probably influenced each
8 other's decision.

9 Q I would think it goes without saying
10 that among rational men, the sharing of
11 information must surely influence.

12 A That's what I'm trying to say.

13 Q That's the idea. Yeah. But, for
14 instance, you haven't been able to tell us what
15 the Safety Department did specifically with --

16 A On a day-to-day basis, no.

17 Q Or what they did with recommendations
18 you made to them --

19 A I didn't have a policing function. Is
20 that what we're getting at?

21 Q Well, no, sir. I mean you've been
22 careful to make clear the things about which you
23 have actual knowledge, yourself, and those about
24 which you don't.

25 A Yes.

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1 Q And I just wanted to clarify that.

2 A Okay.

3 Q A lot of the things or maybe most of
4 the things the Safety Department did are outside
5 your personal knowledge?

6 A On a day-to-day basis, that is true.

7 Q And the same would be true, wouldn't
8 it, about the Medical Department and what did
9 doctors do and --

10 A I certainly had nothing to do with the
11 treatment of patients or any of that kind, which
12 is what they did more than anything else.

13 Q But it would also apply to their
14 medical monitoring program when it existed? I
15 mean you're familiar with it generally, but --

16 A I was familiar with it and a party to
17 its organization in the terms that I have
18 already described to you.

19 Q Right. But, for example, you don't
20 know what the total extent of the reports or the
21 documents that the doctors might have prepared
22 would be or what they did with them or who they
23 sent them to or didn't send them to, would you?

24 A I had no control over where they sent
25 reports.

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1 Q Or any knowledge, really, of where
2 they went, other than the ones that came to you
3 yourself?

4 A That's right. If they had to do with
5 my business, then I probably saw them.

6 Q And the same thing would be true to
7 some extent with the Toxicology Department:
8 that that which they did and they wrote up and
9 sent to you, you knew of. But you don't really
10 know personally about all of the things that Tox
11 did?

12 A I'm probably closer to knowing what
13 they did than I am the Medical Department
14 because we are both in the same department. I

15 was a member of the staff of that group.
16 Q But not having been present at all of
17 the meetings that all of the chiefs of
18 toxicology or the assistant chiefs went to, you
19 couldn't --
20 A What they said in their meetings,
21 unless they wrote it up in the minutes I
22 wouldn't know about it.
23 Q Right. And, certainly, the same would
24 be true with respect to the actions of any of
25 the officers of Dow that did not report to you -

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1 and I guess that would be all of them.
2 A That's all of them.
3 Q Would you remind me, please, Mr. Hoyle,
4 where was it that the 1969 industrial hygiene
5 study of insulators took place? What plant was
6 that in?
7 A Midland.
8 Q Was the report from that survey
9 provided to the Michigan State Health
10 Department?
11 A Probably not. They weren't on our
12 regular distribution list.
13 Q I think you already told me that you
14 don't recall that that report of that survey was
15 ever provided to anybody outside of Dow.
16 A It was not published, to my knowledge.
17 Q Nor was a copy of it, to your
18 knowledge, sent, for example, to the American
19 Petroleum Institute?
20 A No. I don't know why we would have.
21 We had no contact with them that I know of in
22 this plant. As I told you before, I had no
23 business with the American Petroleum Institute.
24 Q You were unaware that one of the Dow
25 divisions was, in fact, a member in the API?

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1 A If they were, I was unaware of it.
2 Q And that would have been --
3 A The Texas Division, you're talking
4 about?
5 Q Actually I was speaking of the Dowell
6 Division.
7 A They may have been. I don't have any
8 knowledge about what they were members of. It
9 seems logical.
10 Q Now, you left Dow in 1976, you said
11 repeatedly, and that was the end of the year?
12 A No, it was the end of September. The
13 Dow rule is the end of the month you get to be 65,
14 you commence being a retiree. That's the way
15 it was. So my life of leisure started on
16 November 1st, 1976.
17 Q You certainly would not claim to have
18 any kind of knowledge about what Dow has done
19 with any of your files or records that you left
20 there in 1976 when you retired, would you?
21 A I would have no way of knowing
22 anything about them. I just haven't been there.
23 I should clarify that last statement. I did
24 some consulting three different summers after I

25 retired, so the statement I made is totally true

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1 after that point in time. Up until then I did
2 see the files, those summers.

3 Q What areas did you consult in those
4 three times?

5 A It was mostly a matter of bringing
6 order out of chaos as far as the early records
7 are concerned. I tried to help bridge the time
8 from the first industrial hygiene data to the
9 more modern which would have been '77, '78, '79,
10 the way things were being done then. And the
11 data had been acquired with far different
12 techniques just because far different techniques
13 were available then, and I was working in that
14 area.

15 Q What was it that triggered this effort
16 to straighten out the old records --

17 A I hadn't gotten the job done when I
18 retired, I think is the right way to say it.
19 It's the kind of thing that we had wanted to get
20 done and had pretty well done, and that's to get
21 the information in the position so it could be
22 handled on computers.

23 Q This was an effort that began before
24 you left in '76?

25 A Oh, yes, I promoted the idea and did a

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1 little, and so did others. And we had improved
2 over the period of time that I was there, so I
3 didn't do a heck of a lot with what had happened
4 ten years prior to my retirement, but rather
5 some of the old stuff I was working with.

6 Q Was this in response to any change in
7 the regulations --

8 A None.

9 Q --- that Dow was operating under?

10 A None. Strictly part of our attempt
11 from day one to study environments in such a way
12 that we would have a good record of what was
13 there.

14 Q And the goal was to put in computer
15 form all of the records of early surveys?

16 A That's all we were trying to do.

17 Q Surveys only, reports as well?

18 A Not reports. Just data. We're
19 talking data.

20 Q Just numbers?

21 A Just numbers.

22 Q Well, after three years of part-time
23 on this, were you able to bring order out of
24 chaos?

25 A I think so. I haven't had any complaints

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1 in the last 12 or 15 years.

2 MR. BLANKS: Let's take a

3 quick break here.

4 (AT THIS TIME A BRIEF RECESS

5 WAS TAKEN, AND THE PROCEEDINGS

6 THEREAFTER RESUMED AS FOLLOWS:)

7

8 (By Mr. Blanks)

9 Q Mr. Hoyle, do you recall whether Dow
10 had any of the oil companies as its customers,
11 sir?

12 A I have no knowledge of who the Dow
13 customers were. It's a big company with a lot
14 of different products. I can't answer a
15 question like that.

16 Q Did you have personal contact with the
17 industrial hygienists from the oil companies
18 when you were a member of the American
19 Industrial Hygiene Association?

20 A I did with some of them; maybe with
21 all of them. I don't know.

22 Q Are there any specific ones that we
23 haven't talked about already that pop into your
24 mind readily?

25 A I can't remember.

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1 Q Either individuals or companies?

2 A I can't remember who we have talked
3 about today. I'm confused by what we talked
4 about today and that other deposition I just
5 read.

6 Q Or we can count that one, too, so we
7 don't have to --

8 A None that I recall one way or the
9 other.

10 Q Did Dow have any other chemical
11 companies among its customers? Did it buy or
12 sell products with duPont or from duPont or to
13 duPont, for example?

14 A I'm sure the answer to that is "yes."

15 Q Did you have any dealings with their
16 industrial hygienists?

17 A I was acquainted with them. I have
18 talked with them about sampling techniques and
19 the like. I have asked questions concerning
20 their materials; for instance, work that Haskell
21 had done or work that they had done in their own
22 plants on materials that we both had onsite. In
23 that context I talked to them.

24 Q In a similar context did you have any
25 dealings with men from Union Carbide Corporation?

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1 A I'm well acquainted with people from
2 Union Carbide. The answer would be the same.

3 Q Do you remember Knute Ketchum from
4 Carbide?

5 A I do.

6 Q You knew him from professional
7 associations and --

8 A That's right.

9 Q Because you were working in Industrial
10 Hygiene since 1948 until 1976 and had your
11 responsibilities there and were not an officer
12 of Dow --

13 A Yes.

14 Q --- isn't it fair to say that your
15 personal knowledge really is limited to
16 knowledge about what you and your own employees
17 did or didn't do in your job, rather than what

18 Dow as a company did or may not have done and so
19 forth?
20 A I think -- How do I answer that? I
21 didn't spend all my time in the industrial
22 hygiene laboratory. The nature of industrial
23 hygiene caused me to be acquainted with
24 particularly the manufacturing of Dow materials.
25 We had another program which is mentioned in the

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1 other deposition which had to do with customer
2 service industrial hygiene, I think I called
3 it at that time, which caused me to know quite
4 a bit about Dow materials and to make some
5 contribution to the process of letting our
6 customers know about the materials, even with
7 suggestion as to how to control exposures.
8 Q With respect to communiques that Dow
9 or any of its executives may have had with other
10 chemical companies or oil companies or
11 petrochemical companies about any number of
12 things, I mean you don't claim to have any
13 personal knowledge of that, do you?
14 A Well, not unless it had to do with
15 industrial hygiene. Then I would say that it's
16 quite likely - although I can't make any
17 guarantees - that I would have known about
18 anything specifically having to do with
19 industrial hygiene.
20 Q You think it likely?
21 A It is quite likely.
22 Q But you can't say it with certainty?
23 A No, I didn't follow all the officers
24 of the company around. So for a positive answer
25 that I knew everything that happened, obviously

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1 the answer to that is "no."
2 Q Certainly with respect to whatever the
3 Dow Legal Department was doing in its dealings
4 with other companies or with other lawyers or
5 with their insureds, you wouldn't have any
6 reason to have any personal knowledge of that
7 activity, would you?
8 A Unless it had to do with industrial
9 hygiene and industrial hygiene records, in which
10 case I was in charge of that and I would have
11 known about anything that they were doing in
12 that area that required action as far as I'm
13 concerned.
14 Q Including, say, the purging or
15 destruction of your industrial hygiene records?
16 That's something, for example, you would have
17 had knowledge of?
18 A I would have had knowledge of, that's
19 right.
20 Q At least up until 1976 when you
21 retired?
22 A You'd have to stop in 1976 as far as I
23 am concerned.
24 Q Now, your connection or involvement or
25 contact with the document retention/destruction

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1 program of Dow, which you think came into being
2 sometime in the '70's, did you say?
3 A I think I said I didn't know.
4 Q Let's start over, then.
5 Your involvement to the extent there
6 was any involvement with the Dow document
7 retention and destruction program was limited,
8 wasn't it, to just your reviewing the sort of
9 files that you thought could be purged from
10 industrial hygiene and telling --
11 A My contact with that program was just
12 that. It had to do with industrial hygiene.
13 Q And you decided which industrial
14 hygiene records were going to be kept and which
15 could be disposed of?
16 A Yes, and I characterized that for you.
17 Q But you don't know about any other
18 aspects of the document retention or destruction
19 program as it might have related to other
20 departments in the company, correct?
21 A No, I can only speak about industrial
22 hygiene records.
23 Q And, again, only as of or through
24 1976?
25 A Uh-huh. Yes.

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1 Q Where did Mr. Ott come from before he
2 joined Dow?
3 A I don't know.
4 Q I have the sense that he transferred
5 in from another company or hired in from another
6 company.
7 A He may have worked somewhere else. He
8 was hired by the Medical Department.
9 Q In your affidavit from February 10th
10 of 1993, you state that Dow never destroyed
11 records of premises inspections or preliminary
12 toxicology or epidemiology reports because of
13 the conspiracy or because of the lawsuit. And
14 I'm curious whether you are distinguishing
15 between preliminary and final tox reports,
16 for example.
17 A Well, in the process of writing a
18 report, you write a report and then it is
19 reviewed by yourself and others, and you end up
20 with a well marked-up report usually. And then
21 an acceptable final copy is arrived at which you
22 sign, and I'm not sure that working papers were
23 not destroyed. In fact, I know they were, just
24 working papers that you would scribble on,
25 misspelled words and things of that kind.

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1 Q So, you are making clear then that
2 preliminary tox or epi reports would have been
3 disposed of as working papers and draft papers,
4 but not --
5 A Not necessarily. -The working papers
6 might have been, is what I'm trying to say. In
7 fact, I would consider they usually would be,
8 just because of appearances; but the content
9 would not have been changed.
10 Q So, to the extent preliminary reports

11 were destroyed, it was just because they were
12 not needed anymore and there was a later version
13 done?

14 A It was because the more recent version
15 was more readable, probably.

16 Q Was there a period, Mr. Hoyle, when
17 the policy of Dow or the instructions from the
18 Legal Department or that branch of the company
19 were to the extent that you weren't to worry
20 about contractor employees; just leave them
21 alone and take care of Dow people only?

22 A Never heard that at all, no.

23 Q Were you ever told that the contracts
24 were written with the contractors to where Dow
25 wouldn't have any responsibility for contractor

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1 employees working in your plant?

2 A No, never got into liability much
3 in the practice of industrial hygiene. The
4 emphasis as far as I was concerned was -- I've
5 already described that.

6 Q And that is to be sure that you --

7 A Be sure we had the information
8 necessary to make materials without hurting
9 ourselves and similar information for the
10 customers so they wouldn't hurt themselves and
11 information enough so we could take care of our
12 neighbors. And that would include railroads and
13 truckers and things like that.

14 Q And also people that Dow invited into
15 its plants to do maintenance work or construction
16 work, I suppose?

17 A I have told you that the responsibility
18 as I understood it was to be sure that the work
19 environment would be safe from the standpoint of
20 the chemical content. Also early on prior to
21 the contractor safety program, it was my
22 understanding that things that were associated
23 with the practice of the trade were something
24 that they assumed for themselves and didn't want
25 us to have anything to do with, actually. This

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1 is like what kind of wrench they were going to
2 use to take a bolt off or whatever kind of
3 hazards. They were competent and had their own
4 safety programs.

5 Q And Dow required them to have a safety
6 program?

7 A I don't think Dow required them to,
8 but I know they did have.

9 Q But as to any material that was
10 already in the plant or that Dow was causing to
11 be brought into the plant, if you had
12 information about its health hazards --

13 A If it was specific to the Dow plant,
14 certainly we felt a great responsibility to
15 furnish information. If it had to do with their
16 trade - and to be specific, because I'm thinking
17 in terms of the insulators - we would have
18 expected that they would be knowledgeable
19 concerning the materials with which they were
20 working and how they should handle them early

21 on. Now, to what extent that changed with the
22 contractor's safety program, I am not the one to
23 talk to.

24 Q Did you also expect the contractor
25 workers from other trades - be they laborers or

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1 electricians or carpenters - to have a full
2 appreciation of the health hazards of materials
3 like asbestos insulation they would encounter in
4 the Dow plant while they were doing their job?

5 A I would have thought the contractor
6 would be responsible. They were all his
7 employees. You know, they weren't Dow
8 employees. They were on Dow property. And
9 whether we had a responsibility to say that we
10 didn't have any chemicals in the environment or
11 forms of energy, for that matter, that they
12 wouldn't know about, we felt a great
13 responsibility at that point.

14 Q Thinking that you certainly knew more
15 about those hazards --

16 A That's exactly right.

17 Q --- than the contractor?

18 A So we accepted responsibility at that
19 point. Frequently what happened was that they
20 were given clean equipment and areas to work in.

21 Q And if you knew of potential for
22 hazardous exposures in the work area that you
23 were handing over to them, if you had not
24 eliminated the potential for that exposure, then
25 you felt obliged to tell them about it?

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1 A We would have told them exactly about
2 it. I've done that myself in terms of
3 respiratory protection.

4 MR. BLANKS: Mr. Hoyle, I

5 think that covers everything we
6 need to cover, and I'll pass the
7 Witness at this time.

8

9 EXAMINATION BY MR. ALMQUIST:

10 Q I have a couple of quick questions.
11 You have mentioned a few times about the
12 contractor safety program. Do you know when
13 that contractor safety program actually started?

14 A I don't know exactly.

15 Q You were asked some questions about
16 evaluating hazards, and I think some of those
17 questions dealt with testing capabilities.
18 Before 1970 did you in the toxicology
19 lab or industrial hygiene lab have the
20 capability to test dusts of any sort?

21 A No. You're talking about animal
22 testing?

23 Q Yes, sir.

24 A The answer is "no."

25 Q And wasn't that the testing you were

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1 talking about earlier today?

2 A Yes.

3 Q Evaluating risks. Mr. Blanks talked

4 to you about a symposium on toxicology, and you
5 had a chance to look briefly at that material.
6 What was the topic that you spoke on
7 at that symposium?

8 A Industrial chemicals, industrial
9 hygiene aspects.

10 Q Was that article directed in any way
11 towards asbestos exposure or dust exposure?

12 A No.

13 Q You also have testified about some
14 work that was done in 1959, monitoring around
15 pipe coverers. And you have described cutting
16 and also you have described tearing out of
17 insulation.

18 Can you tell us what you meant and
19 what you found with respect to tearing out and
20 your recommendations with respect to tearing
21 out?

22 A Well, it was in the context of pipe
23 coverers or insulators. And the recommendations
24 were made considering the possibility that they
25 might be doing that a good portion of the day.

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1 In other words, it wasn't that there was a great
2 risk in a short-term few minutes of tearing out.
3 That is also what we were aiming at. We were
4 thinking in terms of the whole day for pipe
5 coverers.

6 MR. ALMQUIST: I'll pass the
7 Witness.

8

9 RE-EXAMINATION BY MR. BLANKS:

10 Q Mr. Hoyle, speaking of your symposium
11 on toxicology from around 1960, you told
12 Mr. Almquist that your talk on industrial
13 chemicals wasn't directed to asbestos exposure
14 or dust exposure.

15 A Well, asbestos exposures for certain
16 we were not talking about, and it was largely
17 aimed at the vapor exposure of people.

18 Q You're not saying that the general
19 principles which you articulated in your talk on
20 industrial chemicals and industrial hygiene
21 aspects of dealing with them specifically
22 excluded dust exposures or asbestos exposure,
23 are you, sir?

24 A Let me put it this way: I think in
25 preparing that thing, the term "asbestos" never

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1 entered my mind. I know what the orientation
2 was, and it had to do with toxicology at Dow,
3 and toxicology at Dow was by mouth, by
4 inhalation of vapors, by skin, but not -- We had
5 no capability as far as dust is concerned. We
6 did have capability to measure the amounts of
7 dust in the air of chemicals.

8 Q So, are you saying to us now that the
9 general principles you discussed in this paper
10 that you had a chance to look over at the break
11 and the concepts of maximum allowable
12 concentrations and sampling for exposures don't
13 apply today?

14 A Not having gone through that thing in
15 detail, I don't know if I remember well enough
16 to answer you. I do remember well enough to
17 know that the orientation of the symposium was
18 towards Dow's activity in toxicology. And I was
19 talking with respect to the use of that
20 information in the work environment. And it
21 should be looked upon as general, whatever I
22 have said there, and not specific to any
23 chemical.

24 Q Be it vapor ---

25 A These are general -- This is general.

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1 I can't remember whether I used examples like
2 chlorinated hydrocarbons in the paper or not. I
3 might have and might not have. I don't know. I
4 can't remember. I didn't look at it that
5 carefully. But I guess the point that I'm
6 trying to make is whatever is said there is not
7 specific to insulating trades or to asbestos.

8 Q Or to any other trade?

9 A Yeah.

10 Q Or to any specific material?

11 A I think that's true, but I'm not that
12 sure because I may have used organic solvents as
13 examples in there somewhere.
14 For instance, we talked lots of times
15 about odors, you know. And I suspect that in
16 there somewhere it says something about what you
17 need to do in the way of monitoring when you
18 don't have warning properties. I don't think
19 that would apply very well as far as asbestos is
20 concerned, the statement that I made there. It
21 applies far better to carbon tetrachloride where
22 you do have the capability to monitor continuously.
23 I know that up until 1976 nobody had the capability
24 to monitor and count dust continuously. So if that
25 statement is in there - and I think it is - it

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1 would be ridiculous to apply it to asbestos
2 because the capability didn't exist.

3 Q To monitor continuously?

4 A Yeah. It just didn't exist. That I
5 know. I don't know if it does now or not. I
6 don't think so.

7 Q Would it surprise you to know that
8 during the time period you were giving this
9 talk, that Dow personnel were actually doing
10 continuous monitoring in other Dow workplaces
11 for other toxic dusts such as beryllium?

12 A I don't think they were doing it on a
13 continuous basis. I think I know what you're
14 talking about. We took long-term samples. By
15 definition that's not what I'm talking about in
16 the statement that I think is in there. In
17 other words, if you take a sample for all day,
18 that's a long-term sample, but it's not a
19 continuous sample. It doesn't describe
20 continuously the environment. What I'm talking
21 about when I say "continuous" is a system that
22 allows you to follow the ups and downs during
23 the day. It's a control technique.

24 Q I see your point.

25 A I get into a long-winded discussion,

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1 but that's what I was having trouble answering

2 your question.

3 Q You would not say, though, that either

4 asbestos dust or silica dust have good warning

5 properties in themselves, would you?

6 A Oh, no, I wouldn't say they do. You'd

7 have to gather data enough to satisfy yourself

8 that your environment was all right. Neither

9 would I say that you needed to continuously

10 sample them because I don't think it can be

11 done.

12 Q You don't think it can be done?

13 A That's right.

14 Q You say you had an inhalation

15 toxicology capability in your labs not before

16 1970?

17 A Not for dust.

18 Q There were labs that did such

19 toxicology work --

20 A Yes, but I'm just talking about Dow.

21 Q I mean they were contract labs that

22 did this type of dust inhalation toxicology work

23 that has been reported in the literature back

24 into the '30's?

25 A Yes, sir. That's right.

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1 Q Even down in Detroit some experiments

2 were done by Mr. Bradley and published before

3 the beginning of World War II, you may recall.

4 A Yes, other people knew how to do it.

5 It wasn't important enough to us to have

6 invested in it.

7 Q And, finally, your paper on industrial

8 chemicals in the symposium on toxicology does in

9 any event set out general basic principles --

10 A Yeah, the general basic principles I

11 stand by. They haven't changed much.

12 MR. BLANKS: Very good, sir.

13 Thank you.

14 (WHEREUPON, THE DEPOSITION

15 WAS CONCLUDED.)

16 17 18 19 20 21 22 23 24 25