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1 MR. HARVARD: This is a continuation of
2 the deposition of Dr. Carl Dernehl which was begun on March
3 10, 1939. I am Bill Harvard and with me is Anthony Laura.
4 We are here representing Union Carbide. Dr. Dernehl is
5 also present. We are in Springfield, Missouri and also
6 present for W. R. Grace is --

7 MR. BISHOP: Gary E. Bishop.

8 MR. HARVARD: And we are in Springfield,
9 Missouri, on telephone hookup. Dr. Dernehl, you were
10 previously sworn in on March 10, 1939 last week when your
11 deposition was initiated. Do you understand that you are
12 still under oath?

13 THE WITNESS: Yes, I do.

14 MR. HARVARD: Do you understand that you
15 are to tell the truth in your statements?

16 THE WITNESS: Yes, I do.

17 MR. HARVARD: You understand this is a
18 continuation of that deposition, is that right?

19 THE WITNESS: Yes, I do.

20 MR. HARVARD: Does anyone have any
21 statements they need to place on the record or things they
22 want to get out of the way before I go through what
23 questions I have with the Doctor?

24 MR. BROWNSON: Well, this is Bob
25 Brownson. Just for the record, I want to say that even

1 though you are conducting direct examination here-today we
2 are not going to feel that that precludes us from calling
3 Dr. Dernehl as a witness at trial in this case as we may be
4 entitled to under the rules.

5 MR. JONES: That's understood.

6 MR. HARVARD: Anyone else have any
7 statements they want to make for the record before I get
8 under way?

9 MR. POLK: This is Mike Polk
10 representing the Plaintiff. I have a question. My
11 question is whether or not you intend on using any of the
12 marked documents during your direct examination?

13 MR. HARVARD: I am not sure what you
14 mean by marked documents. There are three documents I do
15 intend to show to the Doctor during the course of the
16 examination and copies of them are present with Bruce Jones
17 who asked to have them there because he thought everybody
18 else was going to be at a that location. Those three, is
19 everyone there where Bruce is other than those who are here
20 with me?

21 MR. JONES: No.

22 (At this time a discussion was held off
23 the record.)

24 MR. HARVARD: Do you have a place where
25 documents can be faxed to you?

1 MR. POLK: Yes, I do.

2 MR. HARVARD: Bruce, do you have the
3 capacity to fax those three documents to him?

4 MR. JONES: We have indeed.

5 MR. HARVARD: Will you please do that?

6 MR. JONES: I will do that.

7 MR. POLK: Hang on.

8 MR. HARVARD: I have a number of
9 questions, Mike, that I can ask if we can perhaps save some
10 time if I go on and get the questions out of the way that
11 don't make reference to those documents and when you have
12 received the documents you can let us know if you want to
13 take a break to have an opportunity to review them.

14 MR. POLK: That's fine with me, if Bruce
15 is comfortable going out and faxing them down to me right
16 now. I will give him the number. She is coming in right
17 now.

18 MR. HARVARD: I am happy to do what you
19 all want. If you all want to get them before we start, we
20 will do that.

21 MR. POLK: That's not necessary, Bill.
22 If you don't mind why I don't I just interrupt you while I
23 get the number here. Here she is. Fax number, Bruce, is
24 612-437-2732.

25 MR. JONES: I will get those down to you

1 directly.

2 MR. POLK: Thank you. Go ahead.

3 MR. HARVARD: Anthony made a suggestion
4 that I think is good. After I ask each question we will
5 pause briefly before I indicate to the Doctor to answer so
6 that if anyone has objections to the question they can
7 place them on the record at that time because otherwise it
8 might be confusing with everybody talking on the phone. Is
9 that acceptable to everyone?

10
11 DIRECT EXAMINATION

12 BY MR. HARVARD:

13 Q. Doctor, at the deposition last week you were
14 asked a number of questions about your background with
15 Union Carbide, is that right?

16 A. Yes.

17 Q. You were born on August 13, 1913, which makes
18 you now 75 years old, correct?

19 A. Yes.

20 Q. Doctor, what year did you begin with Union
21 Carbide?

22 A. 1947.

23 Q. I want to very briefly cover again what your
24 positions were with Union Carbide for purposes of this
25 portion of the deposition. When you began with Union

1 Carbide you were the medical director of Union Carbide's
2 Texas City chemical plant, correct?

3 A. That's right.

4 Q. In 1955 you moved into a position as assistant
5 medical director with respect to their chemical plant and
6 then moved to New York, is that correct?

7 A. That's correct.

8 Q. Then in 1963 you became director of toxicology
9 for that company, finally in 1965 becoming associate
10 corporate medical director, is that correct?

11 A. That's correct.

12 Q. And your background in terms of your medical
13 training had been in the area of occupational medicine,
14 right?

15 A. That's right.

16 Q. You do not claim today to be an expert on such
17 issues as asbestos fiber types, epidemiology or the
18 ideology of asbestos disease, do you?

19 MR. POLK: I will object to the form of
20 the question as being leading. This is Mike Polk making
21 that objection.

22 MR. BROWNSON: I also object to the
23 question as multiple.

24 BY MR. HAVARD:

25 Q. Doctor, tell us whether or not you claim to be

1 an expert on asbestos fiber types?

2 A. No, I do not.

3 Q. Doctor, please tell us whether or not you
4 claim to be an expert today on epidemiology?

5 A. No, I do not.

6 Q. Doctor, please tell us today whether or not
7 you claim to be an expert on the subject of the ideology of
8 asbestos diseases?

9 A. I wouldn't say that I am an expert but I have
10 the knowledge that would be expected of any individual who
11 is board certified in occupational medicine.

12 Q. Doctor, would you tell us whether or not to
13 some degree all of those subjects that I just questioned
14 you about were in fact involved in your studies and in your
15 work of occupational medicine?

16 A. Yes, they were.

17 Q. Doctor, when you worked for Union Carbide
18 Corporation, approximately how many marketable chemicals
19 fell under your responsibility when you were assistant or
20 director of toxicology, assistant medical director and
21 associate corporate medical director?

22 A. Somewhere in excess of 700.

23 Q. At what point in time, if you recall, did
24 Union Carbide Corporation begin issuing toxicological or
25 toxicology reports to their customers?

1 A. In 1956.

2 Q. On which of the marketable chemicals for which
3 you were responsible were such reports typically issued?

4 A. Initially they were issued on large volume
5 chemicals that were sold in tonnage lots and subsequently
6 that was expanded to cover the great majority of chemicals
7 that Union Carbide sold.

8 Q. When Union Carbide prepared toxicology reports
9 on their marketable chemicals to whom, if you know, were
10 these reports distributed?

11 A. They were distributed to anybody that asked
12 for them. They were distributed to various governmental
13 agencies in the United States as well as overseas. They
14 were -- essentially that's it.

15 Q. With respect to these toxicology reports,
16 Doctor, which part of the Union Carbide Corporation or
17 which division of Union Carbide Corporation was typically
18 the group that you would expect to distribute those reports
19 if there was such a group?

20 A. Initially the concept was that these were to
21 be in the hands of sales people who would distribute the
22 reports to customers at the time of the sales visit. Due
23 to certain problems in keeping the supply updated and in
24 sales offices, it was eventually set up that they were
25 distributed from our office to whoever the sales people

1 asked us to send them to or to any customer who voluntarily
2 wrote to us and requested a copy.

3 Q. Doctor, once a toxicology report had been
4 prepared on a particular chemical marketed by Union Carbide
5 Corporation, did it always remain in that form as initially
6 drafted and submitted?

7 A. No, it did not. There were revisions that
8 were made as new knowledge came to hand.

9 Q. As medical or as assistant medical director
10 for Union Carbide, then director of toxicology, and then
11 associate corporate medical director, what efforts did you
12 make to keep up to date with medical scientific literature
13 on the chemicals that were being marketed by Union Carbide
14 Corporation?

15 A. We received a number of journals that are
16 published on occupational medicine, industrial hygiene and
17 on toxicology. We attended national meetings, symposia and
18 such to try to keep up to date.

19 Q. Were some of those discussed last week at the
20 deposition, some of the different publications which you
21 received and symposia attended by you and others in your
22 department?

23 A. Yes.

24 Q. Were there others, do you believe, in addition
25 to those symposia, which members of the toxicology --

1 members of Union Carbide concerned with toxicology may also
2 have attended but which you do not now remember by name?

3 A. There were probably a number of them that I
4 cannot now recall. I can recall that one that I did not
5 mention before were some symposia on vinyl chloride that we
6 were very much interested in.

7 Q. Doctor, I want to shift gears for a movement
8 now and talk to you about Calidria asbestos. Do you
9 recognize the name Calidria?

10 A. Yes, I do.

11 Q. And what about that name do you recall, what
12 is it?

13 A. It was a trade name for a short fiber asbestos
14 mined by Union Carbide at King City and also processed at
15 King City.

16 Q. Is King City in California, Doctor?

17 A. Yes, it is.

18 Q. Was this area in which it was mined also
19 sometimes referred to as the Coalinga deposit?

20 A. Yes, it is.

21 Q. Of what type fiber was the Calidria asbestos
22 from the Coalinga deposit?

23 A. It was a high purity short fiber chrysotile
24 type.

25 Q. Is there there something about -- let me

1 rephrase the question. You mentioned two qualities, among
2 others, in your description, short fiber and high purity.
3 What considerations did the short fiber nature of the
4 Calidria asbestos present from your perspective when Union
5 Carbide began marketing that product, if you understand my
6 question?

7 A. The great majority of asbestos mined and used
8 in the United States, as a matter of fact about 90 percent
9 of it, was a long fiber chrysotile type which has its
10 origin primarily from large mines in Canada but also from a
11 number of mines in the United States. The Coalinga fiber
12 was unique because of the fact that it was a short fiber
13 type, which was relatively new at the time it was
14 introduced.

15 Q. Doctor, would you describe for us how you
16 would distinguish in your mind between a short fiber
17 chrysotile asbestos and a long fiber chrysotile asbestos in
18 terms of the length of those fibers?

19 A. Roughly speaking, when you speak of long fiber
20 asbestos you are talking about asbestos which has the very
21 great majority of its fibers greater than five microns in
22 length and ~~a great many~~ of them more than ten microns in
23 length.

24 Q. Do you recall what the average length was of
25 the fibres found in the Coalinga deposit which Union

1 Carbide was marketing?

2 A. I do not recall what the average size was but
3 I know that most of it was under five microns in length.

4 Q. You mentioned a second consideration or a
5 second quality that was unique about Calidria when you said
6 high purity. Would you describe to us what you mean by
7 high purity?

8 A. The great majority of the long fiber asbestos
9 that was mined would contain foreign substances of various
10 types that tended to be hard to form solid particulates in
11 the asbestos mixture. The Calidria asbestos or the
12 Coalinga asbestos, let me say, was a deposit that you would
13 say would be almost pure asbestos which contained very very
14 small quantities of materials other than asbestos.

15 Q. Do you recall what type of impurities were
16 particularly associated with either Canadian chrysotile
17 asbestos or with chrysotile asbestos other than that found
18 in the Coalinga deposit?

19 A. No, I am sorry, I don't know that.

20 Q. Doctor, at your previous deposition you went
21 through a number of questions and discussed at length what
22 you recall from different points in time about what was
23 learned with respect to asbestos and what you knew about
24 potential health conditions arising from exposure to
25 asbestos over your career, is that right?

1 A. I believe that's correct.

2 Q. I wanted to ask you some questions now in that
3 same regard. From your earlier deposition or the earlier
4 part of this deposition do you recall telling us that when
5 you began with Union Carbide in 1947 you knew, because you
6 had learned in your medical school studies, that asbestos
7 could cause asbestosis?

8 A. That's correct.

9 Q. Was that distinguished as to any particular
10 type fiber which could cause asbestosis?

11 A. At that time I don't believe that they were
12 talking in terms of types of a fiber. They were talking
13 generally asbestos as it was used in insulation activities
14 and in asbestos mining.

15 Q. Doctor, do you recall when it was you learned
16 of an association between asbestos generally and lung
17 cancer?

18 A. My recollection is it was in the late '60s.

19 Q. Doctor, do you recall or let me ask the
20 question differently. Please explain to us what you mean
21 when you say an association between asbestos and lung
22 cancer and how if at all that may be different from a
23 causal relationship between asbestos and lung cancer?

24 A. Well, basically when we talk about an
25 association we are talking about a group of people who are

1 working with a material and who have a certain incidence of
2 physical abnormalities or disease and the association
3 suggests that this disease -- the presence of this disease
4 may be associated with the exposure at work. This is
5 somewhat different from a proved condition in which it is
6 demonstrated not only that there is an association but you
7 can eliminate other sources of causation of a disease and
8 you can demonstrate by animal experimentation that the
9 disease is in fact caused by exposure to the substance.

10 Q. Doctor, at the point in time when you remember
11 having learned of an association between asbestos and lung
12 cancer, did you at that time believe that the disease
13 asbestosis would not develop in an individual who was
14 exposed to asbestos below the threshold limit value in his
15 working lifetime?

16 A. That is correct.

17 Q. At the time you learned of an association
18 between asbestos and lung cancer did you learn that the
19 association was between exposure to asbestos and lung
20 cancer or was it exposure to asbestos in large enough doses
21 that would produce asbestosis?

22 A. ~~At the time~~ that we first learned about this
23 there was -- it was believed that there had to be a
24 atmospheric concentration sufficient to produce the disease
25 asbestosis before you could have any evidence of cancer.

1 Q. Doctor, in that regard, do you recall
2 specifically in the 1960s what the threshold limit value
3 was for asbestos exposure?

4 MR. POLK: I will object to the form of
5 the question as being vague. The 1960s covers a 10-year
6 period of time.

7 MR. HAVARD: I will reword the question.
8 BY MR. HAVARD:

9 Q. Doctor, do you recall at any time in the '60s
10 what the threshold limit value may have been for asbestos
11 dust exposure?

12 A. There were several different levels which were
13 active during the period from about 1960 on up. Initially
14 my recollection is that there was a limit of ten fibers in
15 excess of ten microns in length per cubic foot of air.
16 This in the early '60s was reduced to five fibers per cubic
17 foot in excess of ten microns in length. And in the late '60s
18 this was again reduced to two fibers per cubic foot in
19 excess of ten microns in length.

20 Q. Doctor, are you certain about any of those
21 numbers? Are you confident in your own mind that those are
22 correct? _____

23 MR. POLK: I will object to the form of
24 the question as being leading.

25 MR. BROWNSON: It's leading and also

1 vague.

2 MR. POLK: That's correct. I will join
3 in that objection also.

4 BY MR. HARVARD:

5 Q. Answer the question if you can, Doctor. If
6 you can't, I will move on.

7 A. Those figures are my best recollection.

8 Q. In any event, you do recall that at some point
9 in time there were changes in those figures?

10 A. Absolutely.

11 Q. Doctor, with respect to the length of fiber
12 that you recall being associated with the threshold limit
13 value measurements, how does the Calidria asbestos fiber
14 length match up with them?

15 A. The Calidria fiber asbestos -- the Calidria
16 fiber length was below the ten microns length of fiber
17 specified in the threshold limit value.

18 Q. Doctor, what if anything did that suggest to
19 you about what the people who set those threshold limit
20 value standards considered about those shorter fiber
21 asbestos?

22 MR. POLK: Object to the question on the
23 grounds of hearsay and lacks foundation.

24 MR. BROWNSON: I further object to the
25 question on the ground that Mr. Harvard earlier in his

1 direct examination attempted to disqualify Dr. Dernehl as
2 an expert in fiber type and, therefore, he is disqualified
3 from answering this question.

4 BY MR. HAVARD:

5 Q. Answer if you can, Doctor.

6 A. To us, the fact that the fibers were less than
7 ten microns in length suggested that they were not going to
8 be particularly active in the reduction of fibrogenic
9 disease since the general opinion held at that time was
10 that the active fibers in producing the disease were those
11 ten microns and lower in length.

12 Q. Doctor, when you say "to us," to whom were you
13 referring?

14 A. To us I am referring, I think, to the majority
15 of physicians in occupational medicine and to the people in
16 the medical department at Union Carbide.

17 Q. Doctor, at the time you first learned of an
18 association between asbestos and lung cancer through the
19 medical literature, were you aware of any demonstrated
20 causal relationship between the short fibered Calidria
21 asbestos and lung cancer?

22 A. ~~I was not.~~

23 Q. Doctor, at the earlier portion of this
24 deposition you told us that in about 1967 you believe there
25 was growing evidence of an association between asbestos and

1 a medical condition called mesothelioma. Do you recall
2 that testimony?

3 A. Yes.

4 Q. Can you recall -- let me ask the question
5 differently. At this point in time were you aware of any
6 evidence demonstrating a causal relationship between the
7 short fiber Calidria asbestos and mesothelioma?

8 A. I was not aware of any such relationship.

9 Q. I believe you further testified, Doctor, that
10 it was in the early '70s when you began to seek
11 epidemiological studies reflecting findings with respect to
12 mesothelioma. Do you recall that testimony?

13 A. Yes.

14 Q. Do you recall whether the studies of which you
15 became aware in the late '60s and early '70s primarily
16 dealt with one particular fiber type as opposed to another
17 fiber type?

18 A. The great majority of studies that were done
19 at that time were done with -- were done on people who were
20 exposed to the long fiber type asbestos which was in common
21 use in the United States.

22 Q. ~~You were aware~~ of no causal relationship
23 established between the short fiber Calidria asbestos and
24 mesothelioma at that point in time, were you?

25 MR. POLK: Object to the form of the

1 question as being leading.

2 MR. BROWNSON: I join in the objection.

3 MR. HARVARD: I will rephrase it.

4 BY MR. HARVARD:

5 Q. Doctor, in 1967 and in the 1970s when you
6 began seeing epidemiological studies, were you aware --

7 MR. HARVARD: I am having trouble making
8 this one legal, guys. Give me a minute.

9 MR. POLK: I understand that.

10 BY MR. HARVARD:

11 Q. Doctor, please tell us what your recollection
12 was from the period of time 1967 to the early 1970s as to
13 whether a causal relationship had been established between
14 short fiber Calidria asbestos and mesothelioma?

15 A. I knew of no evidence of any type that there
16 had been any work done with mesothelioma resulting from
17 exposure to short fiber asbestos.

18 Q. Were you aware of evidence which had begun to
19 demonstrate a relationship between other long fiber
20 asbestos and mesothelioma?

21 A. Any relationship that had been demonstrated
22 between mesothelioma and exposure to asbestos was with long
23 fiber material.

24 Q. Doctor, are you familiar with the fiber type
25 called crocidolite?

1 A. Not really.

2 Q. Are you familiar with the fiber type called
3 amosite?

4 A. Not really.

5 Q. Doctor, do you have an opinion, based on the
6 medical literature during that period of time, 1967 through
7 the early 1970s, as to whether any association had been
8 established between mesothelioma and any causative agents
9 other than asbestos, if you can answer the question?

10 A. In the period of time that you cover the
11 answer would be no.

12 Q. Do you know if in your subsequent studies and
13 your subsequent -- let me rephrase the question. Doctor,
14 do you currently have an opinion, based on what you learned
15 until the time you left as associate medical director at
16 Union Carbide, as to whether anything other than asbestos
17 causes mesothelioma?

18 A. There have been cases of mesothelioma reported
19 in individuals exposed to vinyl chloride.

20 Q. Are there also cases of mesothelioma that you
21 have seen in the medical or scientific literature where
22 there is no known causative agent?

23 MR. POLK: I will object to the form of
24 the question as being leading and very suggestive.

25 MR. BROWNSON: I join in that objection.

1 BY MR. HARVARD:

2 Q. Answer it if you can, Doctor.

3 A. The early history of mesothelioma among
4 pathologists was that it was a form of cancer of unknown
5 ideology and of rare occurrence.

6 Q. Doctor, are you aware of any epidemiological
7 data establishing a causal relationship between the short
8 fiber chrysotile such as Calidria and mesothelioma?

9 A. I have not seen any.

10 Q. Doctor, do we know exactly how lung cancer is
11 caused?

12 A. No, we do not.

13 Q. Do we know today, based on what you have
14 learned from the medical and scientific literature, exactly
15 how mesothelioma is caused?

16 A. We do not know that either.

17 Q. In the earlier portion of this deposition,
18 Doctor, you were asked some questions with respect to chest
19 X-rays which were taken at King City, California, of then
20 Union Carbide employees. Do you recall being asked
21 questions in that regard?

22 A. Yes, I do.

23 Q. Would you explain to us for what purpose chest
24 X-rays were taken of new employees coming to work for Union
25 Carbide at the King City facility where Calidria asbestos

1 was mined and milled?

2 A. Union Carbide had a general policy that any
3 new employee one of the things that was done in his
4 pre-employment examination was a chest X-ray in order to
5 determine that there was no evidence of active lung disease
6 in this prospective employee. Subsequently, these X-rays
7 were repeated to make sure that the work the individual was
8 doing did not produce any evidence of disease. And in the
9 case of the asbestos workers where it was known that
10 exposure to asbestos might result in the development of the
11 disease asbestosis, it was particularly important that we
12 take these X-rays to make sure that we were not being
13 suckered into a position where we felt that there was no
14 hazard where, as a matter of fact, there might have been.

15 Q. Doctor, at that point in time when Union
16 Carbide began mining and milling asbestos at the King City
17 facility, did you have an opinion as to whether the short
18 fibered nature of the Calidria asbestos might cause
19 asbestosis?

20 A. Based on current -- based on knowledge at that
21 time the opinion was that it probably would not do so but
22 that it would be very prudent to keep an open mind and to
23 take the X-rays and find out whether or not it did or did
24 not.

25 Q. Did Union Carbide continue to follow those

1 employees with chest X-rays?

2 A. Yes, they did.

3 Q. Doctor, did you know at the time you retired
4 from Union Carbide in 1979 whether or not any of the
5 employees who were monitored at the King City facility had
6 been found through the monitoring program to have developed
7 any asbestos related lung diseases?

8 A. I do not know of any such cases.

9 Q. Doctor, you were also asked at the previous
10 deposition or the previous part of this deposition whether
11 or about some -- let me start this question over. At the
12 previous portion of this deposition you were asked about a
13 study by a Dr. Langer dealing with Calidria asbestos. Do
14 you recall being asked about that?

15 A. Yes, I do.

16 Q. Do you recall the point being made that these
17 were or that his study was based on samples of Calidria
18 asbestos which he had obtained from Union Carbide?

19 A. I understood that to be the case.

20 Q. Doctor, was it your experience at Union
21 Carbide that you would sometimes get requests from
22 individuals who were interested in pursuing medical or
23 scientific research samples of marketable chemicals to test
24 or to study?

25 A. Yes, we did receive those requests.

1 Q. What was the policy at Union Carbide, stated
2 or unstated, with respect to handling such requests?

3 A. A request of that type would come in. We
4 would ask for a protocol of the proposed study. And after
5 review with the product managers a decision would be
6 reached as to whether or not to grant the request for the
7 substance.

8 Q. Doctor, are you aware of any requests for
9 marketable chemicals which came to your attention which
10 Union Carbide refused to provide the researchers with
11 samples for quantities of the marketable chemicals they
12 were requesting?

13 A. I do not recall any.

14 Q. Doctor, we earlier discussed a study which was
15 accomplished at the Mellon Institute in Pittsburgh,
16 Pennsylvania, regarding -- let me stop right here.

17 MR. HARVARD: Have you got your copies?

18 MR. POLK: Yes, I do.

19 MR. HARVARD: Off the record.

20 (At this time a discussion was held off
21 the record.)

22 BY MR. HARVARD:

23 Q. Doctor, I am fixing to show you what I am
24 asking the Court Reporter to mark as Union Carbide
25 Corporation Exhibit A, and it is entitled "Calidria

1 Asbestos-Resin Grade RG 244, Tracheal Insufflation of Rat
2 Lungs with Interpretation of Pathology after 30, 60, 90 and
3 180 days." Can I ask you, please, to take a look at that
4 document?

5 (At this time DERNEHL Deposition Exhibit
6 47 was marked for identification by the
7 Court Reporter.)

8 BY MR. HARVARD:

9 Q. Doctor, have you had an opportunity to look
10 now at Exhibit 47 to this deposition?

11 A. Yes, I have.

12 Q. And looking at it, what does it appear to be?

13 A. Well, it's a report on a study which was made
14 in which Calridia asbestos fibers were suspended in saline
15 solution and were introduced into the lungs of rats at
16 various concentrations. The condition at various times.
17 The concentration was the same. I take that back. Two
18 concentrations 1 ml and 1 ml amounts into the lungs through
19 the trachea.

20 Q. Doctor, what was one of the purposes or what
21 were the purposes of this study, if you can recall?

22 MR. POLK: I will object to the form of
23 the question as being compound.

24 MR. HARVARD: Sure. I will rephrase the
25 question.

1 BY MR. HAVARD:

2 Q. Doctor, do you recall what the purposes of
3 this study were?

4 A. The purpose was to find out the type and the
5 degree of effects of the asbestos on the lungs of rats.

6 Q. Doctor, does this appear to be a copy of a
7 study which was commissioned by Union Carbide Corporation
8 at the Mellon Institute?

9 A. Yes, it would be.

10 Q. Having reviewed that document at my request,
11 do you recognize it?

12 A. It is one I have seen before.

13 Q. Doctor, with respect to your prior testimony
14 at the last deposition or the first part of this deposition
15 you were asked whether a -- let me get a July 1966 report
16 from the Mellon Institute which is the only study which
17 Union Carbide had sponsored and had conducted at the Mellon
18 Institute. As you review this document, which has been
19 marked as Exhibit 47 to this deposition, do you now recall
20 this study also having been conducted at the Mellon
21 Institute at Union Carbide's request?

22 A. Yes, I do.

23 MR. POLK: Objected to as leading. I
24 will move to have the answer stricken.

25 MR. BROWNSON: Same objection.

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BY MR. HARVARD:

Q. Doctor, do you recall who requested that the study that's reflected as Exhibit 47 be done?

A. I do not know who requested it. I don't know.

Q. Do you recall whether or not that was a study requested by Union Carbide to be accomplished?

A. It would have to be from Union Carbide.

Q. Doctor, let me rephrase the question. Doctor, did either this study or the 1966 study, which you reviewed in your prior deposition, deal with, address, or study the question of whether cancer or mesothelioma tumors develop in these animals?

A. Neither study was involved in that.

Q. Doctor, with respect to Exhibit Number 47, have you had an opportunity to review that exhibit?

A. Yes, I have.

Q. And did you and I review it prior to your deposition today?

A. We looked at it this morning.

Q. With respect to any conclusions which were reached in this study, Doctor, what did they tell you as a Union Carbide medical personnel about the relationship between threshold limit value and the Calridia asbestos, if anything?

A. In essence the results of the study which

1 demonstrated the development of fibrotic nodules within the
2 lung -- I am getting my sentence confused. Anyway, the
3 study suggested that it was -- that the material could
4 produce fibrotic tumors in the lung and, therefore, it was
5 important that the dust concentrations in the air be kept
6 at a low level below the threshold or at or below the
7 threshold limit value.

8 Q. Doctor, we have mentioned that term threshold
9 limit value a couple of times today as well as in the
10 previous deposition. Without respect to whatever dose
11 level there was in a threshold limit value, could you
12 explain to us generally what a threshold limit value is or
13 was?

14 A. The threshold limit value is a concentration
15 of a substance established by -- it was a concentration of
16 a substance in air to which an individual could be exposed
17 eight hours a day, five days a week for a working lifetime
18 without significant harm and this concentration was
19 established by a group known as the American Conference of
20 Governmental Industrial Hygienists.

21 Q. Doctor, at some point in time certain of the
22 Calidria asbestos products were marketed in a pelletized
23 form, is that correct?

24 A. I believe so.

25 Q. Do you know who made the decision to market

1 certain forms of the Calridia products in a pelletized form?

2 A. I presume the Calridia marketing people.

3 Q. Do you recall if you were involved at all in
4 that decision?

5 A. I was not involved in it.

6 Q. Do you recall what the purposes were or did
7 you ever learn what the purposes were in pelletizing the
8 Calridia asbestos or marketing it in a pellet form as
9 opposed to a raw fiber form?

10 MR. POLK: Object to the form of the
11 question, Bill. There is three parts to that question,
12 therefore, it's compound and I object and ask you to
13 rephrase it. Also lacks foundation.

14 MR. HARVARD: Be happy to.

15 BY MR. HARVARD:

16 Q. Doctor, did you have a personal knowledge as
17 to why Calridia asbestos was marketed in a pelletized form,
18 if it was?

19 A. It was marketed in a pelletized form for the
20 purpose of reducing dusting.

21 Q. Would you explain to to us briefly what you
22 mean by the problem of dusting?

23 A. Well, when you take a loose fibrous material
24 in let's say a shipping bag, in the event of bag breakage
25 or when the material -- when the bag was opened for use,

1 large numbers of blue fibers -- loose fibers from the
2 unpelletized material could readily escape to the air.
3 Once the material was pelletized then the amount of free
4 loose material available for escape was sharply reduced and,
5 therefore, the probability of severe dusting was markedly
6 reduced.

7 Q. Doctor, did pelletizing absolutely remove any
8 possibility of dust being generated by the use of
9 pelletized Calidria asbestos?

10 A. It did not remove it. It just reduced the
11 probability that high concentrations of dust would be
12 formed.

13 Q. Doctor, I would now like to show you a
14 document which I will ask the Court Reporter to mark as
15 Exhibit Number 43 to this deposition. At the top of the
16 document, it's a two page document, at the top it states
17 "Calidria Asbestos" and then typed in all caps underneath
18 it underlined it states "Asbestos Toxicology Report." On
19 Page 2 of that document in the lower left-hand side appears
20 the date 5-8-69. I state that only for purposes of
21 identification. Would you please take a look at the
22 document?

23 (At this time DERNEHL Deposition Exhibit
24 48 was marked for identification by the
25 Court Reporter.)

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200
1 A. I have seen the document.

2 Q. Did you and I review that two page document
3 prior to the continuation of your deposition this afternoon,
4 Doctor?

5 A. Yes, we did.

6 Q. Do you have or let me ask the question
7 differently. Who at Union Carbide was responsible for
8 drafting toxicology reports on the marketable chemicals
9 distributed by Union Carbide?

10 A. Basically I prepared the great majority of
11 them. Sometimes Dr. Lane was involved, this was one in
12 which he was more active than I was.

13 Q. Was Dr. Lane more active than you in the
14 preparation of toxicology reports dealing with the Calridia
15 asbestos?

16 A. At the date of this document, which was 1969,
17 yes, he was.

18 Q. Do you recall whether this Asbestos Toxicology
19 Report, that's been marked as Exhibit 48, is one that was
20 drafted personally by you or whether it was drafted
21 personally by Dr. Lane, if you know?

22 A. I believe it was drafted personally by Dr.
23 Lane with consultation on my part.

24 Q. Would you explain to us for what purposes the
25 asbestos toxicology reports were prepared?

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1 A. They were prepared for transmission to
2 customers or to users of Calridia asbestos to advise them
3 of the hazards associated with its use.

4 Q. You said hazards associated with the use?

5 A. Right.

6 Q. Doctor, with respect to that, in the asbestos
7 toxicology reports, did you and Dr. Lane report only those
8 findings which you had observed in the medical and
9 scientific literature which established causal
10 relationships between asbestos and disease processes or did
11 you include other information; for example; associations
12 which had been noted in the literature?

13 A. We included the known and proved types of
14 adverse reactions to the material and in some instances we
15 indicated that there were some suggested associations not
16 yet proved which were worthy of consideration.

17 Q. I would like to draw your attention to the
18 paragraph at the bottom of Page 1 of Exhibit 43 and ask you
19 to look at it, Doctor.

20 A. Yes.

21 Q. Does that reflect information of the type that
22 Union Carbide knew it says asbestos toxicology reports
23 would provide to customers?

24 A. Yes, it does.

25 Q. Doctor, why would asbestos toxicology reports

1 be provided to the marketing department or marketing
2 personnel at Union Carbide Corporation?

3 MR. POLK: I am just going to note an
4 objection here on lack of foundation. Go ahead, Doctor.

5 MR. BROWNSON: Same objection.

6 MR. HARVARD: I would be happy to lay
7 the foundation.

8 BY MR. HARVARD:

9 Q. Doctor, do you recall at the first portion of
10 this deposition when you were asked about purposes for
11 preparation of the Asbestos Toxicology Report to which you
12 responded one of the purposes was to provide it to
13 marketing people who required it? Do you recall having
14 made that statement?

15 A. Yes.

16 Q. Who either required or requested it?

17 A. The marketing department.

18 Q. Why would the toxicology reports be provided
19 to such marketing people?

20 A. The marketing people used them in their
21 dealings with the potential customers for the product.

22 Q. Was it your experience at Union Carbide that
23 when you prepared toxicology reports for different
24 marketable chemicals that one of the primary distribution
25 systems for those toxicology reports was through the

1 marketing department?

2 A. The marketing department was involved. I am
3 not sure that they were the primary source of distribution.
4 More frequently the marketing department or the sales
5 organization would advise the customer that such reports
6 were available and ask our department to forward a copy to
7 the proposed customer or to the customer himself.

8 Q. Doctor, did you or people in the medical
9 department of Union Carbide ever receive direct requests
10 for toxicology reports on marketable chemicals?

11 A. Yes, we did.

12 Q. From what sources did you receive such
13 requests, what types of people or organizations?

14 A. Well, we would receive requests from customers,
15 from governmental agencies, from universities, from
16 individuals who felt they had a need for such information.

17 Q. When you received such a request would you
18 provide the person requesting it with those reports, if
19 such a report had been developed?

20 A. Yes, we would.

21 Q. Are you --

22 A. As a matter of fact, if such a report had not
23 been developed we would frequently go ahead and develop one
24 in response to the request.

25 Q. Are you aware of Union Carbide or -- Doctor,

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1 are you aware if Union Carbide ever refused to provide
2 anyone with a toxicology report on one of their marketable
3 chemicals on request?

4 A. No, I am not aware of any.

5 Q. Do you remember exactly how many of the
6 marketable chemicals, which fell under your perview, had
7 such toxicology reports prepared on them?

8 A. I really can't remember the exact number but I
9 know the last time I counted it was 500.

10 Q. If I can have a minute to look through my
11 notes for a second.

12 Doctor, let me now show you what I will ask
13 the Court Reporter now to mark as Defendant's Exhibit 49,
14 which is appears to be a photocopy of a document which
15 states at the top "Union Carbide Internal Correspondence,
16 March 21, 1970. Subject: Toxicity of Calidria Asbestos",
17 and bears a typed name of "C. U. Dernehl, M.D., Associate
18 Medical Director", and has some writing above that
19 signature line. Do you have the document before you now?

20 A. Yes, I do.

21 Q. Have you had an opportunity to review that
22 document? _____

23 A. Yes, I have.

24 (At this time DERNEHL Deposition Exhibit

25 49 was marked for identification by the

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21.
1 Court Reporter.)

2 BY MR. HARVARD:

3 Q. Is that a document that you and I reviewed
4 prior to your deposition here today?

5 A. Yes, we did.

6 Q. Doctor, is the signature, which appears over
7 the typed signature line for C. U. Dernehl a signature
8 which is familiar to you?

9 A. It's my signature.

10 Q. Do you recall having written this letter?

11 MR. POLK: Let me interrupt, if I may.
12 This is Mike Polk.

13 MR. HARVARD: I know the voice, Mike.

14 MR. POLK: I know you don't want to hear
15 the voice, but I appreciate the fact that you know it. My
16 copy that I have does not bear a signature, Bill.

17 MR. JONES: The copy that I have here
18 does not bear the signature.

19 MR. POLK: I find that somewhat
20 interesting. Maybe you could cover that with the Doctor.

21 MR. HARVARD: I will. I suspect I know
22 the answer to that, but I have a copy here that also
23 doesn't have a signature and one that does.

24 BY MR. HARVARD:

25 Q. Doctor, do you recognize that document?

2/0
1 A. Apparently a letter that I wrote to a Mr. C.
2 E. Martin.

3 Q. Do you remember having written that letter?

4 A. I am afraid I don't remember writing it, no.

5 Q. Have you reviewed the information which is
6 contained in that letter or that internal correspondence?

7 A. Yes, I have.

8 Q. Does that reflect what information was
9 available to you and is it -- let me ask the question
10 differently. Doctor, does this memoranda reflect some of
11 the attitudes which you understood and held with respect to
12 toxicity of Calcidia asbestos during this period of time,
13 the period of time referring to March 21, 1970?

14 MR. POLK: Object to the question as
15 lacking foundation. It calls for speculation, and also it
16 calls for hearsay.

17 MR. BROWNSON: I join in that.

18 BY MR. HARVARD:

19 Q. Have you had an opportunity to read through
20 the letter, Doctor?

21 A. Yes, I have.

22 Q. Does this letter or internal correspondence
23 reflect attitudes which you held at that period of time?

24 A. Yes, it does.

25 MR. POLK: May I make something clear on

2.01
1 the record? I would like to know, Bill, which copy has
2 been marked as Deposition Exhibit 49, that is to say the
3 unsigned or signed copy?

4 MR. HARVARD: I will tell you what. We
5 will check and see if we have a fax here and if we do I
6 will fax you what I am looking at here, the signed copy,
7 because that's what I want attached.

8 MR. LAURA: Mike, I didn't get your
9 number down last time.

10 MR. POLK: 612-437-2732.

11 MR. LAURA: Was that 2732?

12 MR. POLK: Correct.

13 MR. JONES: Anthony, mine is
14 612-336-3021.

15 MR. LAURA: Why don't we take a five
16 minute break while I get this faxed?

17 MR. POLK: That's not necessary as far
18 as I am concerned at the moment. I appreciate if I get a
19 copy. Let me tell everybody on the line what my problem is
20 and get an idea from Bill how long he is going to be.
21 First of all, Bill, can you give me a general idea of how
22 long you are going to take?

23 MR. HARVARD: Approximately two more
24 minutes.

25 MR. POLK: May I have the party's

1 permission to do a very short cross that would end before
2 3:00? The reason I am asking is because we have a
3 conference call with the Court on the Hanisto case at 3:00
4 here in Minnesota.

5 MR. BROWNSON: Conference call with what
6 Court?

7 MR. POLK: Come again?

8 MR. BROWNSON: What Court?

9 MR. POLK: Judge Littman.

10 MR. BROWNSON: That's news to me.

11 MR. HARVARD: I don't care.

12 MR. POLK: It deals with some issue that
13 I have with Union Carbide regarding document production on
14 the East Coast.

15 MR. BROWNSON: So does that mean that it
16 has to be secret?

17 MR. POLK: Yes, that's what it means,
18 Bob.

19 MR. POLK:.. Has anyone got any problem
20 with that procedure?

21 MR. BROWNSON: I just want the record to
22 reflect that if there is conference calls with Judge
23 Littman we have never been given notice of them.

24 MR. POLK: It's duly noted.

25 MR. HARVARD: Why don't I go ahead and

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1 ask my other two minutes worth of questions and then you
2 can move on.

3 MR. POLK: Thank you.

4 BY MR. HARVARD:

5 Q. Doctor, you and I met for approximately an
6 hour and a half before the deposition continuation this
7 afternoon, is that correct?

8 A. That's correct.

9 Q. Then I believe you had lunch with my friend
10 here, Mr. Laura?

11 A. Right.

12 Q. During our meetings we discussed the matters
13 which you and I have discussed on the record here today, is
14 that right?

15 A. That's right.

16 Q. With respect to what -- let me ask it
17 differently. Doctor, at the time you left Union Carbide in
18 1979 did you have an opinion as to whether a causal
19 relationship had been established between short fiber
20 Calcidia asbestos and mesothelioma?

21 A. I know of no such association.

22 Q. Doctor, at the time you left Union Carbide
23 Corporation in 1979 did you have an opinion as to any -- I
24 will rephrase the question. Doctor, at the time you left
25 Union Carbide Corporation in 1979 did you have an opinion

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1 as to any causal relationship between short fiber Caltricia
2 asbestos and lung cancer?

3 MR. POLK: That's a yes or no answer, by
4 the way.

5 A. No, I had no -- I had no opinion on -- no
6 opinion in that regard.

7 Q. Let me go back to my previous question because
8 I sense an objection to be posed perhaps later on. Please
9 answer this question yes or no, if you can, Doctor. Doctor,
10 at the time you left Union Carbide Corporation in 1979 did
11 you have an opinion as to whether a causal relationship had
12 been established between short fibered Caltricia asbestos
13 and mesothelioma? Just did you have an opinion?

14 A. Yes, I had an opinion.

15 Q. And what was that opinion, Doctor?

16 A. That there was no known association.

17 Q. Was it also your opinion that no causal
18 relationship had been established?

19 MR. POLK: I will object to the form of
20 that question as being leading and overly suggestive.

21 BY MR. HARVARD:

22 Q. Let me ask the question the long way again
23 then, Doctor. Doctor, at the time you left Union Carbide
24 in 1979 did you have an opinion as to whether a causal
25 relationship had been established between short fiber

RECROSS-EXAMINATION

BY MR. POLK:

Q. Doctor, this is Mike Polk again representing the Plaintiff. How are you?

A. All right.

Q. Good. Doctor, first of all, did you have an opportunity to have any communications with any of the attorneys for Union Carbide other than having lunch with Mr. Laura and your hour and a half conference with Mr. Harvard?

A. No, I did not.

MR. HARVARD: Let me just say for the record, the Doctor may have forgotten I did telephone him to set up the time and the place for my meeting with him before his lunch with Mr. Laura.

BY MR. POLK:

Q. Doctor, during your conversations with your attorney, Mr. Harvard, and I understand that that was this morning, is that correct?

A. That's correct.

Q. In your conversations with him did you discuss matters with him that he did not ask you about on direct examination today?

A. No, we did not.

1 Q. Doctor, do you believe, sir, that there is an
2 association between cigarette smoking and lung cancer?

3 A. Yes, there is.

4 Q. And do you believe, sir, that there is an
5 established cause and effect relationship between cigarette
6 smoking and lung cancer?

7 A. Will you repeat that again? It sounds like
8 the same question to me.

9 Q. Do you believe that it is medically
10 established, scientifically established that there is a
11 cause and effect relationship between cigarette smoking and
12 lung cancer?

13 A. Yes.

14 Q. Do you smoke?

15 A. No.

16 Q. Have you smoked?

17 A. Yes.

18 Q. When did you cease smoking?

19 A. About 1979.

20 Q. 1979?

21 A. 1979.

22 Q. ~~About the time that you left as being the~~
23 medical director for Union Carbide, is that right?

24 A. That's right.

25 Q. Thank you. Now, Doctor, I have in front of me

1 here a document that I am not sure if you have or not.

2 MR. POLK: I think it was referred to in
3 the earlier part of this deposition and, Bill, do you have
4 those there, the prior deposition exhibits?

5 MR. HARVARD: I never got a copy of them
6 per se. I have a number of exhibits here before me, Mike.
7 I tried to come prepared. Which document is it to which
8 you make reference?

9 MR. POLK: Just a second, I will see.
10 It would be Deposition Exhibit 32.

11 MR. HARVARD: Can you just describe it
12 to me?

13 MR. POLK: Certainly. It's a January 12,
14 1965 memorandum, subject "Asbestos Toxicology Report".
15 It's a memorandum written by Thomas Hall.

16 MR. HARVARD: Hold on a second.

17 MR. HARVARD: January 12?

18 MR. POLK: Correct.

19 MR. HARVARD: Two page document?

20 MR. POLK: Correct.

21 MR. HARVARD: I have it here.

22 BY MR. POLK: _____

23 Q. Dr. Dernehl, could you take a look at that? I
24 believe you looked at it earlier but please take a look at
25 that for a moment.

1 MR. HARVARD: Just the letter itself?

2 MR. POLK: At this time, that's correct.

3 MR. HARVARD: Just the first two pages,
4 Doctor. I am telling him that, Mike, because my copy is
5 attached to a number of different things.

6 A. All right. I see the letter.

7 Q. Doctor, have you read that letter now?

8 A. I have read the letter.

9 Q. Doctor, would you agree with me that as of the
10 time or the date that appears on that letter that Union
11 Carbide recognized an association between asbestos and lung
12 cancer?

13 A. Well, let me read here again for a minute and
14 see what it says about cancer. Well, the letter in effect
15 talks about reports of cancer producing and effects and
16 then states objections to those reports.

17 Q. I understand that, Doctor, but I want you to
18 answer my question.

19 A. And your question again was?

20 Q. Certainly. I will rephrase it for you and
21 repeat it. Doctor, would you agree that that report
22 indicates that Union Carbide, as of the date which appears
23 on the report, recognized an association between lung
24 cancer and exposure to asbestos?

25 A. No, I don't think so. I think what the thing

1 says is that there are people who have said that there was
2 such an association. We did not necessarily agree.

3 Q. So it's your testimony then that in spite of
4 that report, in your mind Union Carbide did not recognize
5 an association between asbestos and cancer at that time, is
6 that correct?

7 A. That's correct.

8 MR. LAURA: I have an objection to that.
9 I just object to the form of that question.

10 BY MR. POLK:

11 Q. Now, Doctor, would you agree with me that as
12 of the time of that report that it was recognized within
13 the report that asbestosis was not a condition precedent to
14 the production of lung cancer?

15 MR. HARVARD: I object to the form of
16 the question.

17 MR. POLK: Fine.

18 MR. LAURA: I think there is confusion,
19 Mike. Are you talking about the asbestos toxicology report
20 now or the letter?

21 MR. POLK: Talking about the letter. He
22 hasn't read the asbestos toxicology report yet.

23 MR. LAURA: You said report.

24 MR. POLK: Well, its entitled "Asbestos
25 Toxicology Report" in the covering letter. I am basing my

1 question now to the Doctor solely upon his review of the
2 two pages of Dr. Hall's letter dated January 12, 1965.

3 A. I don't see that this letter has anything to
4 do with whether or not asbestosis -- the disease asbestosis
5 and lung cancer are concomitant.

6 Q. So your answer to my question would be no?

7 MR. HARVARD: Object. I would request
8 that you pose the question again.

9 MR. POLK: Okay.

10 BY MR. POLK:

11 Q. Doctor, the exhibit, Deposition Exhibit 32
12 that you have now reviewed, would you agree with me that
13 that has information contained within it that would
14 indicate that the disease of asbestosis is not a condition
15 precedent to the development of lung cancer?

16 A. I do not see that this letter says anything of
17 the kind.

18 Q. And it's your testimony that as of 1965 you
19 had no indication from any source that asbestos could cause
20 cancer, is that correct?

21 A. We did not know of any such information that --
22 we did not know of any such information.

23 Q. So is the answer to my question correct, or is
24 what I said correct? I will repeat it again, if you wish.

25 MR. HARVARD: Would you repeat it,

1 please?

2 A. I don't know what you are talking about.

3 Q. Okay. Doctor, is it correct that as of
4 January 12, 1965, you had no indication from any source
5 whatsoever that indicated to you that there was an
6 association between asbestos and lung cancer?

7 MR. HARVARD: Object to the form and
8 also object on the use of vague terms.

9 BY MR. POLK:

10 Q. Doctor, is there anything about that question
11 that I just asked you that you don't understand?

12 A. Repeat it again, please, so I can clarify that
13 answer.

14 Q. Would you agree with me that as of January 12
15 of 1965, you had no indication from any source that there
16 was an association between asbestos and lung cancer?

17 MR. HARVARD: Same objection.

18 A. My answer to that would be we had no
19 indications at that time of any association in 1965.

20 Q. And so to answer my specific question, you had
21 no indication from any source that there was an association
22 between asbestos and lung cancer, is that correct?

23 MR. HARVARD: Same objection. Asked and
24 answered as well.

25 MR. POLK: No, it was not.

1 MR. HARVARD: That's my objection.

2 MR. POLK: Okay.

3 BY MR. POLK:

4 Q. Can you answer?

5 MR. HARVARD: I think he is thinking the
6 question over. Doctor, as soon as you are ready if you can
7 answer the question, please answer. He is looking back
8 over the letter again now.

9 MR. POLK: Okay.

10 A. Well, my answer still is to the effect that we
11 do not believe that there was any reliable data which
12 suggested that there was an association between smoking or
13 between asbestos exposure and cancer.

14 Q. Then I will rephrase the question. Doctor, as
15 of January 12, 1965, did you have any indication, reliable
16 or not, as to whether or not there was an association
17 between asbestos and lung cancer?

18 A. There was information of that type around, but
19 I did not necessarily agree with it.

20 Q. I understand what you are saying, sir. Would
21 you agree with me that the information which you did not
22 agree with, making an association or suggesting an
23 association between asbestos and lung cancer, came to your
24 attention prior to 1960?

25 MR. HARVARD: Object.

1 A. No.

2 Q. I am sorry, I didn't hear your answer.

3 A. My answer was no, it did not come to our
4 attention.

5 Q. Well, some information apparently came to your
6 attention before January 12, 1965, which you did not agree
7 with that indicated an association between asbestos and
8 lung cancer, is that much true?

9 MR. HARVARD: Do you understand the
10 question?

11 A. Some of that information might have come
12 across my desk. We did not agree with it for various
13 reasons.

14 Q. I understand that. You have made that very
15 clear, Doctor. That's not my question. I will follow it
16 up again with a different question, however, the material
17 that you are referring to that may have crossed your desk
18 that you did not agree with, when was the first time that
19 that kind of material suggesting an association between
20 asbestos and lung cancer first crossed your desk?

21 A. I have absolutely no way of knowing what that
22 time was.

23 Q. But you have earlier testified that it
24 definitely was not before 1960, is that correct?

25 A. I would say that is absolutely correct.

1 Q. From that may we assume that it came across
2 your desk at some time between 1960 and January 12, 1965?

3 MR. HARVARD: Object to the form of the
4 question. You may assume what you wish. Answer it if you
5 can, Doctor.

6 A. On a logical basis you would have to assume
7 that that is a correct statement.

8 Q. Thank you. Doctor, where are you right now?

9 A. Where am I? Springfield, Missouri.

10 Q. I understand. Are you in a law office there
11 for W. R. Grace, is that correct?

12 A. I don't know who it's for. It's a law office.

13 Q. And presently with you are Union Carbide
14 attorneys Bill Harvard and Tony Laura, is that right?

15 A. Right.

16 MR. BISHOP: Gary Bishop for W. R. Grace.
17 Just so the record is clear, we are not at my offices. We
18 are in the offices of a third-party law firm that is just
19 providing these facilities so that we could take this
20 deposition.

21 MR. POLK: Thank you.

22 BY MR. POLK:

23 Q. Doctor, I have a few other questions. You
24 earlier testified that the sole purpose of pelletizing
25 Calridia asbestos was to, "reduce the problem of dusting."

1 Do you recall that testimony?

2 A. Yes.

3 Q. Doctor, what is the basis for you so stating?

4 A. Well, it's obvious that the material which is
5 in a pelletized form has less ability to release large
6 quantities of dust than does a loose mass of fibers.

7 Q. Doctor, you have made that also very clear.
8 My question to you is what is the basis for you having
9 knowledge that the sole purpose of pelletizing the Caltridia
10 asbestos was to reduce the problem of dusting, where did
11 you obtain that information from?

12 A. I learned that on my plant visits.

13 Q. On your plant visits to King City, California?

14 A. Right.

15 Q. And the first plant visit that you made to
16 King City, California was when?

17 A. That's hard to recall. Sometime I would say
18 in the early '60s.

19 Q. In 1962 or '63 perhaps?

20 A. I am sorry, I can't give you that close a date.

21 Q. Who told you that the pelletizing of Caltridia
22 asbestos or the sole purpose of pelletizing that product
23 was to reduce the dusting problem?

24 A. I have no idea who told me that. Somebody who
25 conducted me on the plant tour.

1 Q. Doctor, is it your understanding then that the
2 pelletizing of the Calridia asbestos was done from the
3 inception of the King City mill?

4 A. I can't answer that for sure, but I don't
5 believe it was. That was started, I believe, a couple of
6 years after the mill was in operation.

7 Q. And, Doctor, you would agree with me, would
8 you not, that non-pelletized Calridia asbestos fiber was
9 sold by Union Carbide?

10 A. At one time, yes.

11 Q. And, Doctor, do you have any information
12 within your personal knowledge that would indicate when
13 Union Carbide ceased selling open fiber Calridia asbestos?

14 A. I have no way of knowing.

15 Q. So you don't know if Union Carbide sold open
16 Calridia asbestos fiber to the Conwed plant in Cloquet,
17 Minnesota, as late as 1974?

18 A. I frankly don't know that they ever sold any
19 to Conwed.

20 MR. HARVARD: I am sorry, it was Conwed?

21 THE WITNESS: Conwed, excuse me.

22 BY MR. POLK:

23 Q. Doctor, would your opinions with reference to
24 the hazards of asbestos be any different if you were to
25 assume that asbestos being sold to Conwed was sold in a

1 open fiber form?

2 A. I would say it would be more hazardous than
3 the pelletized material,

4 Q. Doctor, what studies, if any, did Union
5 Carbide perform, to your knowledge, on Union Carbide
6 asbestos pellets that demonstrated that this dusting was
7 less than open fiber?

8 A. I have no personal knowledge of any studies
9 that they made.

10 Q. Doctor, do you have any personal knowledge
11 whatsoever that would allow you to testify as to whether or
12 not the salesperson dealing with the Conwed plant in
13 Cloquet, Minnesota between 1962 and 1974 ever received or
14 saw any of your toxicology reports or your office's
15 toxicology reports on asbestos?

16 MR. HARVARD: Object to form.

17 A. I would have no way of answering that.

18 Q. Doctor, just a couple other quick questions.
19 You, in your direct examination, indicated or
20 differentiated between an association and a causal
21 relationship, is that correct?

22 A. Yes.

23 Q. Doctor, what is your criteria for there to be
24 an association, as you have used that term?

25 MR. HARVARD: Do you mean an association

1 in general or with respect to a particular category of
2 subjects?

3 BY MR. POLK:

4 Q. No. I am talking, Doctor, specifically with
5 reference to your definition of the word association in a
6 medical context. In other words, what criteria do you use
7 or do you require before you can conclude that there is an
8 association between a substance and a medical malady
9 resulting from that substance?

10 A. In the concept of an association what you are
11 talking about is a group of people who are exposed to a
12 given substance and who demonstrate an increased incidence
13 of a disease as -- well, that's it.

14 Q. And what do you require when you use the word
15 causal relationship, that is to say, what criteria do you
16 require to conclude that there is a causal relationship as
17 you have defined those terms?

18 A. All right. With the causal relationship you
19 require more data than you do for a simple association. A
20 causal relationship you not only have to demonstrate the
21 fact that there is indeed an exposure to a given material,
22 you have to demonstrate the fact that this disease appears
23 only in those people who are exposed to this material. You
24 have to demonstrate the fact that there are no other
25 factors involved in the potential cause for the condition

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1 observed in the people. And as a last step, if at all
2 possible, you want animal experimentation to prove that
3 indeed this material is capable of doing what it is
4 observed to be doing in humans.

5 Q. Thank you, Doctor. That answers my question.
6 Referring once again to Exhibit Number 32, that's the
7 letter now that Dr. Hall wrote?

8 A. Yes.

9 Q. In the third paragraph within that letter, the
10 second line, you will see that he referred to, "The cancer
11 producing report." Do you see that?

12 A. Yes.

13 Q. Doctor, what cancer producing report was Dr.
14 Hall referring to?

15 A. I don't have the remotest idea.

16 MR. HARVARD: Off the record.

17 (At this time a discussion was held off
18 the record.)

19 BY MR. POLK:

20 Q. Now, Doctor, again referring to that same
21 exhibit, you will see in Paragraph 2 that Dr. Hall is
22 suggesting that he is going to have you "Formulate a
23 statement for us", and that's a quote. Do you see that?

24 A. Yes, I see it.

25 Q. Now, did you ever formulate a statement for

1 them?

2 A. The answer is yes.

3 Q. And that's embodied in your Asbestos
4 Toxicology Report or reports?

5 A. It depends on which one you refer to.

6 Q. Let me ask you this. Other than documents
7 that are entitled "Asbestos Toxicology Reports", did you
8 formulate any internal documentation or statements that are
9 not entitled "Asbestos Toxicology Reports" that you drafted
10 or had drafted for general circulation?

11 A. I really can't remember.

12 Q. Now, in the first paragraph of that exhibit,
13 you will see that Dr. Hall refers to several reports given
14 at technical meetings and summaries of them carried by the
15 national wire services. Do you see that?

16 A. Yes.

17 Q. What several reports is he referring to?

18 A. I don't have any idea.

19 Q. What technical meeting is he referring to?

20 A. I don't have any idea.

21 Q. What summaries is he referring to?

22 A. I don't have any idea.

23 Q. And what national wire services is he
24 referring to?

25 A. I don't have any idea.

1 Q. Do you have any idea about this, did you ever
2 see any of the reports, any minutes of the technical
3 meetings or any summaries of the national wire services
4 that are referred to within that letter?

5 MR. HARVARD: Object to the form as
6 argumentative.

7 MR. POLK: I am just asking if he ever
8 saw them.

9 MR. HARVARD: I understand. My
10 objection as argumentative goes to the nature of the
11 preparatory comment.

12 MR. POLK: I will withdraw that part of
13 it then.

14 A. Since I have no idea what he refers to, I have
15 no way of knowing whether I ever saw any of them or not.

16 Q. Doctor, then finally, you know Mr. Pufahl, is
17 that correct?

18 A. Bud Pufahl, yes.

19 Q. Now, I have a document here in front of me
20 that is dated February 8, 1966 and I don't believe that
21 that was used in the earlier part of this deposition.

22 MR. POLK: I don't know, Bill, if you
23 have a copy there or not.

24 MR. HARVARD: I am looking right now,
25 Mike. Can you give me a hint as to what it is? Is it a

1 memo? Is it a bread basket? Is it a litter?

2 MR. POLK: It's a Lamborghini car.

3 MR. HARVARD: We don't have it.

4 MR. POLK: It's a February 8, 1966

5 letter from Pufahl to Peter Cheston. While you are looking
6 may I continue?

7 MR. HARVARD: Yes.

8 BY MR. POLK:

9 Q. Doctor, do you know who Mr. Peter R. Cheston
10 is of London, England?

11 A. I do not.

12 Q. Doctor, can you recollect back in the 1966
13 time frame about the U.K. paper industry and issues
14 involving asbestos within that industry? I am just talking
15 generally now.

16 A. Not really.

17 Q. Well, let me ask you this. Did you ever meet
18 with Mr. Pufahl in 1966 and review with him toxicology
19 studies relative to asbestos that were from England?

20 A. I really can't recall.

21 Q. Doctor, do you recall this, do you recall
22 indicating to Mr. Pufahl in 1966 that the papers that you
23 reviewed at that time, "Do not by any means present
24 incontrovertible proof nor do they profess to do so." Do
25 you recall that at all?

1 A. I am sorry, I have no idea what that letter is
2 associated with.

3 Q. Let me ask you this. Do you recall advising
4 Mr. Pufahl in 1966, and this would be prior to February 3
5 of 1966, that Union Carbide's, "Position should remain that
6 in United States experience there has been no increased
7 incidence of lung cancer when the threshold limit has not
8 been exceeded." Do you recall ever making that statement
9 to Mr. Pufahl?

10 A. I don't recall making it to Pufahl, but I
11 agree with it.

12 Q. So you don't have any reason to doubt that you
13 may have stated that at that time, is that right?

14 A. I would say that's correct.

15 Q. Doctor, do you have any information, and you
16 may feel that this is a ridiculous question, but let me
17 just ask it anyway. Do you have any information that the
18 anatomical makeup of a native of England is any different
19 than the anatomical makeup of a person living in the United
20 States in 1966?

21 MR. HARVARD: Object to the form as
22 argumentative, ~~but go ahead.~~

23 A. They are mad at us. I can't answer the
24 question.

25 Q. Do you have any information that would

1 indicate to you in 1966 that a native of England was more
2 susceptible to asbesto-related diseases than persons in the
3 United States?

4 A. That, sir, would require a text because of the
5 high incidence of air pollution in England at that time and
6 at subsequent years and the effect that this might indeed
7 have upon the development of asbestosis.

8 Q. My question though relates to 1966 and that is
9 whether or not you had any information which indicated to
10 you that persons in England were more susceptible to
11 asbestos diseases than persons in the United States. Do
12 you have a recollection of having any information in that
13 regard at that time?

14 A. The only recollection I would have would be
15 that if you asked me that question in 1966 my answer would
16 be the same, that the high incidence of air pollution in
17 England would make it vary likely that the people exposed
18 to asbestos would be more likely to have asbestosis.

19 Q. Again, did you have that information in 1966?

20 MR. HARVARD: Asked and answered.

21 MR. POLK: No, it is not.

22 BY MR. POLK: _____

23 Q. Did you have that?

24 A. Certainly everybody knew about the air
25 pollution of England in 1966.

1 Q. So in your view, as of February 3, 1966, it
2 was your understanding and you held the belief that persons
3 in England were more susceptible to asbestos-related
4 diseases than persons in the United States?

5 A. I did not have that belief and I don't believe
6 in that particular thing. You are trying to create
7 something which did not exist in my personality at that
8 time.

9 MR. POLK: Bill, do you have that
10 document?

11 MR. HARVARD: We don't have it here,
12 Mike. I am sorry, we would love for you to fax us a copy
13 but I don't have it here with me.

14 MR. POLK: All right.

15 MR. HARVARD: We are happy to either
16 have you fax a copy or read portions of it to the Doctor
17 and ask him questions.

18 BY MR. POLK:

19 Q. Why don't I do that. Doctor the second
20 paragraph in your letter or, I am sorry, this is Mr.
21 Pufahl's letter, in fact I will read the first paragraph.
22 It says, "Dear Peter:" this is to Peter Cheston of Union
23 Carbide Limited, 8 Grafton Street, London, England. It
24 says, "Dear Peter: Your suggestion that we consider
25 including, 'U.K. paper industry' in our general sales

1 meeting is well taken -- and I plan to review the notes
2 with Ian Sayers.

3 'Apropos of your letter on toxicological
4 studies relative to asbestos -- we have reviewed the two
5 excerpts you sent us with Dr. Carl Dernehl. He counsels
6 that the papers 'do not by any means present
7 incontrovertible proof nor do they profess to do so.'
8 Further: 'Our position should remain that in United States
9 experience there has been no increased incidence of lung
10 cancer when the threshold limit has not been exceeded.'"

11 Doctor, does that help refresh your
12 recollection at all on this subject?

13 A. It states two things.

14 Q. Doctor, let me interrupt you. I am just
15 asking you if what I read helps refresh your recollection?
16 That's all I have asked you.

17 A. No.

18 Q. Now, let me just go on in this letter. In the
19 second paragraph of the letter it states this, again this
20 letter being written by Mr. Pufahl, "We will let you know
21 the results, probably in an appropriately written statement
22 by Dr. Dernehl." My question to you, Doctor, is this, do
23 you have any recollection of writing a statement at the
24 request of Mr. Pufahl dealing with the subject matter
25 that's contained within this letter?

1 will look at your letter of March 31, 1970, which I think
2 has now been marked as Exhibit 49, do you see that letter?

3 A. Yes, I have it.

4 Q. The last paragraph reads, "Some people believe
5 there is an association between exposure to asbestos dust
6 and the development of lung cancer and mesothelioma. There
7 is no information regarding Calridia asbestos in this
8 respect as yet. It would be prudent to assume that
9 Calridia asbestos will behave like other asbestos in this
10 regard." Do you see that reference?

11 A. Yes.

12 Q. Can we assume that that is something you wrote
13 since it's over your signature?

14 A. That's right.

15 Q. Would you agree with me then that as of March
16 31, 1970 you believe that Calridia asbestos may very well
17 cause mesothelioma?

18 A. No. I simply stated it wouldn't be prudent to
19 assume that this might happen. It does not mean that it
20 will happen.

21 Q. Would you agree with me that as of March 31,
22 1970 you thought that it was a possibility?

23 A. Anything is a possibility when you are dealing
24 with something like that.

25 Q. Well, you thought it was enough of a

1 possibility to write in your letter that a prudent person
2 should assume that it might occur?

3 A. That's right.

4 MR. HARVARD: I object to the form
5 because that is not what is stated. It does not state a
6 prudent person could assume that would occur. It states
7 what it says in the letter and I object to your
8 characterization.

9 MR. BROWNSON: Well, I think he has
10 already answered the question.

11 MR. HARVARD: My object is still on the
12 record. The Doctor answered prior to my objection. My
13 objection, I believe, is good.

14 MR. BROWNSON: The objection is noted.

15 MR. HARVARD: Good.

16 BY MR. BROWNSON:

17 Q. Did you also believe, Doctor, as of March 31,
18 1970 that mesothelioma could be caused by exposure to
19 asbestos below the then existing TLV or threshold limit
20 value?

21 A. I did not believe that because we had no
22 evidence to support such a belief.

23 Q. Well, I am not talking about Calcidia
24 specifically, I am talking about any type of asbestos. Let
25 me rephrase the question.

1 A. I think you said Calridia the first time.

2 Q. If I did, I will rephrase the question. As of
3 March 31, 1970 did you believe that mesothelioma could be
4 caused by exposure to any type of asbestos at levels below
5 the threshold limit value?

6 A. No, we did not.

7 Q. Let me refer you, Doctor, to what's been
8 marked as Exhibit 43, which is the asbestos toxicology
9 report of May 8, 1969. Do you see that?

10 A. Yes.

11 Q. Look at the last paragraph on Page 1.

12 A. Yes.

13 Q. The second to the last sentence which reads,
14 "From the data available it appears that the TLV of five
15 million particles per cubic foot may not be low enough to
16 protect against mesothelioma." Do you see that?

17 A. Yes.

18 Q. So would you agree with me that at least
19 according to Union Carbide's Asbestos Toxicology Report of
20 May 3, 1969 someone at Union Carbide believed that to be
21 true?

22 _____MR. HARVARD: Object to the form of the
23 question.

24 BY MR. BROWNSON:

25 Q. Go ahead and answer.

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1 MR. HARVARD: He is looking at the
2 report right now.

3 MR. BROWNSON: Excuse me.

4 MR. HARVARD: He is looking at the
5 report right now.

6 A. I said at the time that this statement was
7 made it was probably true because very shortly afterwards
8 the threshold limit level was lowered from five to two.

9 Q. Well, would you agree with me that at that
10 time you questioned whether even two million fibers per
11 cubic foot was an adequate threshold limit value to prevent
12 against mesothelioma?

13 A. No, I would not agree with that.

14 Q. Well, let me refer you, Doctor, then to a
15 letter which I think your Counsel has and I would ask that
16 we pull out. It was Exhibit 33, the letter of June 7, 1967
17 to Dr. Hall from yourself.

18 MR. HARVARD: Hold on on that. Let's
19 see if we can find it. June 7, '63, is that right?

20 MR. BROWNSON: '67.

21 MR. HARVARD: I am sorry, '67.

22 MR. BROWNSON: A two page letter on
23 Union Carbide stationery.

24 MR. LAURA: Can we go off the record?

25 (At this time a discussion was held off

1 the record.)

2 A. I can understand it. What's your question?

3 Q. Let's go back on the record here. My question,
4 Doctor, is this. In your letter of June 7, 1967 to Dr.
5 Hall, which has previously been marked as Dernehl
6 Deposition Exhibit 33, you make the statement on Page 2 in
7 the second full paragraph, "It is probable --" and I am
8 quoting, "It is probable that the five million particles
9 per cubic foot will not be acceptable for the prevention of
10 mesothelioma. I have no idea what concentration might be
11 effective in preventing this disease and I am wondering
12 whether a level of one million particles per cubic foot
13 would be acceptable." Do you see that reference?

14 A. Yes, I see that.

15 Q. Having read that would you agree that as of
16 June of 1967 you were questioning whether a threshold limit
17 value of one million particles per cubic foot would be
18 effective to prevent mesothelioma?

19 MR. HARVARD: Object to the form. Go
20 ahead, Doctor.

21 A. No. Actually this is a simple statement that
22 you say, "Gee, I wonder if --" and it simply says here -- I
23 simply say here I wonder whether a limit of one million
24 particles would be effective.

25 Q. That's right.

1 A. Two million particles might still be effective.

2 Q. But I guess the question is there was at least
3 some question in your mind as of that date whether one
4 million might be effective or not?

5 A. No, not really. I was just simply expressing
6 an opinion about the uncertainty of this thing and I used
7 the "I wonder if" as a way of doing that.

8 Q. Would you agree with me that as of June 7,
9 1967 you believed there was some uncertainty as to whether
10 the threshold limit value would prevent mesothelioma?

11 A. Depends upon what the threshold limit value
12 was.

13 Q. Let's take five million fibers per cubic foot.

14 A. Five million particles per cubic foot was
15 probably too high on the basis of the fact that it had
16 subsequently been lowered to two.

17 Q. Would you agree with me as far as you were
18 concerned you did not know whether two million fibers per
19 cubic foot would prevent mesothelioma?

20 A. No, I did not know that.

21 Q. Do you believe that as of 1967 Union Carbide
22 should have conveyed to its customers the fact that it was
23 not certain whether two million particles per cubic foot
24 would prevent mesothelioma?

25 MR. HARVARD: Object to the form of the

28
1 question. You can answer, Doctor, if you can.

2 A. I would say no simply because it would have
3 been going contrary to the generally accepted opinions of
4 that day and time.

5 Q. Do you believe that as of June of 1967 Union
6 Carbide should have told its customers of Calridia asbestos
7 that two million fibers per cubic foot threshold limit
8 value would prevent mesothelioma?

9 MR. HARVARD: Object to the form of the
10 question and also object to the question in so far as it's
11 talking about what a corporation should or should not have
12 done which may be outside the realm of anyone's perview
13 other than the jury's in this case. Answer the question,
14 if you can, Doctor.

15 A. No, I don't think I can answer that.

16 Q. Do you believe, Doctor, that as of August of
17 1972 Union Carbide Corporation should have told its
18 customers of Calridia asbestos that if they were within the
19 threshold limit value they did not need to worry about any
20 disease among their employees?

21 MR. HARVARD: Object to the form. Same
22 objection as before. Answer the question if you can,
23 Doctor.

24 A. I think the corporation had the right to
25 inform its customers that on the basis of current knowledge,

1 which was a threshold limit value, that they could expect
2 the employees to be protected against the hazard.

3 Q. Doctor, would that include the hazard of
4 mesothelioma as of August of 1972?

5 A. Mesothelioma must have been considered in this
6 setting of the threshold limit value.

7 MR. HARVARD: I object. I have the same
8 form of objection to that question as I previously stated.
9 I don't think the Court Reporter heard it. The Doctor and
10 I were talking at the same time.

11 BY MR. BROWNSON:

12 Q. Doctor, do you believe that as of 1967 Union
13 Carbide should have stated in a label on Calridia asbestos
14 bags that there was a possibility that Calridia could cause
15 mesothelioma?

16 MR. HARVARD: Object to the form of the
17 question and I will also state that this entire line of
18 questioning was done on earlier cross-examination and I am
19 objecting to the question as having previously been asked
20 and answered. It's also beyond the scope of the direct
21 examination which was just conducted.

22 MR. BROWNSON: Are you going to let him
23 answer?

24 MR. HARVARD: You can answer the
25 question, if you can, Doctor.

24
1 A. Would you repeat the question? In the
2 conversation I lost it.

3 MR. BROWNSON: Would you read that,
4 Kirby?

5 (At this time the requested portion of the
6 transcript was read aloud by the Court
7 Reporter.)

8 MR. HARVARD: Same objections.

9 A. In 1967 there was no evidence that Caltridia
10 asbestos would cause mesothelioma so there is no point in
11 putting it on the label.

12 Q. Doctor, earlier this afternoon Mr. Kennedy
13 asked you some questions about or Mr. Harvard, I am sorry,
14 asked you some questions about the toxicology reports and
15 who they would be sent to and that sort of thing. Do you
16 recall that?

17 A. Yes.

18 Q. Do you have any information, Doctor, that any
19 asbestos toxicology report from Union Carbide was in fact
20 sent to Conwed Corporation?

21 A. I have no information on that.

22 Q. Let me pose to you some hypothetical questions.

23 MR. HARVARD: Object to the form of any
24 hypotheticals.

25 MR. BROWNSON: Objection is noted, Bill.

1 BY MR. BROWNSON:

2 Q. Number 1, if Union Carbide personnel conducted
3 air sampling at the Conwed plant in 1972, assume that's
4 true, Doctor, do you believe those Union Carbide industrial
5 hygienists should have informed Conwed that Calridia could
6 possibly cause mesothelioma?

7 MR. HARVARD: Object to the form of the
8 question. Object to the question as calling for
9 speculation. Object to the question as a hypothetical.
10 Object to the question as argumentative. Go ahead, Doctor,
11 answer if you can.

12 A. Well, in 1972 there was still no evidence that
13 Calridia asbestos could cause mesothelioma.

14 Q. So would your answer to the question be no,
15 Doctor?

16 MR. HARVARD: I believe the Doctor
17 answered the question.

18 MR. BROWNSON: Well, I don't think he
19 did.

20 MR. LAURA: He obviously felt it didn't
21 call for a yes or no answer.

22 BY MR. BROWNSON:

23 Q. Doctor, answer this question. Assume
24 hypothetically that Union Carbide personnel conducted air
25 sampling at the Conwed premises in 1972. Do you believe

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1 those Union Carbide personnel should have informed Conwed
2 that Caltridia asbestos exposure below the threshold limit
3 value could cause mesothelioma?

4 MR. HARVARD: Object to the form of the
5 question. Object to the form as hypothetical. Object to
6 the form as argumentative. Calling for speculation.
7 Object to the form as calling for information outside the
8 scope and the knowledge of this witness. Further object as
9 asked and answered. Go ahead and answer the question now,
10 Doctor, if you can.

11 A. First of all, the only thing I can say is that
12 I know of no evidence that Union Carbide people ever did
13 make any surveys at Conwed.

14 Q. That's why I asked it hypothetically, Doctor,
15 because I know you are not aware of that.

16 A. I would expect that Union Carbide people would
17 inform the Conwed people that they were within the
18 threshold limit value and that was really the only thing
19 that we were in a position to answer to.

20 Q. Let me ask the further hypothetical and save
21 time. I assume your same objections will be made and they
22 are noted here.

23 MR. HARVARD: I will just place my
24 objections to the last question to this question.

25 BY MR. BROWNSON:

1 Q. Do you believe, Doctor, that if Union Carbide
2 personnel were asked at the time of such air sampling that
3 they should have disclosed that any disease could be caused
4 by exposure to asbestos under the threshold limit value?

5 MR. HARVARD: Same objection.

6 A. I am not sure I can answer that question the
7 way it was worded.

8 Q. Why is that, Doctor?

9 A. Well, the way I -- well, I can't understand it
10 the way it was worded, especially the last part of it.

11 Q. Let me rephrase it and it will be the same
12 hypothetical and the same objections are noted. Do you
13 believe, Doctor, if Union Carbide personnel were conducting
14 air sampling at the Conwed plant in 1972 and were asked by
15 Conwed whether exposure to Caltridia asbestos under the
16 threshold limit value could cause disease, do you believe
17 then they should have -- strike that. What response should
18 they have given to that question if asked?

19 MR. HARVARD: Same objections, plus
20 object to the compound nature of the question.

21 A. My opinion is that their response should have
22 been that they were not qualified to answer that question.

23 Q. If those Union Carbide personnel who were not
24 qualified to answer the question wanted an answer in August
25 of 1972 who within Union Carbide could they have turned to

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1 at that time to get an answer?

2 A. They would have come to probably my office in
3 New York.

4 Q. Doctor, I have a few more questions here.
5 Earlier this afternoon Mr. Harvard was asking you about
6 Calridia being short fibered. Do you remember those
7 questions?

8 A. Yes.

9 Q. Do you recall what the definition of asbestos
10 was by OSHA in 1972, how they defined asbestos?

11 A. No, I don't recall that.

12 Q. Have you ever heard asbestos defined as a
13 fiber of five microns in length? Have you ever heard that
14 definition used?

15 A. Well, I suppose that would be -- could be five,
16 or six, or seven, or eight, or 10, or 20.

17 Q. I am just wondering if you have heard the
18 definition of five microns used in any context?

19 A. Well, I have heard the -- well, I am not sure
20 I can answer it in that regard. I have heard of the fact
21 that asbestos is described as a material of varying fiber
22 length varying from actually two and three microns up to 20
23 or more microns.

24 Q. Let me ask you this, Doctor. Would you agree
25 with me that those Calridia asbestos fibers which are less

282
1 than five microns in length are still asbestos fibers?

2 A. Sure.

3 Q. In other words, what I am getting at, Doctor,
4 is just because a Calridia fiber might be less than five
5 microns or ten microns or any other length, it's still an
6 asbestos fiber, would you agree with that?

7 A. Yes.

8 Q. Do you know, Doctor, what resolution a 400
9 power Leitz phase contrast microscope would have?

10 A. No idea.

11 Q. I think you told us earlier you hadn't
12 actually counted fibers under a microscope, but I am
13 wondering now if you simply know what the resolution of
14 such a microscope would be?

15 A. No, I have no idea.

16 Q. One final question, Doctor. If a person were
17 counting Calridia asbestos fibers, do you agree with me
18 that they should count all Calridia asbestos fibers even if
19 they are less than five microns in length?

20 MR. HARVARD: Object to the form. There
21 is no context in which that question is given. I don't
22 know that it's capable of an answer being in the abstract,
23 unless it's set forth for what purpose this counting or
24 measurement is assumed to be used.

25 BY MR. BROWNSON:

253

1 Q. That's fair enough. Let me rephrase the
2 question, Doctor. If a person were testing the air to see
3 if there were Calcidia asbestos fibers in the area, would
4 you agree with me that that person, to determine the number
5 of fibers in the air, should count all Calcidia fibers,
6 whether or not they are less than five microns in length?

7 MR. HARVARD: I have the same objection
8 as still being overly broad and vague for purposes of
9 giving a meaningful answer. Answer it if you can, Doctor.

10 A. I can't answer it because I am not an expert
11 in the counting of fibers and the guys that set up the
12 criteria for fiber counting have their own rules with which
13 I am not familiar.

14 Q. Do you know if Union Carbide at any time set
15 up its own criteria as to how to measure or count Calcidia
16 fibers?

17 A. I have no way of knowing.

18 Q. You never had anything to do with that, I take
19 it?

20 A. Absolutely not.

21 Q. Do you know who at Union Carbide would have
22 had something to do with that?

23 A. I would assume either B. W. McDaniel or L. J.
24 LaFrance.

25 MR. BROWNSON: That's all I have, Doctor.

1 Thank you.

2 MR. HARVARD: I have some very brief
3 redirect, probably three to four minutes. Doctor, are you
4 able to do that much right now?

5 THE WITNESS: Yes.

6 MR. HARVARD: Does anybody else have any
7 other questions before I do my very brief redirect?

8 MR. BROWNSON: I have a couple more,
9 Bill. Can I just ask them?

10 MR. HARVARD: Go ahead.

11 BY MR. BROWNSON:

12 Q. Earlier, Doctor, Mr. Harvard had asked you
13 about Dr. Langer's article that we asked you about last
14 week. Do you have any reason to believe, as you sit here
15 today, that Dr. Langer's research on Caltricia asbestos is
16 not valid?

17 MR. HARVARD: Object to the form of the
18 question. The Doctor doesn't have Dr. Langer's research in
19 front of him nor am I aware that Dr. Dernehl has ever seen
20 Dr. Langer's research, nor in fact do we have before us a
21 copy of the conclusions Dr. Langer reached in the paper
22 which he published.—Absent Dr. Dernehl having an
23 opportunity to review those prior to answering such a
24 question I will object to it and I will direct the witness
25 not to answer.

1 MR. BROWNSON: Well, would you agree
2 with me, Bill, that Dr. Dernehl did, we spent quite a bit
3 of time doing it, he did read the Langer article last week,
4 we showed it to him and presented it to him and he read it.

5 MR. HARVARD: Weren't these questions
6 covered then, Bob? Quite frankly I don't remember whether
7 he did or not. Why don't you ask him that question.

8 BY MR. BROWNSON:

9 Q. Do you remember reading the article I showed
10 you about Dr. Langer's study of the Calidria fiber?

11 A. I remember reading an article. It seems to me
12 that that was an article which was devoted to description
13 of the asbestos fiber.

14 Q. Right. That's the article. All I am
15 wondering, Doctor, and you can just answer yes or no, do
16 you have any information that there is anything in that
17 article that you can tell us now that you disagree with or
18 that you believe is not valid?

19 MR. HARVARD: I have the same objection
20 since he does not have the article before him. He looked
21 at it over a week ago. I believe he stated at the time it
22 was the first time he had seen that article. I think it's
23 inappropriate to attempt to cross-examine him over the
24 telephone with that document at this time. I will let him
25 answer the question, but I place those objections on the

1 record. Doctor, you can answer.

2 A. My answer is simple. I am not in a scientific
3 activity or branch that could comment upon the accuracy and
4 correctness of Dr. Langer's article.

5 MR. BROWNSON: That's all I need. Thank
6 you.

7 MR. THORNSJO: Bill, before you do a
8 redirect, I am the attorney for Celotex in Carey, Canada.

9
10 CROSS-EXAMINATION

11 BY MR. THORNSJO:

12 Q. Doctor, good afternoon.

13 MR. HARVARD: He doesn't much like you,
14 Dale.

15 BY MR. THORNSJO:

16 Q. Good afternoon, Doctor.

17 A. Yes.

18 Q. Doctor, I just have one question. Are you
19 familiar with a concept or a hypothesis known as the
20 Stanton hypothesis?

21 A. Never heard of it.

22 MR. THORNSJO: Thank you, Doctor.

23 MR. HARVARD: Anybody else?

24 MR. POLK: Bill, I am not going to have
25 anything further today, but it is my understanding from

1 last Friday that we were going to complete this part of the
2 deposition so as to afford Union Carbide the opportunity to
3 either direct or rehabilitate Dr. Dernehl. I am not
4 waiving any right to further discovery of Dr. Dernehl. I
5 want to make that clear on the record.

6 MR. HARVARD: You have made that
7 statement, Mike. I will place a brief statement on the
8 record that the reason I requested the deposition be
9 continued until today was not to attempt to rehabilitate or
10 do anything else with Dr. Dernehl other than to ask him
11 those questions which I find Union Carbide wanted asked and
12 answered by Dr. Dernehl on the record. I would like to at
13 least bring the end of -- at the end of your questioning
14 bring this deposition to a close and to the extent Federal
15 Rules, State's Court Rules or rules of any other Court
16 permits further inquiry of Dr. Dernehl on any subject then
17 we will take up the matter of that discovery when it's
18 requested.

19 MR. POLK: That's fine.

20

21 REDIRECT EXAMINATION

22 BY MR. HARVARD:

23 Q. Let me go ahead. I will be real quick with
24 this redirect. Doctor, again, I am Bill Harvard. I
25 represent Union Carbide along with other attorneys in this

1 case. On cross-examination by Mr. Brownson a moment ago he
2 asked you about asbestos toxicology reports. Do you recall
3 that?

4 A. Yes.

5 Q. With respect to asbestos toxicology reports,
6 which were prepared by Union Carbide Corporation, were they
7 required or mandated by any agency of the Federal or State
8 government that you recall?

9 A. Not at that time.

10 Q. Were they required or Union Carbide to provide
11 those to customers before customers would enter into
12 business relationships with Union Carbide, if you know?

13 A. Not that I know of.

14 Q. Were these asbestos toxicology reports, as
15 well as toxicology reports on hundreds of other chemicals,
16 marked by Union Carbide provided to the customer as a
17 service to those customers, if you know?

18 A. Yes, they were.

19 Q. At your last deposition you were asked about
20 dust studies which may or may not have been accomplished by
21 Union Carbide personnel at customer plant job sites. Do
22 you recall those questions?

23 A. Not too well.

24 Q. Do you recall the hypotheticals which Mr.
25 Brownson asked a few minutes ago about what if something

1 had happened where Union Carbide did do such studies at a
2 Conwed plant?

3 A. Yes, I recall those.

4 Q. Was Union Carbide Corporation required, to the
5 best of your knowledge, by any Federal or State government
6 or mandated by those governments to perform any dust
7 studies at customer job site locations?

8 A. They were not.

9 Q. To the extent that Union Carbide may have
10 performed any such studies, were they done, to your
11 knowledge, as a courtesy or a service to those customers?

12 MR. BROWNSON: Well, I am going to have
13 to object to that as a hypothetical, to follow form here.

14 MR. HARVARD: Sure.

15 BY MR. HARVARD:

16 Q. Answer if you can, Doctor. Let me ask the
17 question differently. Do you know whether Union Carbide in
18 fact provided such dust study services to any customers?

19 A. I do not know that they ever did.

20 Q. So you cannot comment positively, negatively
21 or any direction on such a program, is that correct?

22 A. That is correct.

23 Q. Doctor, with respect to Caltridia asbestos
24 fibers, what did you recall was generally the length of the
25 fibers which you recall as being Caltridia asbestos?

1 A. Five microns or less.

2 Q. You answered Mr. Brownson's question a
3 movement ago that in your opinion if Calcidia was less than
4 five microns in length it should still be considered by you
5 to be asbestos, is that correct?

6 A. That's correct.

7 Q. In that regard, Doctor, while you may still
8 consider it to be asbestos, because of the unique short
9 fiber nature of the Calcidia asbestos, do you have an
10 opinion as to whether it may cause different reactions in
11 an individual's body if it was inhaled by someone from
12 other long fibered asbestos?

13 A. Yes.

14 Q. And what opinion would that be?

15 A. Well, the evidence that we have is that,
16 Number 1, the short fiber material is cleared from the
17 lungs more rapidly than is the long fibered material; in
18 other words, the particles are small enough that they are
19 readily moved out of the lung by the cilius of the
20 respiratory tract. Furthermore, the very fact that the
21 material is short fiber, and not only short fiber but a
22 very small diameter, gives it quite different
23 characteristics of the longer stiffer types of asbestos
24 that we generally express, that long fibered material.

25 Q. Doctor, does the fact that you still consider

1 Calidia of five or less than five microns in length to
2 still be asbestos, does that fact change any of the
3 responses that you gave to me earlier on direct examination
4 when I questioned you about the capacity of Calidia
5 asbestos to your knowledge to cause such diseases as lung
6 cancer or mesothelioma?

7 MR. POLK: I will object to the form of
8 that question as being overly broad and vague and compound.

9 MR. BROWNSON: I also object to it.

10 BY MR. HARVARD:

11 Q. If you can answer it, Doctor, please answer it.

12 A. I think the question is best answered by the
13 simple statement that asbestos is a chemical entity. It
14 doesn't make any difference whether it's three microns,
15 three-tenths of a micron or 20 microns long, it's still the
16 same chemical entity and it's still in that regard asbestos.

17 Q. Doctor, you are now how old?

18 A. 75.

19 Q. You have been cross-examined today as well as
20 at your previous deposition about a number of events which
21 occurred as far back as 40 to 41 years ago covering your
22 time with Union Carbide, is that correct?

23 A. 40 or 41.

24 Q. Doctor, in a number of your responses to
25 questions you stated that you could not recall or you did

1 not recall certain things, certain incidences, is that
2 right?

3 A. Yes, it is.

4 Q. Is that in some part due to the passage of
5 time which has occurred since the events on which you were
6 cross-examined?

7 A. Undoubtedly. I can't remember everything that
8 happened.

9 MR. HAVARD: Doctor, thank you very much.
10 Somebody may have a few additional followup questions, but
11 I don't at this time.

12

13 RECROSS-EXAMINATION

14 BY MR. POLK:

15 Q. I have three followup questions. Doctor, this
16 is Mike Polk representing the Plaintiff again. Because of
17 the long passage of time, which you were just asked about
18 by Mr. Harvard, would you agree with me that the documents
19 that were drafted and written at earlier times, such as in
20 the 1960's, would necessarily be more reliable than your
21 memory?

22 MR. HARVARD: Object to the form of the
23 question because there is no context in which that is
24 placed. I think it's an open-ended question and I think
25 it's one incapable of answering as asked. Doctor, if you

1 can answer the question, please answer it.

2 A. Well, I would say that the written word would
3 be more reliable than my memory at the present time.

4 Q. Thank you, Doctor. One other question, Doctor.
5 When was the first time that you understood that cigarette
6 smoking could be hazardous to a persons's health?

7 A. I would guess probably in the '30s.

8 Q. And, Doctor, do you have a recollection as to
9 whether or not the government ever required a warning to be
10 placed on packages of cigarettes?

11 A. Yes.

12 Q. Do you recall, sir, when that was?

13 A. No, I don't.

14 Q. Now, do you have any information that would
15 indicate to you that the manufacturers of cigarettes had
16 reason to know that cigarettes could be a health hazard
17 prior to the time that the government required warnings on
18 cigarette packages?

19 A. I am sorry, that's out of my realm of
20 expertise, I can't answer that.

21 MR. POLK: Thank you very much, Doctor.
22 That's all I have.

23 MR. LAURA: Mike, before we go we talked
24 about this, why don't you pass a copy of that document that
25 you read from over to Bruce?

1 MR. JONES: Before we conclude, we also
2 need to clarify what we are going to do with Exhibit 49,
3 the signed or the unsigned version.

4 MR. HARVARD: Anthony is walking out now
5 with the signed copy which he is faxing you all.

6 MR. HARVARD: I will give it to Kirby.

7 MR. POLK: That's fine by me, and I
8 appreciate that. Bill, maybe you can give me an
9 explanation in written letter or something as to what your
10 position is on the signed and unsigned copy?

11 MR. HARVARD: I can tell you right now.
12 I have letters and files from different companies as well
13 as in my own files where I have a copy of the unsigned
14 office copy as well as the signed copy that was sent out
15 and received by somebody. My office practice is we make
16 copies of the letters and stick them in the file before
17 they are signed but, you know, that's -- I think that's
18 likely what happened here but that's just a guess on my
19 part. I don't know what else it was that Union Carbide did
20 or how they do their business, but I know that's how the
21 U.S. Navy did it. That's where I learned my administration
22 skills.

23 THE WITNESS: In the Carbide operation
24 the signed copies were received by somebody, the file
25 copies were not signed.

1 MR. JONES: Before we go, Bill, would
2 you advise the Doctor about reading and signing?

3 MR. HARVARD: Doctor, you have the right
4 to read the deposition to see if it is in fact an accurate
5 reproduction of what we have said here between us. We
6 would like for you to review that deposition. I know it
7 may be difficult for you to read it because of the length
8 that may be involved. Could the parties agree that Dr.
9 Dernehl could perhaps sit down with someone and read it out
10 loud to him? I would like for you to review the deposition,
11 Doctor.

12 THE WITNESS: If they send me the
13 deposition I would be happy to go ahead and read it and
14 then indicate whatever changes I think need to be made in
15 it and sign it in the presence of a notary.

16 MR. HARVARD: We would request that Dr.
17 Dernehl do read and sign. Dr. Dernehl, any changes which
18 you note which should be made should reflect that there
19 were incorrect -- that the thing was incorrectly written
20 down, not that you would like to change that answer.

21 THE WITNESS: I understand. One other
22 thing, how long do I have to do this?

23 MR. JONES: Thirty days from the time
24 that you get the copy. We will make clear in the
25 transmittal letter when you have to have it back.

1 MR. JONES: Are we adjourned then?

2 MR. HARVARD: Yes.

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1 chrysotile or, excuse me, short fiber Calcidia asbestos and
2 the disease process known as mesothelioma?

3 MR. POLK: Same objection as previously
4 noted.

5 BY MR. HARVARD:

6 Q. Did you have such an opinion, Doctor?

7 A. Yes, I did.

8 Q. What was your opinion?

9 A. I knew of no such association.

10 Q. Doctor, at the time you retired from Union
11 Carbide Corporation in 1979 where were you working
12 physically?

13 A. New York.

14 Q. Were the files which you maintained in your
15 various aspects as associate medical director there with
16 you in New York?

17 A. Yes, they were.

18 Q. When you left that employment in 1979 do you
19 have any personal knowledge as to where the files which you
20 had maintained were sent?

21 A. My information was that they were boxed and
22 sent down to ~~West~~ Charleston, West Virginia.

23 MR. HARVARD: Thank you, Doctor. Next
24 witness.

25 MR. POLK: Thank you, Bill.

1
2 STATE OF MINNESOTA)
3) SS.
4 COUNTY OF HENNEPIN)

5 Be it known that I took the deposition of CARL U.
6 DERNEHL, M.D., on the 10th and 15th days of March 1989, at
7 Springfield, Missouri;

8 That I was then and there a Notary Public in and for
9 the County of Hennepin, State of Minnesota, and that by
10 virtue thereof, I was duly authorized to administer an
11 oath;

12 That the witness before testifying was by me first
13 duly sworn to testify the whole truth and nothing but the
14 truth relative to said cause;

15 That the testimony of said witness was recorded in
16 Stenotype by myself and transcribed into typewriting under
17 my direction, and that the deposition is a true record of
18 the testimony given by the witness to the best of my
19 ability;

20 That I am not related to any of the parties hereto
21 nor interested in the outcome of the action;

22 That the reading and signing of the deposition by
23 the witness was executed as evidenced by the preceding
24 page;

25 That Notice of Filing was waived.

WITNESS MY HAND AND SEAL this 17th day of March,
1989.

Kirby A. Kennedy
Court Reporter

Chemical Hygiene Fellowship
MELLON INSTITUTE
Carnegie-Mellon University

Calidria Asbestos-Resin Grade RC 244

Tracheal Insufflation of Rat Lungs with Interpretation
of Pathology after 30, 60, 90 and 180 Days

Editor: C. P. Carpenter

Contributors: D. L. Geary, Jr., E. R. Kinkead,
R. C. Myers, D. J. Nachreiner

For: UNION CARBIDE CORPORATION, Chemicals and Plastics Operations Division

Sample

A 500-gram sample of Resin Grade RC 244 UCC Calidria Asbestos was received 11-30-70, from King City, California, pursuant to arrangements made by Paul McDaniel of the New York Office. The sample was identified by the Chemical Hygiene Fellowship #33-251.

Tracheal Insufflation

A 1% (W/V) suspension of the RC 244 sample was prepared in 0.85% saline. All needles, syringes and suspensions were sterilized prior to use. Either 1 ml or 0.5 ml amounts of the sterile 1% suspension were injected into the rat lung through the trachea, exposed by blunt dissection, after a midline cervical incision. Following injection of these 200 to 300 gram, male albino, Harlan Wistar rats the incisions were closed with Michael wound clamps until healing ensued.

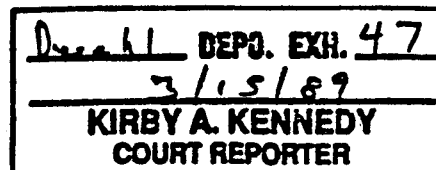
A total of 13 rats were dosed with 1 ml and 15 with 0.5 ml of the 1% suspension while 11 control rats received 1 ml of sterile 0.85% NaCl. Three rats from each asbestos dosed group and 2 controls were killed for histopathologic examination of the lung after intervals of 30, 60 and 90 days which left groups of 4, 6 and 5 rats on the 1 ml, 0.5 ml asbestos and control for the 180 day sacrifice.

Summary of Microscopic Pathology Found 30, 60, 90 and 180 Days

Following Tracheal Insufflation of Rats

The 30-day pathology was marked by the presence of granulation tissue with thickening of the structural elements of the lung (stroma) and the accumulation of giant cells often associated with foreign bodies.

61067



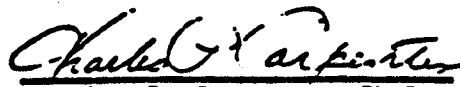
After 60 days one rat on the 0.5 ml dosage level had inflammation and in-growth of connective tissue which blocked a terminal bronchus. Two of 3 rats on both the 1.0 and 0.5 ml dosage level had atelectasis (collapse) of one or more lobes of the lung. Fibrotic foreign body nodules were present in all cases.

After 90 days there was chronic foreign body pneumonia in 2 of 3 rats at both dosage levels, fibrotic foreign nodules in 3 of 3 and emphysema in 2 of 3. Chronic inflammatory cell foci and atelectasis were present. Bronchioles were dilated in 2 of 3 rats on both dosage levels and all but one on both dosage levels had some lung hemorrhage.

The final 180 day sacrifice revealed interstitial pneumonia in 4 rats on the 0.5 ml dose. This is a chronic form of pneumonia of interstitial tissue with decrease of the normal lung tissue. Atelectasis was present in the 4 rats on 1 ml and on 1 rat on the 0.5 ml dose of asbestos with the 5 controls normal. Fibrotic foreign body tissue was present in all dosed lungs with none in the controls. Pink hyalin material was found in 2 of 4 lungs from rats on the 1 ml dose while in 3 of 4 there was a bluish homogeneous material evident.

In essence, a total of 10 of 13 rats on the 1 ml dose and 12 of 15 on the 0.5 ml dose had fibrotic foreign body nodules or tissue. There were 3 cases of emphysema on the high dose and 4 on the low dose and 1 in the control. Atelectasis (essentially collapse of lung alveoli) was present in 9 rats on 1 ml and 6 on 0.5 ml of asbestos with none reported in the controls. In general, because of the overwhelming preponderance of effect in the asbestos dosed lungs versus the controls, we have sufficient evidence of damage to warn us to do our best to prevent inhalation of concentrations of asbestos in excess of the Threshold Limit Value proposed for 1970, (Threshold Limit Values of Airborne Contaminants and Intended Changes. Adopted by ACGIH for 1970. American Conference of Governmental Hygienists, 1014 Broadway, Cincinnati, Ohio 45202).

Summary Tables for each of the four sacrifices are included. Detailed pathology reports on each animal are available and copies can be furnished if the need for them arises. A literature review prepared in connection with another request for information is attached although not requested.


Charles P. Carpenter, Ph.D.
Administrative Fellow

Acknowledgments:

Inhalation Studies

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Research Associate
Edwin R. Kinkad, B.S.
Fellow
Roy C. Myers, B.S.
Research Assistant
Donald J. Nachreiner, B.S.
Research Assistant

Typed: September 7, 1971 - md

Table 34-18

Tracheal Insufflation to Rats Sacrificed 30 Days After Dosing

		Ml of 1% Solution		
		1	0.5	0.0
<u>TOTAL NUMBER EXAMINED GROSSLY:</u>		3	3	2
<u>LUNG:</u> Number Examined	(M)	3	3	2
Pneumonia	(G)	3	3	0
Hemorrhage	(G)	1	0	0
Pleural adhesions	(G)	1	2	0
Stromal thickening	(M)	3	2	0
Foam cell accumulations	(M)	3	2	0
Granulation tissue foci	(M)	3	3	0
Multinucleated giant cells	(M)	3	2	0
Abscess bronchopneumonia	(M)	0	1	0
Round cell accumulations	(M)	0	0	1
<u>TRACHEA:</u> Number Examined	(M)	3	3	2
Chronic tracheitis	(M)	0	0	1

The following tissues were examined microscopically on all animals: Lung, Liver, Kidney, Heart, Spleen, Adrenal, Thyroid, Parathyroid, Trachea and Esophagus. G = Gross M = Microscopic

Table 34-20

Tracheal Insufflation to Rats Sacrificed 60 Days After Dosing

		Ml of 1% Solution		
		1	0.5	0.0
<u>TOTAL NUMBER EXAMINED GROSSLY:</u>		3	3	2
<u>LUNG:</u> Number Examined	(M)	3	3	2
Hemorrhage	(G)	0	0	1
Pneumonia	(G)	3	3	0
Atelectasis	(G)	0	2	0
Edema	(G)	1	2	0
Hemorrhage	(M)	1	0	0
Atelectasis	(M)	2	2	0
Fibrotic foreign body nodules	(M)	3	3	0
Bronchiolitis fibrosa obliterans	(M)	0	1	0
<u>KIDNEY:</u> Number Examined	(M)	3	3	2
Round cell accumulations	(M)	1	0	0
<u>HEART:</u> Number Examined	(M)	3	3	2
Focal myocarditis	(M)	0	1	0
<u>MUSCLE:</u> Number Examined	(M)	1	0	0
Purulent mass	(G)	1	0	0
Large suppurative process, striated muscle	(M)	1	-	-

The following tissues were examined microscopically on all animals: Lung, Liver, Kidney, Heart, Spleen, Adrenal, Thyroid, Parathyroid, Trachea and Esophagus. G = Gross M = Microscopic

Table 34-21

Tracheal Insufflation to Rats Sacrificed 90 Days After Dosing

		Ml of 1% Solution		
		1	0.5	0.0
<u>TOTAL NUMBER EXAMINED GROSSLY:</u>		3	3	2
<u>LUNG: Number Examined</u>	(M)	3	3	2
Pleural adhesions	(G)	0	2	0
Hemorrhage	(G)	0	2	0
Edema	(G)	3	3	0
Pneumonia	(G)	3	3	0
Chronic foreign body pneumonia	(M)	2	2	0
Fibrotic foreign body nodules	(M)	3	3	0
Emphysema	(M)	2	2	0
Chronic inflammatory cell foci	(M)	3	3	0
Round cell foci	(M)	0	1	1
Atelectasis	(M)	3	3	0
Bronchiectasis	(M)	2	2	0
Stromal thickening	(M)	1	0	0
Hemorrhage	(M)	3	2	0
Inhaled blood	(M)	0	1	0
<u>KIDNEY: Number Examined</u>	(M)	3	3	3
Hydronephrosis	(G)	0	0	1
Hydronephrosis	(M)	0	0	1
Round cell focus	(M)	0	1	0
<u>TRACHEA: Number Examined</u>	(M)	3	3	3
Chronic tracheitis	(M)	2	1	2
<u>HEART: Number Examined</u>	(M)	3	3	3
Myxoid change, interstitium	(M)	0	1	0

The following tissues were examined microscopically on all animals: Lung, Liver, Kidney, Heart, Spleen, Adrenal, Thyroid, Parathyroid, Trachea and Esophagus.

G - Gross

M - Microscopic

C1680

C1680

Table 34-22

Tracheal Insufflation to Rats Sacrificed 180 Days After Dosing

		Ml of 1% Solution		
		1	0.5	0.0
<u>TOTAL NUMBER EXAMINED GROSSLY:</u>		4	6	5
<u>LUNG:</u> Number Examined	(M)	4	6	5
Edema	(G)	2	0	1
Pneumonia	(G)	4	5	1
Atelectasis	(G)	2	0	1
Emphysema	(G)	0	0	1
Emphysema	(M)	1	2	1
Atelectasis	(M)	4	1	0
Inhalation pneumonia	(M)	1	0	0
Interstitial pneumonia	(M)	0	4	0
Abscess bronchopneumonia	(M)	0	0	1
Suppurative bronchiectasis	(M)	1	0	0
Acute bronchitis	(M)	0	0	1
Lymphoid cell accumulations	(M)	3	0	0
Foam cell accumulations	(M)	2	1	3
Fibrotic foreign body tissue	(M)	4	6	0
Granulation tissue foci	(M)	0	1	0
Pink hyalin material	(M)	2	0	0
Bluish homogeneous material	(M)	3	1	0
Numerous mononuclear cells	(M)	1	0	0
Mucoid infiltration	(M)	2	0	0
Proliferation bronchiole epithelium	(M)	0	0	1
<u>LIVER:</u> Number Examined	(M)	4	6	5
Bile duct proliferation	(M)	0	2	1
Round cell foci	(M)	1	0	0
<u>KIDNEY:</u> Number Examined	(M)	4	6	5
Hydronephrosis	(G)	0	1	0
Sand calculi	(G)	0	1	0
Hydronephrosis	(M)	0	1	0
Sand calculi	(M)	0	1	0
Dilated tubules	(M)	0	2	2
Pink casts	(M)	0	2	1
Interstitial nephritis	(M)	0	1	0
Cellular infiltration	(M)	0	1	0
Slight tubular regeneration	(M)	0	1	3
Moderate tubular regeneration	(M)	0	0	1
<u>TRACHEA:</u> Number Examined	(M)	4	6	5
Acute tracheitis	(M)	1	0	0
Chronic tracheitis	(M)	0	4	0

The following tissues were examined microscopically on all animals: Lung, Liver, Kidneys, Heart, Spleen, Adrenal, Thyroid, Parathyroid, Trachea and Esophagus. G = Gross M = Microscopic

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- SECRET 100-11
Page 1
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ASBESTOS

ASBESTOS TOXICOLOGY REPORT

It has been known for years that some persons working in asbestos production were prone to develop a disabling lung disease. In time, this condition became known as asbestosis and was related to exposure to high concentrations of asbestos dust. With further experience, it was found that men could work with asbestos without development of lung disease if dust concentrations were kept below a certain level.

It has been generally accepted that a worker will not develop asbestosis if he is exposed to no more than 5 million particles per cubic foot of air, even if this exposure continues for his entire working lifetime. Although no cases of asbestosis are known to have occurred when exposures have been maintained at or below this level, the ACGIH (which sets the threshold limit value (TLV) in the U. S. A.) has indicated they intend to lower the TLV for asbestos to 2 million particles per cubic foot in an effort to increase the safety factor incorporated in the limit. The U. S. Department of Labor has already issued a regulation under the Walsh-Healy Act placing the TLV for asbestos at 2 million particles per cubic foot for public contracts in which they have jurisdiction. This concentration of dust is generally not visible in the average work area unless a beam of light causing a Tyndall effect is present. Usually the dust concentration must be from 8-10 million particles per cubic foot (MPPCF) before its presence is visible in average lighting conditions.

Several years ago, it was reported that there was an increase in the incidence of cancerous tumors, especially of the lung, associated with asbestosis. Recently there have been reports of some cancers occurring in individuals exposed to asbestos dust, but who have not developed clinical asbestosis. It is believed by most authorities that these cases have been associated with exposures significantly exceeding the Threshold Limit Value.

A type of cancer named mesothelioma has been noted to be associated with asbestos exposure in recent years. These tumors, while rather few in number to date, may occur in individuals with histories of only slight exposures, and that as much as twenty to forty years earlier. There is considerable evidence that crocidolite is most frequently associated with mesotheliomas. From the data available it appears that the TLV of 5 MPPCF may not be low enough to protect against mesothelioma. Research on the problem continues.

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Control of asbestos dust exposure is therefore necessary. The control methods are the standard ones applicable to a variety of dusty operations. They include closed flow systems, wet processes where possible, and adequate exhaust ventilation where openings in the system are necessary. Pelletizing is sometimes used to improve the handling characteristics of otherwise dusty materials. Where satisfactory containment to stay within the Threshold Limit Value is impractical or impossible, efficient and reliable respirators are available for the protection of the employee. A program of environmental monitoring is highly desirable to determine that Threshold Limit Values are not being exceeded. In manufacturing industries it would be desirable to know the dust concentrations where the asbestos is dumped from bags into the process. Concentrations should also be determined where dusting occurs in finishing products. While initial dust determinations should be made at frequent intervals, once the level has been established as satisfactory, the frequency may be extended to occasional tests to assure continuation of a satisfactory condition.

Pre-employment and periodic physical examination of workers are desirable. These should include chest X-rays to insure that the worker has no chest condition prior to work with asbestos and to determine that no lung changes are resulting from work with asbestos.

It is believed that the addition of asbestos at the proposed levels during the manufacture of products would be harmless to the consumer. Total dusting would have to be well in excess of any levels acceptable to the consumer for the asbestos concentrations to approach the Threshold Limit Value.

In conclusion, while asbestos dust in excess of the Threshold Limit Value is potentially harmful, as are many other dusts encountered in industry, it is as readily controlled as other such dusts and it can be used safely with appropriate precautions.

Industrial Medicine And
Toxicology Department
Union Carbide Corporation

5/8/69

RECEIVED

APR 8 - 1970

UCC - CALIFORNIA
KING CITY, CA.

Mr. C. E. Merton
Chemicals & Plastics
2770 Leonis Blvd.
Los Angeles, Calif. 90058

Date: March 11, 1970
Original Copy: Medical Department

Answering letter date

cc: M. B. VerNooy - TT
W. J. Fitzpatrick - LA
W. G. Farrell - LA
John Meyers - King City

Subject: Toxicity of California Asbestos

Asbestos has practically no acute toxicity regardless of its type or form. The harm associated with asbestos is from the fibrogenic properties of the inhaled dust. This usually is seen only after prolonged exposure measured in terms of 15-20 years although cases rarely will occur in less time.

Because of the rather unique structure characteristics of California Asbestos, there was concern that it might be unusually fibrogenic and perhaps cause an acute asbestosis.

To test this possibility, California Asbestos was injected into rats and rabbits intraperitoneally using a standard long fibre asbestos as a control. The results of this test showed California Asbestos to be slightly more fibrogenic than long fibre asbestos but the difference was not so great as to suggest an unusual degree of hazard. From this I conclude that the same precautions to avoid breathing asbestos dust must be observed whether the dust be from California Asbestos or from a standard long fibre form.

Some people believe there is an association between exposure to asbestos dust and the development of lung cancer and mesothelioma. There is no information regarding California Asbestos in this respect as yet. It would be prudent to assume that California Asbestos will behave like other asbestos in this regard.

C. U. Bernehl M.D.

C. U. Bernehl, M. D.
Associate Medical Director

CUD:dp

A03158

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3/15/89
KIRBY A. KENNEDY
COURT REPORTER

Mr. Peter H. Weston
Union Carbide Limited
8, Abchurch Lane
London, England

RECEIVED
FEB 11 1966
FIVE

February 8, 1966

Roberts
Toxicology

Dear Peter:

Your suggestion that we consider including "UK paper industry" comments in our General Sales Meeting is well taken -- and I plan to review the notes with Ian Sayers.

As a result of your letter on toxicological studies relative to asbestos -- we have reviewed the two excerpts you sent us with Dr. Carl Fennell. He counsels that the papers "do not by any means present incontrovertible proof nor do they profess to do so." Further: "Our position should be that in United States experience there has been no increased incidence of lung cancer when the threshold limit has not been exceeded."

From past publications, we have also noted the references to organic contaminants, with the thought that proof of absence of polycyclic aromatics in Union Carbide asbestos might be useful. We are planning some extraction studies and analysis for 3,4-benzo(a)pyrene by techniques employed at South Charleston. We will let you know the results, probably in an appropriately written statement by Dr. Bernahl.

The matter of soft papers, facial and other tissues, has been a recurring subject with us. Primarily this is a question of skin sensitization. While the over-all statements by our Industrial Medicine and Toxicology people should suffice -- we have given thought to "patch tests," which, incidentally, cost appreciably to run. It would be meaningless to conduct such tests with paper containing UCC asbestos, since the other components of the furnish bear on the results. Hence we are considering patch tests using straight asbestos -- which, of course, would absolve only our product. The other components (including, as you know, a variety of organic compounds) of specific furnishes would have to be considered by the paper company involved. We shall let you know our plans.

Very truly yours,

A. E. Puschl:ck

cc: J. P. Reichard
T. F. Francke
T. F. Gray (metallist)

A. E. Puschl:ck

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PLAINTIFF'S
EXHIBIT
PW 602

A0315

PG LN ACTINOLITE*

PG LN AHERA*

PG LN AMOSITE*
193 3 with the fiber type called AMOSITE? A. Not really

PG LN AMOSITE*

PG LN ANDERSON*
173 20 of MEAGHER, GEER, MARKHAM, ANDERSON, ADAMSON,

PG LN ANDERSON*

PG LN ANPHOPHYLLITE*

PG LN ARMSTRONG*
173 8 and on behalf of Defendants ARMSTRONG World Industries

PG LN ASBESTOSIS*
186 7 , that asbestos could cause ASBESTOSIS? A. That's
186 10 type fiber which could cause ASBESTOSIS? A. At that
187 13 time believe that the disease ASBESTOSIS would not
187 21 doses that would produce ASBESTOSIS? A. At the
187 25 to produce the disease ASBESTOSIS before you
195 11 development of the disease ASBESTOSIS, it was
195 19 Calidria asbestos might cause ASBESTOSIS? A. Based
220 13 within the report that ASBESTOSIS was not a
221 4 to do with whether or not ASBESTOSIS -- the disease
221 4 not asbestosis -- the disease ASBESTOSIS and lung cancer
221 14 indicate that the disease of ASBESTOSIS is not a
235 7 have upon the development of ASBESTOSIS. Q. My
235 18 would be more likely to have ASBESTOSIS. Q. Again,

PG LN ATLAS*

PG LN AUSTIN*

PG LN	AXNESS*		
PG LN	BAKER*		
PG LN	BALANTYNE*		
PG LN	BARTON*		
PG LN	BECHTOLD*		
PG LN	BERGSTROM*		
PG LN	BIEDRON*		
PG LN	BLUE*		
203 1	for use, large numbers of	BLUE fibers -- loose	
PG LN	BOPE*		
PG LN	BRAKE*		
PG LN	BRINGEN*		
PG LN	BROWN*		
173 4	of Plaintiff.	ROBERT D.	BROWNSON, ESQUIRE, of the
174 9	Recross-Examination by Mr.		BROWNSON Page 238
175 24	have with the Doctor?	MR.	BROWNSON: Well, this is
175 25	BROWNSON: Well, this is Bob		BROWNSON. Just for the
179 22	that objection.	MR.	BROWNSON: I also object
188 25	as being leading.	MR.	BROWNSON: It's leading
189 24	and lacks foundation.	MR.	BROWNSON: I further
192 2	as being leading.	MR.	BROWNSON: I join in the
193 25	and very suggestive.	MR.	BROWNSON: I join in that
199 25	the answer stricken.	MR.	BROWNSON: Same objection
206 5	. Go ahead, Doctor.	MR.	BROWNSON: Same objection
210 17	it calls for hearsay.	MR.	BROWNSON: I join in that
212 5	here in Minnesota.	MR.	BROWNSON: Conference
212 8	POLK: Come again?	MR.	BROWNSON: What Court?
212 10	Judge Littman.	MR.	BROWNSON: That's news to

PG LN	BROWN*		
212 15	on the East Coast.	MR.	BROWNSON: So does that
212 21	with that procedure?	MR.	BROWNSON: I just want
238 13	Anybody else?	MR.	BROWNSON: I have some
238 15	MR. JONES: This is?	MR.	BROWNSON: Brownson.
238 15	This is? MR. BROWNSON:		BROWNSON.
238 18	RECROSS-EXAMINATION BY MR.		BROWNSON: Q. Bob
238 19	BY MR. BROWNSON: Q. Bob		BROWNSON representing
238 22	Q. You recall I am Bob		BROWNSON. I represent
240 9	characterization.	MR.	BROWNSON: Well, I think
240 14	, I believe, is good.	MR.	BROWNSON: The objection
240 16	MR. HARVARD: Good.	BY MR.	BROWNSON: Q. Did you
241 24	form of the question.	BY MR.	BROWNSON: Q. Go ahead
242 3	the report right now.	MR.	BROWNSON: Excuse me.
242 20	, '63, is that right?	MR.	BROWNSON: '67. MR.
242 22	I am sorry, '67.	MR.	BROWNSON: A two page
246 11	at the same time.	BY MR.	BROWNSON: Q. Doctor,
246 22	was just conducted.	MR.	BROWNSON: Are you going
247 3	I lost it.	MR.	BROWNSON: Would you read
247 25	of any hypotheticals.	MR.	BROWNSON: Objection is
248 1	is noted, Bill.	BY MR.	BROWNSON: Q. Number 1,
248 18	the question.	MR.	BROWNSON: Well, I don't
248 22	a yes or no answer.	BY MR.	BROWNSON: Q. Doctor,
249 25	to this question.	BY MR.	BROWNSON: Q. Do you
252 25	assumed to be used.	BY MR.	BROWNSON: Q. That's
253 25	or L. J. LaFrance.	MR.	BROWNSON: That's all I
254 8	very brief redirect?	MR.	BROWNSON: I have a
254 11	HARVARD: Go ahead.	BY MR.	BROWNSON: Q. Earlier,
255 1	not to answer.	MR.	BROWNSON: Well, would
255 8	him that question.	BY MR.	BROWNSON: Q. Do you
256 5	Dr. Langer's article.	MR.	BROWNSON: That's all I
258 1	On cross-examination by Mr.		BROWNSON a moment ago he
258 25	the hypotheticals which Mr.		BROWNSON asked a few
259 12	to those customers?	MR.	BROWNSON: Well, I am
260 2	less. Q. You answered Mr.		BROWNSON'S question a
261 9	vague and compound.	MR.	BROWNSON: I also object

PG LN BYRNE*

PG LN BYRNE*

PG LN CALVARAS*

PG LN CAREY*
 256 8 the attorney for Celotex in CAREY, Canada.

PG LN CARLSON*

PG LN CARPENTER*

PG LN CARPENTER*

PG LN CELITE*

PG LN CELOTEX*
256 8 , I am the attorney for CELOTEX in Carey, Canada.

PG LN CHATSWORTH*

PG LN CHESTON*
233 5 letter from Pufahl to Peter CHESTON. While you are
233 9 , do you know who Mr. Peter R. CHESTON is of London,
236 22 Dear Peter:" this is to Peter CHESTON of Union Carbide

PG LN CHRYSOTILE*
183 23 was a high purity short fiber CHRYSOTILE type. Q. Is
184 9 of it, was a long fiber CHRYSOTILE type which has
184 17 mind between a short fiber CHRYSOTILE asbestos and a
184 17 asbestos and a long fiber CHRYSOTILE asbestos in
185 16 with either Canadian CHRYSOTILE asbestos or
185 17 chrysotile asbestos or with CHRYSOTILE asbestos other
194 8 between the short fiber CHRYSOTILE such as
215 1 between short fiber CHRYSOTILE or, excuse me,

PG LN COALINGA*
183 19 sometimes referred to as the COALINGA deposit? A.
183 22 Calridia asbestos from the COALINGA deposit? A.
134 11 in the United States. The COALINGA fiber was unique
184 25 of the fibres found in the COALINGA deposit which
185 12 The Calidria ~~asbestos~~ or the COALINGA asbestos, let me
185 18 other than that found in the COALINGA deposit? A.

PG LN CONSTANS*

PG LN	CONWED*	
173 6	and on behalf of Defendant	CONWED Corporation.
227 16	asbestos fiber to the	CONWED plant in Cloquet,
227 19	that they ever sold any to	CONWED. MR. HARVARD:
227 20	HARVARD: I am sorry, it was	CONWED? THE WITNESS:
227 21	Conwed? THE WITNESS:	CONWED, excuse me. BY MR.
227 25	that asbestos being sold to	CONWED was sold in a open
228 12	salesperson dealing with the	CONWED plant in Cloquet,
233 19	Bob Brownson representing	CONWED. Doctor, can you
233 23	am Bob Brownson. I represent	CONWED. We met last week
247 20	Carbide was in fact sent to	CONWED Corporation? A.
243 3	conducted air sampling at the	CONWED plant in 1972,
243 5	should have informed	CONWED that Calridia could
243 25	conducted air sampling at the	CONWED premises in 1972.
249 1	should have informed	CONWED that Calridia
249 13	ever did make any surveys at	CONWED. Q. That's why
249 17	people would inform the	CONWED people that they
250 14	air sampling at the	CONWED plant in 1972 and
250 15	in 1972 and were asked by	CONWED whether exposure to
259 2	did do such studies at a	CONWED plant? A. Yes,

PG LN CREWSON*

PG LN	CROCIDOLITE*	
192 25	with the fiber type called	CROCIDOLITE? A. Not

PG LN CRONCIDE*

PG LN CROWELL*

PG LN CRUSEN*

PG LN	DERNEHL*	
172 17	deposition of CARL U.	DERNEHL, M.D., taken
174 14	by Mr. Polk Page 262	DERNEHL Deposition Exhibit
174 15	47 marked Page 198	DERNEHL Deposition Exhibit
174 16	48 marked Page 204	DERNEHL Deposition Exhibit
175 2	of the deposition of Dr. Carl	DERNEHL which was begun on
175 4	Union Carbide. Dr.	DERNEHL is also present.
175 9	, on telephone hookup. Dr.	DERNEHL, you were
176 3	precludes us from calling Dr.	DERNEHL as a witness at
190 1	attempted to disqualify Dr.	DERNEHL as an expert in
198 5	document? (At this time	DERNEHL Deposition Exhibit
203 23	document? (At this time	DERNEHL Deposition Exhibit

PG LN	DERNEHL*	
208 17	bears a typed name of "C. U.	DERNEHL, M.D., Associate
208 24	, I have. (At this time	DERNEHL Deposition Exhibit
209 7	signature line for C. U.	DERNEHL a signature which
218 23	. BY MR. POLK: Q. Dr.	DERNEHL, could you take a
237 5	you sent us with Dr. Carl	DERNEHL. He counsels
237 22	written statement by Dr.	DERNEHL." My question to
243 5	has previously been marked as	DERNEHL Deposition Exhibit
254 19	him nor am I aware that Dr.	DERNEHL has ever seen Dr.
254 22	he published. Absent Dr.	DERNEHL having an
255 2	agree with me, Bill, that Dr.	DERNEHL did, we spent
257 3	direct or rehabilitate Dr.	DERNEHL. I am not waiving
257 4	to further discovery of Dr.	DERNEHL. I want to make
257 10	or do anything else with Dr.	DERNEHL other than to ask
257 12	asked and answered by Dr.	DERNEHL on the record. I
257 16	further inquiry of Dr.	DERNEHL on any subject
265 9	the parties agree that Dr.	DERNEHL could perhaps sit
265 17	We would request that Dr.	DERNEHL do read and sign.
265 17	do read and sign. Dr.	DERNEHL, any changes which
267 1	MR. HARVARD: Yes. CARL U.	DERNEHL, M.D. I, CARL
267 3	DERNEHL, M.D. I, CARL U.	DERNEHL, M.D., do hereby
268 4	the deposition of CARL U.	DERNEHL, M.D., on the 10th

PG LN DIBARTOLOMEO*

PG LN DICKSON*

PG LN DOMKE*

PG LN EDMUND*

PG LN ENGLANDER*

PG LN ENGLISH*

PG LN	EXHIBIT*	
174 14	Page 262 Dernehl Deposition	EXHIBIT 47 marked Page
174 15	Page 198 Dernehl Deposition	EXHIBIT 48 marked Page
174 16	Page 204 Dernehl Deposition	EXHIBIT 49 marked Page
197 25	as Union Carbide Corporation	EXHIBIT A, and it is
198 5	this time DERNEHL Deposition	EXHIBIT 47 was marked
198 10	an opportunity to look now at	EXHIBIT 47 to this
199 19	, which has been marked as	EXHIBIT 47 to this

PG LN	EXHIBIT*	
200 3	the study that's reflected as	EXHIBIT 47 be done? A.
200 14	Q. Doctor, with respect to	EXHIBIT Number 47, have
200 15	an opportunity to review that	EXHIBIT? A. Yes, I
203 15	the Court Reporter to mark as	EXHIBIT Number 48 to this
203 23	this time DERNEHL Deposition	EXHIBIT 48 was marked
204 19	Report, that's been marked as	EXHIBIT 48, is one that
205 18	at the bottom of Page 1 of	EXHIBIT 48 and ask you to
208 13	now to mark as Defendant's	EXHIBIT 49, which is
208 24	this time DERNEHL Deposition	EXHIBIT 49 was marked
211 2	has been marked as Deposition	EXHIBIT 49, that is to say
218 4	there, the prior deposition	EXHIBITS? MR. HARVARD:
218 6	per se. I have a number of	EXHIBITS here before me,
218 10	see. It would be Deposition	EXHIBIT 32. MR.
221 11	MR. POLK: Q. Doctor, the	EXHIBIT, Deposition
221 11	, the exhibit, Deposition	EXHIBIT 32 that you have
230 6	. Referring once again to	EXHIBIT Number 32, that's
230 21	, again referring to that same	EXHIBIT, you will see in
231 12	the first paragraph of that	EXHIBIT, you will see that
239 2	think has now been marked as	EXHIBIT 49, do you see
241 8	, to what's been marked as	EXHIBIT 48, which is the
242 16	ask that we pull out. It was	EXHIBIT 33, the letter of
243 6	marked as Dernehl Deposition	EXHIBIT 33, you make the
264 2	what we are going to do with	EXHIBIT 49, the signed or

PG LN FOURDRINIER*

PG LN	FREHSE*	
172 5		Arthur A. FREHSE, and Helen J.
172 6	A. Frehse, and Helen J.	FREHSE, husband and wife,

PG LN	FRI*	
213 9	believe you had lunch with my	FRIEND here, Mr. Laura?
257 1	is my understanding from last	FRIDAY that we were going

PG LN GAFFNEY*

PG LN GASKET*..

PG LN GENDRIV*

PG LN	GIAMBRUNO*	
PG LN	GLIDDEN*	
PG LN	GREENHALGH*	
PG LN	GROGAN*	
PG LN	GUYER*	
PG LN	GUYER*	
PG LN	HALL*	
218 15	memorandum written by Thomas	HALL. MR. HARVARD:
221 2	of the two pages of Dr.	HALL'S letter dated
230 7	the letter now that Dr.	HALL wrote? A. Yes.
230 14	producing report was Dr.	HALL referring to? A.
230 21	see in Paragraph 2 that Dr.	HALL is suggesting that he
231 13	, you will see that Dr.	HALL refers to several
242 17	letter of June 7, 1967 to Dr.	HALL from yourself.
243 5	letter of June 7, 1967 to Dr.	HALL, which has previously
PG LN	HALLA*	
PG LN	HAMMOND*	
PG LN	HANSON*	
PG LN	HARAYDA*	
PG LN	HAUN*	
PG LN	HELLA*	
PG LN	HELOCK*	

PG LN HENSHAW*

PG LN HILL*

PG LN HIRSCHORN*

PG LN HOLLOWAY*

PG LN HOLMES*

PG LN HOOKER*

PG LN HOROCKA*

PG LN HULL*

PG LN INGALLS*

PG LN JENKINS*

PG LN JEROME*

PG LN JOHNS-MANVILLE*

PG LN JOHNSON*

PG LN JOYNER*

PG LN JUNTTI*

PG LN KANELL*

PG LN KCAL*

PG LN KEENE*

173 9 Inc., GAF Corporation, KEENE Corporation,

PG LN KENDALL*

PG LN KENDALL*

PG LN KETCHAM*

PG LN KETCHUM*

PG LN KING*

183 14 mined by Union Carbide at KING City and also
183 15 City and also processed at KING City. Q. Is King
183 16 at King City. Q. Is KING City in California,
194 19 X-rays which were taken at KING City, California, of
194 25 work for Union Carbide at the KING City facility where
195 16 and milling asbestos at the KING City facility, did
196 5 who were monitored at the KING City facility had
226 13 Q. On your plant visits to KING City, California?
226 16 plant visit that you made to KING City, California was
227 3 from the inception of the KING City mill? A. I

PG LN KING*

PG LN KINKEAD*

PG LN KOZACIK*

PG LN KOZACIK* _____

PG LN KROOL*

PG LN LAFRANCE*

253 24 B. W. McDaniel or L. J. LAFRANCE. MR.

PG LN

LAMINAR*

PG LN

LANE*

204 11

of them. Sometimes Dr.

LANE was involved, this
LANE more active than you
LANE, if you know? A.
LANE with consultation on
LANE report only those

204 13

than I was. Q. Was Dr.

204 21

was drafted personally by Dr.

204 23

was drafted personally by Dr.

205 7

reports, did you and Dr.

PG LN

LANGER*

196 13

asked about a study by a Dr.

LANGER dealing with
LANGER'S article that we
LANGER'S research on
LANGER'S research in front
LANGER'S research, nor in
LANGER reached in the
LANGER article last week,
LANGER'S study of the
LANGER'S article. MR.

254 13

had asked you about Dr.

254 15

you sit here today, that Dr.

254 18

The Doctor doesn't have Dr.

254 20

Dr. Dernehl has ever seen Dr.

254 21

a copy of the conclusions Dr.

255 3

doing it, he did read the

255 10

I showed you about Dr.

256 4

and correctness of Dr.

PG LN

LEE*

PG LN

LEE*

PG LN

LENANDER*

PG LN

LUDWIG*

PG LN

MANISTO*

212 3

call with the Court on the MANISTO case at 3:00 here

PG LN

MANKA*

PG LN

MANKO*

PG LN

MARSH*

PG LN	MARTIN*	
210 2	that I wrote to a Mr. C. E.	MARTIN. Q. Do you
PG LN	MCCARTHY*	
PG LN	MCCUNE*	
PG LN	MCCUNNEY*	
PG LN	MCDANIEL*	
253 23	I would assume either B. W.	MCDANIEL or L. J. LaFrance
PG LN	MCGARY*	
PG LN	MCGUILLIVRAY*	
PG LN	MCJILTON*	
PG LN	MCLEAN*	
PG LN	MCNEIL*	
PG LN	MEDFORD*	
PG LN	MELLON*	
197 15	which was accomplished at the	MELLON Institute in
199 8	Carbide Corporation at the	MELLON Institute? A.
199 16	a July 1966 report from the	MELLON Institute which is
199 17	and had conducted at the	MELLON Institute. As you
199 20	having been conducted at the	MELLON Institute at Union
PG LN	MESOTHELIOMA*	
191 1	a medical condition called	MESOTHELIOMA. Do you
191 7	fiber Calidria asbestos and	MESOTHELIOMA? A.. I was
191 12	findings with respect to	MESOTHELIOMA. Do you
191 24	fiber Calidria asbestos and	MESOTHELIOMA at that point
192 14	fiber Calidria asbestos and	MESOTHELIOMA? A. I
192 16	had been any work done with	MESOTHELIOMA resulting

PG LN	MESOTHELIOMA*	MESOTHELIOMA?	A. Any
192 20	other long fiber asbestos and	MESOTHELIOMA and exposure	
192 22	had been demonstrated between	MESOTHELIOMA and any	
193 8	had been established between	MESOTHELIOMA?	A. There
193 17	other than asbestos causes	MESOTHELIOMA reported in	
193 18	A. There have been cases of	MESOTHELIOMA that you have	
193 20	Q. Are there also cases of	MESOTHELIOMA among	
194 3	. A. The early history of	MESOTHELIOMA?	A. I
194 8	such as Calidria and	MESOTHELIOMA is caused?	
194 15	literature, exactly how	MESOTHELIOMA tumors	
200 11	question of whether cancer or	MESOTHELIOMA?	A. I
213 20	fiber Calidria asbestos and	MESOTHELIOMA?	Just did
214 13	fibered Calidria asbestos and	MESOTHELIOMA?	MR.
215 2	the disease process known as	MESOTHELIOMA.	There is
239 6	of lung cancer and	MESOTHELIOMA?	A. No.
239 17	asbestos may very well cause	MESOTHELIOMA could be	
240 18	, as of March 31, 1970 that	MESOTHELIOMA could be	
241 3	31, 1970 did you believe that	MESOTHELIOMA."	Do you
241 16	low enough to protect against	MESOTHELIOMA?	A. No, I
242 12	value to prevent against	MESOTHELIOMA.	I have no
243 10	for the prevention of	MESOTHELIOMA?	MR.
243 18	would be effective to prevent	MESOTHELIOMA?	A.
244 10	limit value would prevent	MESOTHELIOMA?	A. No, I
244 19	per cubic foot would prevent	MESOTHELIOMA?	MR.
244 24	per cubic foot would prevent	MESOTHELIOMA?	MR.
245 8	limit value would prevent	MESOTHELIOMA as of August	
246 4	that include the hazard of	MESOTHELIOMA must have	
246 5	as of August of 1972? A.	MESOTHELIOMA?	MR.
246 15	that Calidria could cause	MESOTHELIOMA so there is	
247 10	Calidria asbestos would cause	MESOTHELIOMA?	MR.
248 6	Calidria could possibly cause	MESOTHELIOMA.	Q. So
248 13	Calidria asbestos could cause	MESOTHELIOMA?	MR.
249 3	limit value could cause	MESOTHELIOMA?	MR.
261 6	diseases as lung cancer or		

PG LN MILLIPORE*

PG LN MONTEROTTI*

PG LN MOSTROM*

PG LN MUHLE*

PG LN MUMPTON*
PG LN MURRAY*
PG LN MYERS*
PG LN NALE*
PG LN NAUMANN*
PG LN NEENAH*
PG LN NESS*
PG LN NIOSH
PG LN NORRIS*
PG LN PADUCAH*
PG LN PALKIE*
PG LN PALMER*
PG LN PANAK*
PG LN PATTERSON*
PG LN PCM*
PG LN PEELE*

PG LN	PERLITE*
PG LN	PETERSON*
PG LN	POZZANI*
PG LN	PROSE*
PG LN	RAZINSKI*
PG LN	REICHARD*
PG LN	RHODES*
PG LN	RINNE*
PG LN	ROHL*
PG LN	ROSEN*
PG LN	SATTER*
PG LN	SATTER*
PG LN	SAYERS*
237 2	to review the notes with Ian SAYERS. 'Apropos of
PG LN	SCHIEFER*
PG LN	SCHWAHN*
PG LN	SCHWAHN*

PG LN SELIKOFF*

PG LN SEXTON*

PG LN SIMS*

PG LN SKOGLUND*

PG LN SLEEVE*

PG LN SMITH*

PG LN SMITH*

PG LN SORENSON*

PG LN SPAFFORD*

PG LN SPENCER*

PG LN STACK*

PG LN STERIOSCOPE*

PG LN STERLING*

PG LN STOBÆUS*

PG LN SYKORA*

PG LN TEM*

PG LN	THOMPSON*	
PG LN	THURBER*	
PG LN	TIMBRELL*	
PG LN	TLV*	
240 19	below the then existing	TLV or threshold limit
241 14	available it appears that the	TLV of five million
PG LN	TOOKEY*	
PG LN	TREMOLITE*	
PG LN	TUFFLEX*	
PG LN	UCAR*	
PG LN	ULTRABESTOS*	
PG LN	UNION*	
173 10	Inc., Turner & Newall PLC,	UNION Carbide Corporation
173 13	and on behalf of Defendant	UNION Carbide Corporation
173 15	and on behalf of Defendant	UNION Carbide Corporation.
175 4	. We are here representing	UNION Carbide. Dr.
178 15	about your background with	UNION Carbide, is that
178 20	, what year did you begin with	UNION Carbide? A. 1947
178 24	what your positions were with	UNION Carbide for purposes
178 25	. When you began with	UNION Carbide you were the
179 1	were the medical director of	UNION Carbide's Texas City
180 17	Doctor, when you worked for	UNION Carbide Corporation,
180 24	in time, if you recall, did	UNION Carbide Corporation
181 7	majority of chemicals that	UNION Carbide sold. Q.
181 8	Carbide sold. Q. When	UNION Carbide prepared
181 16	, Doctor, which part of the	UNION Carbide Corporation
181 17	or which division of	UNION Carbide Corporation
182 4	chemical marketed by	UNION Carbide Corporation,
182 10	medical director for	UNION Carbide, then
182 13	that were being marketed by	UNION Carbide Corporation?
183 1	the toxicology -- members of	UNION Carbide concerned
183 14	short fiber asbestos mined by	UNION Carbide at King City

PG LN

134 4

184 25

196 5

190 16

193 16

194 20

194 24

195 2

195 15

195 25

196 4

196 18

196 20

197 1

197 10

197 24

199 7

199 17

199 21

200 6

200 7

200 22

204 7

204 9

205 22

206 2

206 22

207 9

207 25

208 1

208 15

212 13

213 17

213 22

213 25

214 10

214 23

215 10

216 9

217 23

219 10

219 22

220 4

225 13

227 9

227 13

227 15

228 4

228 5

UNION*

from your perspective when
in the Coalinga deposit which
us that when you began with
in the medical department at
associate medical director at
City, California, of then
employees coming to work for
was mined and milled? A.
, at that point in time when
it did or did not. Q. Did
at the time you retired from
which he had obtained from
, was it your experience at
Q. What was the policy at
came to your attention which
the Court Reporter to mark as
which was commissioned by
which is the only study which
at the Mellon Institute at
that was a study requested by
A. It would have to be from
, what did they tell you as a
differently. Who at
chemicals distributed by
information of the type that
or marketing personnel at
Was it your experience at
in the medical department of
. Q. Are you aware of
-- Doctor, are you aware if
which states at the top "
some issue that I have with
Doctor, at the time you left
Doctor, at the time you left
Doctor, at the time you left
Doctor, at the time you left
Doctor, at the time you left
at the time you retired from
with any of the attorneys for
the medical director for
appears on that letter that
that report indicates that
of that report, in your mind
And presently with you are
asbestos fiber was sold by
that would indicate when
Q. So you don't know if
, what studies, if any, did
, to your knowledge, on

UNION Carbide began
UNION Carbide was
UNION Carbide in 1947 you
UNION Carbide. Q.
UNION Carbide, as to
UNION Carbide employees.
UNION Carbide at the King
UNION Carbide had a
UNION Carbide began mining
UNION Carbide continue to
UNION Carbide in 1979
UNION Carbide? A. I.
UNION Carbide that you
UNION Carbide, stated or
UNION Carbide refused to
UNION Carbide Corporation
UNION Carbide Corporation
UNION Carbide had
UNION Carbide's request?
UNION Carbide to be
UNION Carbide. Q.
UNION Carbide medical
UNION Carbide was
UNION Carbide? A.
UNION Carbide knew it says
UNION Carbide Corporation?
UNION Carbide that when
UNION Carbide ever receive
UNION Carbide or -- Doctor
UNION Carbide ever refused
UNION Carbide Internal
UNION Carbide regarding
UNION Carbide in 1979 did
UNION Carbide Corporation
UNION Carbide Corporation
UNION Carbide Corporation
UNION Carbide in 1979 did
UNION Carbide Corporation
UNION Carbide other than
UNION Carbide, is that
UNION Carbide recognized
UNION Carbide, as of the
UNION Carbide did not
UNION Carbide attorneys
UNION Carbide? A. At
UNION Carbide ceased
UNION Carbide sold open
UNION Carbide perform, to
UNION Carbide asbestos

PG LN	UNION*	
234 5	to February 3 of 1966, that	UNION Carbide's, "Position
236 22	:" this is to Peter Cheston of	UNION Carbide Limited, 3
241 19	me that at least according to	UNION Carbide's Asbestos
241 20	of May 8, 1969 someone at	UNION Carbide believed
242 23	A two page letter on	UNION Carbide stationery.
244 21	you believe that as of 1967	UNION Carbide should have
245 5	that as of June of 1967	UNION Carbide should have
245 17	, that as of August of 1972	UNION Carbide Corporation
246 12	you believe that as of 1967	UNION Carbide should have
247 19	toxicology report from	UNION Carbide was in fact
248 2	BROWNSON: Q. Number 1, if	UNION Carbide personnel
248 4	, Doctor, do you believe those	UNION Carbide industrial
248 24	. Assume hypothetically that	UNION Carbide personnel
249 1	1972. Do you believe those	UNION Carbide personnel
249 12	I know of no evidence that	UNION Carbide people ever
249 16	. A. I would expect that	UNION Carbide people would
250 1	you believe, Doctor, that if	UNION Carbide personnel
250 13	. Do you believe, Doctor, if	UNION Carbide personnel
250 23	question. Q. If those	UNION Carbide personnel
250 25	in August of 1972 who within	UNION Carbide could they
253 14	. Q. Do you know if	UNION Carbide at any time
253 21	. Q. Do you know who at	UNION Carbide would have
257 2	deposition so as to afford	UNION Carbide the
257 11	those questions which I find	UNION Carbide wanted asked
257 25	am Bill Harvard. I represent	UNION Carbide along with
258 6	, which were prepared by	UNION Carbide Corporation,
258 10	. Q. Were they required or	UNION Carbide to provide
258 12	business relationships with	UNION Carbide, if you know
258 16	of other chemicals, marked by	UNION Carbide provided to
258 21	not have been accomplished by	UNION Carbide personnel at
259 1	something had happened where	UNION Carbide did do such
259 4	, I recall those. Q. Was	UNION Carbide Corporation
259 9	. Q. To the extent that	UNION Carbide may have
259 17	. Do you know whether	UNION Carbide in fact
261 22	ago covering your time with	UNION Carbide, is that
264 19	know what else it was that	UNION Carbide did or how

PG LN VESSEL*

PG LN VIDEEN*

PG LN VU*

PG LN WALDER*
PG LN WALDER*
PG LN WALDER*
PG LN WALSH*
PG LN WAPPES*
PG LN WEIL*
PG LN WELBES*
PG LN WELSH*
PG LN WEYERHAEUSER*
PG LN WICKMAN*
PG LN WILLARD*
PG LN WILSON*
PG LN WOLFF*
PG LN WOMPUS*
PG LN WOOLERY*
PG LN WRAP*

PG LN

YOUNG*